digit

MOBILE REVIEW

SAMSUNG GALAXY Z FOLD 4

GEEKIFY
EVERYTHING

Digit's guide to help geekify your life

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SCI
ORIGINS OF LIGHT SWITCHES, EVOLUTION OF MARS ROVERS

CULT
BOO-MAN: FAN THEORIES, LO-FI MUSIC: FOOD FOR THE MODERN SOUL

A revamp, of sorts

REMEMBER THE VERY BASIC DIAGRAM OF HOW A COMPUTER WORKS? We were taught that in the very first 'introduction to computers' classes back in school. For me it's been more than 25 years but the diagram is still fresh in my mind – three rectangles placed side-by-side from left to right with little interconnects between them. The first being the input, the last being the output and the middle rectangle would be further sectioned into CPU and Memory. The CPU would again be sectioned into Control and the ALU. Minor variations of this diagram have been taught to practically everyone who's gone through a formal education system but not a lot of people know it as the Von Neumann architecture. This was introduced to the world in 1945. That was 77 years ago. And now, we might be looking at completely changing the way we organise computers.

It's remarkable that the Von Neumann architecture has remained valid for so many decades. Much like how Moore's Law has more or less been applicable for transistor density after all these years. And now, just like Moore's Law, even the Von Neumann architecture is being relooked at for an overhaul.

The problem is AI. And to be more specific, the amount of data that AI needs to be trained properly. The Von Neumann architecture was designed with the assumption that all the elements of computing would scale at more or less the rate over time. The processing capability of the computing cores within processors have grown by leaps and bounds and the buses or the interfaces that do the job of moving data to and fro from the storage have also scaled tremendously. We've seen different types of computing cores being designed as well. Some for very specific purposes and others being very general-purpose. The desktops and laptops that we use have these general-purpose cores whereas the graphics cards and FPGAs are very purpose-built. The Von Neumann architecture is how all of these devices were designed. Even ASICs, which are an extreme version of purpose-built computers, still follow the Von Neumann architecture. Every workload that needed a computer to handle, did not require folks to rethink this very basic design. And then came AI…

AI workloads are heavily parallelised tasks that need to be executed rapidly. Whether you're training an AI model or deploying it into production, the amount of data that it needs to churn so that it can generate an output is tremendous. Especially when the data being fed are images and videos which are inherently massive in size compared to plain text. Either the buses that move the data around need to speed up or data needs to move closer to the computing cores. Both approaches can be realised using the Von Neumann architecture.

Purpose-built AI training servers come with ridiculous amounts of memory and super-fast interfaces. For example, the current gen NVIDIA DGX H100 system, an extremely popular system for training and deploying AI, comes with 2 TB of system memory and the bandwidth of the interfaces is up to 400 GB/s. The average PC comes with 8 GB of memory and 32 or 64 GB/s interfaces. It's not that the speed or the capacity isn't enough, it's the cost of fetching data from the memory to the computing cores.

Moving two pieces of data costs close to 700 times the energy as multiplying the very same two pieces. With small amounts of data, this 700x factor is barely noticeable. But when you're training AI models, then a ridiculous amount of energy is spent just in fetching data and sending it back. This is where the compute cores, that everyone likes to harp about, needs to take a back seat. And the memory takes centrestage. In Memory Computing, the next major step in computing will have compute cores and memory getting clubbed together.

Some of these approaches are already available. Samsung has merged their compute cores with memory and they're calling it PIM. And then there are companies such as Mythic which have processors with massive amounts of memory within the SoC. Both of these approaches leave very little scope for other compute cores to be attached. We could see a form of vendor lock-ins creeping into the computers being built for AI. Although, it will be ages before the normal laptops and desktops that we use get affected in any way.

Sure, the 'AI' processing element within processors might change a little or we might see memory chips being tacked onto the processors but the Von Neumann architecture will very much be valid. **d**

> "It's remarkable that the Von Neumann architecture has remained valid for so many decades. Much like how Moore's Law has more or less been applicable for transistor density after all these years."

Let me know your thoughts on this column at:
@mithun_mohandas | mithun@digit.in

THE BEAST THAT TAKES OVER YOUR MIND

If you have biking on your mind 24/7, you're looking at your match. One look at the all-new Pulsar 250, and you can feel all five of your senses devouring it. Right from the design, aesthetics, striking details to the riding comfort, handling and pick-up, everything is worth your attention. Don't believe us? Well, we insist you take a closer look and let your mind make the decision for you.

Artificial existentialism

EARLIER THIS MONTH, I CAME ACROSS THE TERM 'ALGORITHMIC ANXIETY' WHEN I CHANCED UPON IT ON THE INTERWEBS. According to a recent article in The New Yorker, Shagun Jhaver, a scholar of social computing, helped define the phrase in 2018. It's meant to describe an unpleasant, irritating and fundamentally inauthentic feeling associated with navigating anything and everything online. Nevertheless, it got me thinking – how can algorithms cause online anxiety?

The larger reality about the phenomenon seems to be something like this: From browsing your Facebook feed and Instagram Reels to scrolling through Google's search page results, looking at recommendations on Amazon while buying something online to swiping right on Tinder (or any other recommendation-based app), algorithmic anxiety is slowly but steadily reaching an overwhelmingly inescapable level. That you find yourself to be a passive observer to a lot of content that's bombarded at you all the time, a curation of recommendations based on various factors (including your past online activity).

This feeling of minimal active stimulus resulting in an overwhelming avalanche of content being fed to you, and your constant consumption of such types of automated and algorithmically determined online information, is the root of this new kind of anxiety. You open Instagram and Facebook to no longer look at updates from your friends but see increasingly what these social media platforms want you to see in order to keep you hooked onto the app for longer durations of time (that's how they make money, with increased user retention). You don't feel in control, you feel at the mercy of big tech platforms deeply entrenched into the very fabric of everything you see and respond to online, trying to manipulate you in ways we don't even fully understand yet.

However, does this really come as a surprise to anyone? That recommendation engines powered by artificial intelligence would get more sophisticated and widespread, giving us more tailored suggestions to stuff we otherwise would never have found ourselves? I acknowledge that it's a problem, but not to the level of an existential threat; where it's causing anxiety and online grief. In fact, I'd go even so far as to say that recommendation engines of any online service you can think of plays an important and irreplaceable role in our online experiences. If I'm casually browsing the internet, I don't get anxious or tense about every little online advertisement or recommended stuff Google or Amazon is trying to throw on my laptop screen. When I visit Twitter or Facebook, I know it's next to impossible for me to find out and keep up with everything that's happened on the platform since I went to sleep at night. You can't do that for any popular online destination you visit. I'm not really bothered by how information is presented to me as long as it serves one core purpose – which is discovery of content.

For example, we all now know that searching for a product on Google, Facebook or Amazon will result in ads of similar products that 'follow you' across different apps and websites. I'd compare it to walking through a flea market or shopping street, with hawkers and store owners deploying all sorts of techniques to get you to buy their wares. Irritating and annoying, sure, but enough to cause anxiety? I'm not so sure. Of course, I'm oversimplifying the situation, and online recommendation engines can feel far more oppressive and inescapable compared to a shopping street that you don't necessarily visit everyday. However, without algorithms 'curating' experiences for you in some small way as a starting point for your daily online journey, navigating the vast expanses of the internet would simply be impossible. Yes, it's annoying when Netflix doesn't give me the power to see everything I can watch in its content library, but not knowing what to search for I find its recommendation engine absolutely amazing when it comes to discovering new movies and documentaries similar to my taste. You can draw that parallel to the rest of the internet at large and decide for yourself what you'd want more often than not.

As long as you accept that discovering new content on Facebook, Instagram, Twitter, LinkedIn, Google, Reddit, Quora, Medium, Pinterest, Netflix and more, is impossible without recommendation-based algorithms, I think that realization itself is enough to set you free, as it's a powerful self-revelation. A lightbulb moment that empowers you more than it would cause you anxiety, I'd imagine. It would even force you to take some time off the internet and spend more time in the real-world again. Wouldn't that be something? **d**

> "You open Instagram and Facebook to no longer look at updates from your friends but see increasingly what these social media platforms want you to see in order to keep you hooked onto the app for longer durations of time..."

Let me know your thoughts on this column at: jayesh.shinde@digit.in | @jshinde

Re-watch

A VERY LONG TIME AGO, JULY 1995 TO BE MORE PRECISE, I GOT MY FIRST EVER "EXPENSIVE" BIRTHDAY PRESENT FROM A FRIEND OF MY FATHER. It was a designer watch, limited series from perfume and tobacco product giant Davidoff. I can't even find photos of the watch on the internet, that's how old it is, and possibly also a measure of the watch's limited popularity.

I'd owned watches before, of course, but usually the cheapest of the cheap ones, which wouldn't even last a year. This one I was super-thrilled by, despite not really liking the feel of a watch. It had a rotating bezel/dial, something my simplistic watches before this had never had, not that I had much use for the feature. It felt heavy on my wrist, the brushed silver look was not blingy, (I hate blingy things). It was perfect.

Four or five days after my birthday, I was walking out of a friend's house, and he had a grill gate. Somehow my watch got stuck between the grill, and long story short, I broke my precious watch, and it was unfixable locally since it came from the UK.

To add injury to insult, as most 80s/90s Indian kids know only too well, the real punishment happens when you get home because our parents were all, let's say, avid believers in the merits of using corporal punishment to discipline us. Boy did I get a sore spot or twenty for being so careless. That's the last watch I ever owned. Until now.

I'm pretty sure everyone else in Team Digit has had a fair bit of experience with smartwatches and fitness trackers, and here I am, the old fogey who hasn't worn anything on his wrists for the past 27 years. Even my wife and mother-in-law were early adopters of the Apple Watch, and have kept telling me to get one. There are only so many times you can hear the phrase, "Come on, you work for the biggest tech media brand in India and you have never had a smartwatch". So I finally took the plunge.

I bought the new Samsung Galaxy Watch5 Pro because I'm an Android user, and Apple still stubbornly refuses to allow its devices to work cross platform… but that's a rant for another time. Honestly, I don't even know what to expect of it. For starters I hope it lasts me more than 5 days (or more than 5 months for that matter!), or else it will certainly be the last watch I ever buy!

I do have experience with Apple's watches, because I had to set them up for the family members who own them, and had to read up about them before buying them. Plus, I have more than enough experts in Team Digit to help out. I'm told that I will like the new watch from Samsung, because it is touted to be a huge improvement over the last one, with some opinions going as far as saying it might finally bridge the gap between itself and the Apple Watch. So yes, I'm an early adopter of the new model, but I'm told I took a pretty safe gamble.

However, you know how excited people (including me) get when they get a new gadget? They rush to open it – absolutely love the ripping open of the plastic packaging, and live for the final reveal when you pull it out of the box. As I write this, it's been over 12 hours since it was delivered, and I still haven't touched the box.

Part of me is still thinking maybe I should just return it, it's not cheap for starters, and I could get another SSD to add on even more storage to my PC. Or just save the money towards the PC upgrade cycle that I will soon want to begin – as soon as the next gen GPUs are released, probably.

Then again, it also bugs me that there's this entire aspect of tech that I have totally missed out on, all because of a weird quirk I developed after breaking something I really liked. I'll probably open the packaging soon and take the plunge.

Not only will I take the plunge, but I'm diving in at the deep end. I'm going to review the Samsung Galaxy Watch5 Pro using our full test process, which will take care of the objective tests. However I will also write about my experience from the perspective of a total n00b. I'll publish the results on digit.in and in next month's mag. So, if you're interested in reading about how I fumble my way through using my first watch in nearly 30 years then watch this space.

PS: I also wanted to thank all of you, and the millions of others who visit us on digit.in. Thanks to your hunger to know more about tech, digit.in was the most visited technology site in the country on a mobile, as per the premier traffic ranking service Comscore, for the month of July 2022. (Source: Comscore Mobile Metrix July 2022). Yay! d

"**I'm pretty sure everyone else in Team Digit has had a fair bit of experience with smartwatches and fitness trackers, and here I am, the old fogey who hasn't worn anything on his wrists for the past 27 years.**"

Liked or hated this column? Let me know at: robert@digit.in | facebook.com/raaabo | @raaabo | t.me/ digitgeek | discord.gg/ mYD8XVt | WhatsApp: +91 98211 69631

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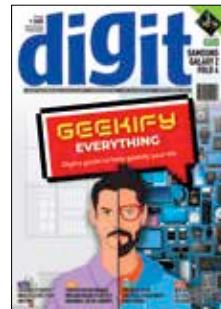
PRODUCTS REVIEWED THIS MONTH
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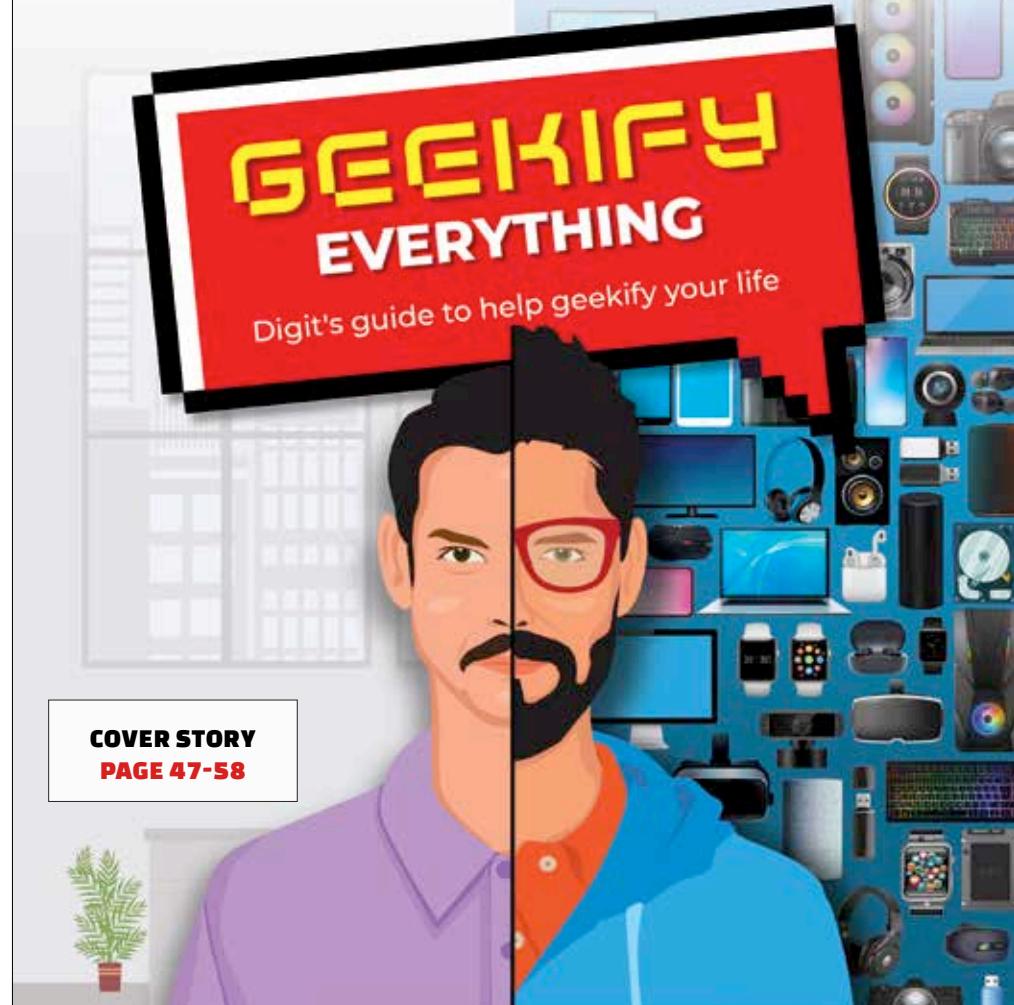
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Geekify Everything

This month, we decided to spread the geekiness that lingers in abundance through the corridors of Digit and let you guys in on some tips and tricks that will help you Geekify Everything!

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>> **FEEDBACK FOR THE AUGUST 2022 ISSUE**

Send feedback to **magazine@digit.in** | join us on telegram - **t.me/digitgeek** | or on discord - **discord.gg/mYD8XVt**

Hi, just wanted to let you guys know that I really appreciate the new AMD config section you guys have added as it adds a lot of value to the AMD users but please don't just copy-paste the Intel configs subtotals and totals onto the AMD's as it misleads the customers. For example, even tho the AMD basic rig is more than 8k less than the Intel rig you guys have given the same total and subtotal. Now many people who just tend to see the subtotals and totals might have been misled in this case. I suggest you guys make these corrections in the next issue.

Thank you!

–Anvith Hegde

Apologies for the error. Looks like the Excel formula wasn't copied correctly. We've fixed that in the current issue. Also, glad to hear that the new additions to the config section are helpful.

–Mithun

Hi Jayesh,
This is Aishwarya, a third year student of B.A. (Psychology). I live far from my family for my education. I am writing to you after reading your article in Digit. I just loved it! It was so on point and your personal experience added the perspective of a teenager (or probably a person in his/her late teens, just started to earn). After reading the article, I made a list of my expenses and decided to chip off unnecessary ones. The article was something like my parents would tell me through their experience. Hope to read more such articles from you.

–Aishwarya Bhatia

Hi Aishwarya,
Thank you for your email in response to my column. I am glad it helped you!

---

digit diary

If you are ever curious about what the **Digit gang is up to**, this is the place to get all the inside info. From the **latest game we're obsessing about** to the newest intern we're driving up the wall – it's all here folks.

It's been one of those months that go by incredulously quick, yet somehow take forever to come to an end.

The team began the month with a spontaneous Digit Back-issue Roundup. (Is that really what we call it? ~Manish) The DBR is a social event which involves the last few generations of Team Digit dressing up in black robes and gathering around a sacrificial fire to make Machiavellian plans for the future of tech. The talk was unceremoniously interrupted by an android assassin sent by Ali from 2042. The incident would have been a spoke in our machinations, but our own Paranoid Android was prepared for the situation.

That said, if you guys haven't seen much of Manish in videos recently, it's because his recent rollerblading trip to Goa earned him a busted lip, which is healing up to form a pretty badass scar. In the gaming side of things, Mithun and Prakrit have pulled the team into Dota 2. Our new initiate, Satvik, proved to be a legend-ary feeder the likes of which we've never seen before. On the 'plus' side, his new account has a complimentary two-month Dota Plus subscription, so the Assistant may help him improve his game.

We got our hands on a few NERF guns from Hasbro this month. So Manish may not be the only one with injuries soon. More on that next month. We're planning another IKEA raid for Digit Studios soon. An announcement that had our accounts department scrambling to batten down the hatches. On a related note, our new studio has officially been christened 'The Attic' (for reasons too juvenile to mention on a public forum) and shall be referred to as such in future editions of the Diary.

QUOTE OF THE MONTH

"How do I attack them?"

— Satvik, playing Dota 2

And yes, it did make me smile. Best wishes to you!

–Jayesh

Hi,
I have been a Digit reader since almost the beginning, around 2006 or so. While initially the first issues used to be read in the school library, sometime later it became a book that I had to get my hands on somehow. I used to save money to buy issues of the magazine from a shop in the university campus during my bachelor days. I have quite a collection of the posters and the Dmystify issues still. While the magazine was tech-based, as an aspiring astrono-mer, I always looked forward to the articles about space sciences and astronomy in every issue. I am now actually an astronomer and have worked on missions like JWST, and MOM. I still look forward to reading your articles in the same section. This magazine has been not only a source of knowledge in the domain of tech/accessories, but also in the technical knowledge about concepts, methods, and some nifty tips and tricks as well. And yeah, there's always the editori-als written by you guys, and thecool posters. I literally badgered my hostel office to get this magazine subscribed for the hostel book shelf as well! I hope I keep seeing new content from you guys, always. I do have a request – a short article about how Indian astronomy is not only catching up, but is setting the pace for the future.

Again, thank you for being a part of my journey for so long, and in the future.

–Keshav Aggarwal

Hey Keshav,
Thank you for being an avid reader, we thoroughly appreciate it! As for science articles, stay assured that they aren't going anywhere as long as the magazine is running. We will definitely try creating something around it soon!

–Satvik

Letter of the Month

Hi Team Digit,
First of all Happy Independ-ence Day to everyone. It has been 75 years since we got our freedom from British colonial rule and India has marked enormous development in each and every aspect/field be it po-litical social economical or cultural. The fact can't be denied that tech-nological advancements has played a pivotal role in our progress. Our Indian scientists, researchers, econo-mists, entrepreneurs worked day and night to solve problems of our nation with the help of technologies such as India power crisis which is about to get resolved by introducing unconventional techniques like so-noluminescence and piezoelectricity combined with the spread of renew-able sources ending power deficiency of India for one and for all.

Now India has become World's largest exporter of milk, jute and sug-arcane as a consequence of the White and Green revolution which aimed at implementing technology such as HYV seeds, fertilizers in agriculture as well as pasteurization and refrigeration in dairy farming.

Being a potential candidate for becoming a superpower, India also excels in the field of space research and military advancements and the credit goes to organizations like ISRO renowned for its MOM and Chan-drayaan Missions & DRDO for its Agni Missiles INS Vikrant and Arjun Tanks helping India to combat all sorts of threats be it on land or space.

The country has been gifted with tons of brilliant minds eager to serve the nation. Even during the pandem-ic, start-ups such as Bharat Biotech, Noccarc and Nanoclean provided state of the art homemade cures such as Vaccine, Ventilators and respira-tors to the nation.

Lastly the Government of India aimed at Digital India Mission in order to accelerate growth & develop-ment of nation and has helped in rais-ing digital awareness among the citi-zens. The pandemic scenario made digitization the need of the hour for all sorts of tasks be it Work from Home, Online Classes, E-shopping or just watching Netflix. Even the manufactures have started taking advantage of this situation by manipulating innocent Indian consumers through marketing gimmicks and confusing them by releasing plethora of devices every day Here's where Digit Maga-zine comes to rescue by informing its readers of such gimmicks and guid-ing them to choose best possible tech as per their needs making them take wiser decisions.

here are some of my suggestions for your magazine:
1) I would only suggest adding a column to promote netiquettes among the digit readers.
2) Kindly resurrect gansta granny as all skoar readers miss her really hard
3) Also add a column recommending list of gadgets for specific occasions such as staycations trekking etc

–Mohammad Danish Khan
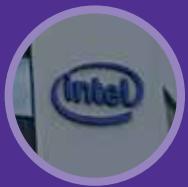
Hey Danish,
Happy Independence Day to you too! It is always a pleasure to get hear from readers like you, and it fills us with immense joy and pride that we are able to do our part in adding to our readers' lives in every which way possible. Yes, India is taking huge steps towards becoming even more techno-logically able, As far as your sugges-tions are concerned, stay assured that they have duly been noted.

–Satvik

YOU WIN MYSTERY GIFT

THIS MONTH IN TECH: We look into the origins of logic gates and take a deep dive into India's 5G spectrum auction. We also pitted the Pixel 6a, Nothing Phone (1), and the Oppo Reno 8 Pro against each other to find out which one was the best camera phone!

Intel Meteor Lake chip delayed

A report has said that the mass production of chip-maker Intel's next big flagship processor, Meteor Lake, is expected to be delayed until 2024. Intel plans to outsource the tGPU chipset in Meteor Lake to TSMC for manufacturing.
https://dgit.in/ NoBlueChip

Samsung to release its foldable tablet soon!

The Korean smartphone manufacturer, Samsung, who seems to be single-handedly carrying the baton for foldable phones forward, looks to be set to announce its first foldable tablet soon. The industry leaks suggest that this move might come in the next six months.

While many sources across the internet have leaked information about the upcoming foldable phones, this is one of the first instances where information about Samsung's foldable tablet has come to the surface. As per a blog post published on Naver, Samsung's take on a foldable tablet could be announced simultaneously along with its flagship Tab S9. The source of this claim comes from the local hinge suppliers reportedly prepping for shipping newer hinges that could be fitted onto tablets. This announcement could happen sometime between January and February 2023.
https://dgit.in/FoldEverything

Google Pixel Fold could come with an ultra-microhole camera setup

Tech giant Google's upcoming foldable smartphone – Pixel Fold – is likely to feature a 'full screen' interior with an ultra-micro-hole camera set on the phone's frame.

The leaker, as reported by Android Central, described the camera placement and potential display appearance in detail. Apparently, the outer screen could feature a centre-mounted punch hole display, which is par-four-the-course for many large-screen foldables. However, the inner screen would not have one, opting for an essentially uninterrupted display. In place of a punch hole, the leaker suggests an "ultra-micro-hole camera" will be set within the phone's frame.

A report in May said that Google had delayed the release of its first foldable smartphone, the so-called Pixel Notepad foldable phone, until 2023. The device will likely cost less than the $1,799 Samsung Galaxy Z Fold 3.
https://dgit.in/FoldingPxl

Instagram and Facebook's 'login approval' soon on WhatsApp

According to features tracker WABetanfo, WhatsApp is working on a new Login Approval feature. It's a new security feature in WhatsApp beta v2.22.17.22. The feature is currently under development but may release soon.
https://dgit.in/WALeak

YouTube, Spotify, and UNO on Google Meet

Google recently began rolling out Meet-Duo for Android and iOS users. A new rumoured feature in the works, will enable users to share applications like YouTube, UNO!, Kahoot, Heads Up!, and Spotify while the company is trying to rebrand Duo to Meet later this year.
https://dgit.in/GMUno

Nikon and Panasonic cams no more

Japanese camera manufacturers Nikon and Panasonic have suspended the production of low-end compact digital cameras. They will now focus on costlier mirrorless cameras as smartphones become more camera-centric.
https://dgit.in/AdiosNP

CERT-In detects threats on iOS and macOS devices

The Indian Computer Emergency Response Team or CERT-In, appointed by the Ministry of Electronics and Information Technology, has found several severe vulnerabilities in iOS, iPadOS, and macOS. Additionally, they've also found some vulnerabilities in Google's ChromeOS and Mozilla's Firefox browser as well. According to the agency, these vulnerabilities can be used to bypass security restrictions and cause DoS on users, rendering their devices unusable.

These vulnerabilities can be exploited by attackers remotely; all they need to do is persuade victims to visit a malicious website. As for Mozilla Firefox, versions older than 103, ESR versions older than 102.1 and 91.12 have been found to have security flaws. Google ChromeOS suffers from similar vulnerabilities to Firefox.

According to CERT-In, these vulnerabilities can be fixed by installing software updates, and users of these operating systems and browsers should install the latest security updates as soon as they can.

One Plus Nord Watch

The Chinese consumer electronics manufacturer, OnePlus that has been known to be the David in the battle of Goliaths in the tech world, is set to launch smartwatches under its budget Nord lineup. One-Plus currently sells two wearables in India, the OnePlus Watch and the OnePlus Band. And now, it's looking to diversify its wearable segment by adding multiple Nord branded smart-watches. This is not the first time we've heard about a potential Nord Watch as it has been tipped to launch in India for quite some time. Reports have suggested that there will be two different shaped models of the watch.

As per the rumours, the Nord Watches will be priced under ₹5,000 in India and will likely run on custom RTOS (Real-time operating system) with features like GPS. We'll know more about the upcoming OnePlus Nord Watch as we near the launch.

Xiaomi 12T, 12T Pro

Xiaomi is all set to launch the new phones from its T-series with Xiaomi 12T And 12T Pro. The launch is expected to happen along with the Redmi K50 launch in October of 2022. The 12T and 12T Pro models will also be launched globally.

The Xiaomi 12T Pro is expected to include a 6.67-inch OLED FHD+ 144 Hz display and an in-screen fingerprint scanner. It could come with Snapdragon 8+ Gen 1, 8GB LPDDR5 RAM, and 256GB UFS 3.1 storage. As for the battery, the 12T Pro is expected to come with a 5,000mAh battery along with 120W fast charging support. The camera specs may include 20-megapixel front camera and a 108-megapixel (main) + 8-megapixel (ultra-wide) + 2-megapixel (macro) triple rear camera unit. Meanwhile, the regular 12T is said to bear a Dimensity 8100-Ultra chip. Its other specs and features could be similar to the 12T.

There have been other leaks about the price of these devices. Leaker, Snoopy Tech has claimed the starting price of the Xiaomi 12T could be 699 Euros (~₹57,108.78) and the Xiaomi 12T Pro could be 849 Euros (~₹69,363.88).

Threema Libre

There's another secure messenger in town, –Threema. The thing that makes this app stand out is that it does not require Google Push to work. It can be used on phones without the Google Play Store.

Plant Parent

If you are someone who loves their plants, then Plant Parent is the app for you. It has built-in capabilities that let you take intrinsic care of your plant, including diagnosing infections.

Microsoft Outlook Lite

Missing out on emails because your device doesn't have enough resources? Well, then get Microsoft Outlook Lite, and stay up to date with all your email related notifications with ease.

Explained: India's 5G spectrum and rollout

Indian telecom opera-tors are expected to begin 5G service offer-ings by Diwali 2022

Jayesh Shinde & Siddharth Chauhan
| editor@digit.in

I n the race to deploy 5G services in the country, Reliance Jio, Bharti Airtel, Vodafone Idea and Adani Data Networks are all intensely bidding for 72GHz of total spectrum allocation worth at least Rs 4.3 lakh crore to the Indian government.

If you have a 5G-enabled smart-phone, and you want to understand some of the nitty-gritties of the 5G spectrum and various frequency bands involved, keep reading...

INDIA'S 5G SPECTRUM BANDS
In case you didn't know, the Indian 5G spectrum for auction includes 600MHz, 700MHz, 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz, 2500MHz, 3300MHz, and 26GHz bands. These are nothing but wireless radio wave frequencies used for telecommunication services.

These Indian 5G spectrum bands are categorized as low, mid and high frequency bands based on their, well, frequency range. For example, the low band comprises all frequency ranges below 1GHz – 600MHz, 700MHz, 800MHz, and 900MHz. The high fre-quency bands fall between 26GHz to 40GHz in the mmWave range – great for high-bitrate data transfer over very short distances, one of the biggest promises of 5G to be honest.

The 4G networks were designed keeping in mind maximum smart-phone use cases whereas 5G takes it to the next level by offering increased bandwidth and higher data speeds. Also, 5G supports several more use cases like deploying virtual networks, and software-defined networks and can connect to a variety of devices beyond just smartphones. In addition to streaming high-quality videos on the go and faster download speeds with 5G, a big push is also on how it will transform the gaming industry with cloud gaming and XR (Extended Reality) experiences.

WHY 700MHZ BAND MATTERS
On the first day of India's 5G spectrum auction, the 700MHz band of spec-trum received bids for over Rs 39,000 crore by all four Indian telecom operators across all 22 circles of the country – that's close to 30-percent of all the bids submitted totalling over 1.4 lakh crore. In fact, by early estimated reports, the 700MHz band is proving to be the most expensive piece of 5G spectrum going under the hammer.

So why is this single band of 700MHz frequency getting so much attention from the likes of Reliance Jio and Bharti Airtel in India's 5G deployment race? According to experts, this 700MHz band is going to be crucial for wide-spread, uninter-rupted 5G data transmission in the country. It's simple physics: radio waves with lower frequencies travel further through obstacles without degrading than waves with higher frequencies. Hence, the 700MHz band is being eyed by Indian 5G ser-vice providers with a lot of interest.

According to a report in the Economic Times, Pulkit Pandey, Principal Analyst at Gartner, said interest in the 700MHz band "indicates the communications service providers (CSPs) are focusing on enhanced indoor coverage, where the 700MHz band could play a crucial role."

What's more, spectrum in the 700MHz frequency band has never been allocated for bidding until now. According to government officials quoted by CNBCTV18, approximately 40-percent of the 720MHz band has been sold in the Indian 5G auction. The mid-band frequencies (1GHz to 6GHz) will help Indian telecom operators to strike a balance between coverage and high-speed data transmission, and a lot of Indian smartphone 5G data traffic is expected to fall in this mid-band frequencies. No wonder 5G smartphones being sold in India are touting support for the n78 5G band (3300-3800MHz), in case you didn't notice.

WHEN WILL 5G SERVICES BEGIN IN INDIA

According to Indian Telecom and IT Minister, Ashwini Vaishnaw, the spectrum allocation process to the four Indian telecom operators has wrapped up as expected before August 15 – Indian Independence Day – and 5G services deployment is set to begin from as early as September 2022.

"We are planning to roll out 5G services rapidly, telecom operators are working in that regard and installations are being done," IT Minister Vaishnaw said in a press conference on August 25, according to ANI, stressing the government will ensure affordability of 5G access to all Indian consumers. "Our expectations are that 5G should reach every part of the country in the next two to three years. We'll ensure that it remains affordable. The industry is focusing on both urban as well as rural areas," the Union Minister said.

Devroop Dhar, Co-Founder and Board Member, Primus Partners, estimates India to have 500 million 5G

subscribers by 2027, according to an ET report. But for that to happen, companies need to look beyond just the 5G spectrum and invest in their backbone infrastructure, he argued.

"With only about 30-percent of the towers fiberised and less than 7-percent of households connected through fibre, companies must not simply focus on the spectrum but also give the same importance to the subsequent infrastructure," Dhar said.

5G IN INDIA: SA OR NSA?

Deploying a 5G network doesn't happen with a flick of a switch. It

needs support from existing telecommunication architectures or has prerequisites for platforms anew. With 5G, there is the SA (standalone) architecture and NSA (non-standalone) architecture.

Most telecom operators worldwide have 5G NSA deployments as it uses the existing 4G LTE platform, making it cost-effective in the larger scheme of things. As an industry practice, telecom mobile network operators begin deploying 5G services in NSA and gradually, move to SA. Indian telecom operators like Jio, Airtel and Vi are likely to launch NSA based 5G services first, and six months to a year down the line will move to full stack 5G architecture. Expectedly, Jio has claimed that it will bring "true 5G" to India which hints at the possibility that Jio's 5G network could be built on full end-to-end standalone architecture. Reliance Jio has also claimed that it has developed an indigenous 5G stack but it is an expensive affair.. **d**

Important FAQs on 5G in India

Will you need a new 5G SIM card?
No, you won't need a new 5G SIM card from either Jio, Airtel or Vi for accessing 5G services, at least initially. Since the 5G services being launched in India are expected to be based on NSA standards, it will utilize existing 4G LTE networks to offer high-speed internet connectivity.

Which cities will get 5G in India?
The 5G services in India are set to go live first in metro cities and will subsequently make their way to other regions. The telecom operators in India have bought 5G spectrum in all 22 telecom circles so it's only a matter of time until we get 5G pan-India.

5G tariff plans in India
As 5G is rolled out in Indian cities, initially the tariff plan pricing is expected to be on the higher side and telecom operators such as Jio and Airtel are expected to charge a premium for the high-speed connectivity. As per industry experts, the 5G recharge plans pricing in India could be anywhere between 20-40% higher than the current 4G plans. Regardless, it is also expected that telcos like Jio and Airtel will try and woo customers with lucrative plans in a bid to increase their 5G user base. It will be interesting to see how Jio, Airtel and Vi price their 5G tariff plans and whether it will be a combination of high-speed connectivity at a premium or affordable data plans with limits.

How will 5G rollout impact Indians?

The next revolution?

Jayesh Shinde | jayesh@digit.in

We spoke to Lt. Gen. Dr. S.P. Kochhar, Director General, COAI, immediately after India's 5G spectrum auction to get some insights about the Indian telecommunications industry and its 5G rollout roadmap. We also asked him the age-old question about EMF radiation fears of 5G frequency bands, and what steps the industry is taking to safeguard 5G networks in terms of national security. Edited excerpts from our interview follow:

Q Is 5G still safe? Is 5G going to add to people's worries from a health and safety perspective in India?
A This question should now be put to rest because the Indian IT Minister himself has gone on record saying that 5G networks are very safe. Several international studies done on this topic say that the EMF emanating out of mobile towers are non-ionizing, and hence safe for human beings. Even if you don't know all this, just look at birds who go and nest on these towers,

they build their nests and nurture their young ones, and nothing happens to them. So how can it be harmful to humans?

This is just a myth propagated by people who are talking about unsafe 5G because they have vested interests to serve, nothing else. But as far as scientific evidence is concerned, there is nothing to suggest that 5G networks are unsafe.

Q How will 5G services roll-out across India over the next few months and years?
A What is emerging is there'll be two types of 5G rollouts happening across India. One will be to cater to the demands from metros. The second rollout would be related to enterprise services that will open up new markets, and use cases, and that's where the maximum 5G revenue is going to be generated from.

You also need to understand that India is a very price sensitive market. There's a very good likelihood of 5G tariffs to go up from existing data rates. Expecting a common citizen to really see any benefit and pay more for a new connection or having to buy a new

Lt. Gen. Dr. S.P. Kochhar, Director General, COAI

phone to get a 5G connection is going to be difficult. Don't get me wrong, there will be lots of people who will sign-up for 5G services from day one, but the scale will not be comparable to people who are already subscribed to 4G.

Telecom operators will have to mix and match where they deliver the promise of 5G speed and coverage to 5G enthusiasts no matter what. Also for existing 4G users or people migrating from 2G or 3G. In some places non standalone 5G will also work, while some places will have only standalone 5G deployments, with network slicing and other segmentation depending on the use case.

Q How do you react to social media memes claiming with 5G launch Indians will finally see promised 4G network speeds?
A There are multiple factors that impact network speeds, and it's harsh to blame only the telecom operators for it. Before I joined COAI, I also used to think that telcos are not doing their job properly. But after spending two years in the ecosystem, I realised that there are environmental factors in play

The Witcher Season 3 haulted
The filming has temporarily halted as unconfirmed reports say Geralt tested positive for COVID. https://dgit.in/sep22-17

Diablo player smoked $100,000
The player spent $100,000 on the game crafting an OP character and now can't get into matches. https://dgit.in/sep22-18

tech

FEATURE

which people don't realise. I'll give you two major ones – power capacity and fiber infrastructure increase for good network signals.

Our telecom infrastructure across the country requires more power to run at optimal levels. The permissions, clearances required for procuring more power are very difficult and also quite expensive. The power that is permitted to be transmitted to telecom towers is one-tenth of international levels, and more towers are difficult to deploy.

The second reason is the need for more fibre towers, and how more towers need to be connected with each other and with the network through fibre so they can carry the capacity of data that they are aggregating on the edge. That requires a huge amount of effort and the government is aware of it. The central government and private industry want to move fast to remove this bottleneck, but local and state governments don't let us put fibre through their territory.

We want more towers to be deployed, and this is where we start. We are expecting about 10 times the speed and capacity of what we have today. But high-speed 5G radio signals do not penetrate walls and therefore require indoor building solutions to be implemented. All of these things are work-in-progress, and there are a lot of innovations which are happening to work around some of these practical 5G deployment problems. A lot of trials are happening and we hope the 5G networks will offer a better overall experience than 4G or before.

Q How will 5G roll-out across India impact us positively?

A While e-commerce takes over 78 per cent of the traffic on any network across all Indian telecom operators, the bandwidth requirement of e-commerce traffic is actually very low compared to video streaming or online gaming. So e-commerce in terms of 5G will be an application that requires tele-density, but will not affect the speed and latency that will be required in different areas. Use cases like 3D holograms or

teleporting your e-presence or even online gaming will get some boost. But something like tele-medicine services will seriously ramp up across the length and breadth of the country thanks to 5G.

Another thing that will be grappled quickly due to 5G deployment is a merger of telecom, electronics and computing to be treated as one silo – it can no longer be looked at separately from a legal, regulatory and policy framework, which currently is not happening.

Cyber security has still been outside the domain of the telecom sector at the core infrastructure level, but that also needs to be worked into as a fundamental pillar of network security. It cannot be an afterthought anymore. The work has to be started from the drawing board, on both the telecom technology as well as cyber security.

Q How will indigenous Indian 5G hardware ramp up to safeguard our 5G networks against Chinese ODMs?

A The Indian government has already taken a slew of measures which will ensure that this (deployment of indigenous Indian telecom hardware) happens as fast as possible. For now, the components which have been used in our telecom network can be divided into passive and active. Passive isn't a problem, we import industry-standard hardware from outside but yes, from the Make in India perspective, those components should also be made in India.

The active network needs software plus hardware stack expertise. The software component, India doesn't have a problem with. We have always been making software for the entire world, and we can do it. But we can't yet do both hardware and software, because the hardware piece of the puzzle is difficult to crack in a hurry. Designing and manufacturing of semiconductor chips requires massive investment, and it's not going to happen overnight. Currently, a lot of emphasis is being given on importing knowledge, skills, and expertise to get these semiconductor companies to manufacture in India. It's

being incentivized by the government too. However, for now sensitive telecom components will need to be imported from abroad. The Indian government has also made a conscious decision to continue with the past practice of using international standard based telecom equipment so that we are not depending on any one country for our needs. Of course, we are not satisfied with that, we want an ecosystem to be created in India, where we can manufacture, we can design, and consume in India and export outside to the world.

The advantage of China was cheap labour and economies of scale. We have cheap labour. What we don't have is economies of scale. We don't have a manufacturing base, so incentives have now been offered to these companies to come to India, and start making in India. China has been taken out of the ecosystem in many parts of the telecommunications market, and our strategy is to not only make in India for Indian telecom needs but also to eventually become a net exporter. It will take some time. These steps are being monitored at the highest levels of the Indian government, because of what's at stake. So there's reason to believe the implementation of any indigenous hardware in the telco stack will also be faster in the future.

Q How 5G will help Indian telcos evolve in the near future?

A I can make a small prediction here: The telecom business of providing networks is not going to be a paying business anymore. Right. You will eventually find that newer business verticals will be developed by these Indian telecom operators themselves – not just for large businesses, but even for us normal citizen consumers. Customers will be increasingly offered consolidated 360-degree package solutions, because these offerings will come from telcos themselves who understand business on one hand and 5G consumption on their network. The hope is that enough consumers will find these offerings to be transformative enough within the next year or so. **d**

reviews

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

10 to **30** — **Extremely poor product.**
Keep away!

31 to **50** — **Strictly OK.**
Not recommended

51 to **70** — **Decent product.**
Go for it, but there may be better products out there.

71 to **90** — **Very good product.**
Highly recommended.

91 to **100** — **Ground-breaking product.**
We've never seen anything like it before. A definite must buy!

INSIDE

Sony's new AAA mobile game
Sony's new PlayStation Studios Mobile Division is working on a AAA title for phones.
https://dgit.in/sep22-41

TSMC to start 3nm chip production
TSMC will soon produce an ultra-advanced 3-nanometer (nm) chip amid supply-chain woes.
https://dgit.in/sep22-42

AMD Ryzen 3 4100
Lightweight

T he other new Ryzen "4000" processor from AMD, the AMD Ryzen 3 4100 is an entry-level processor aimed at folks going for a budget build. It's still got multithreading in the entry-level, much like previous Ryzen processors and even the new hybrid processors from the competition, however, it's position in the SKU stack is a little odd considering that the budget segment still has the Athlon 3000G, a few OEM Ryzen 4000 processors and other units which are competing in a very narrow price bracket. Let's see if the Ryzen 3 4100 can make a name for itself.

SPECIFICATIONS
If we are to compare the Ryzen 3 4100 against the previous gen Ryzen 3 3100, then both processors are matched in terms of core counts and number of threads. As for the clock speeds, there's an improvement of 200 MHz in the base clock and 100 MHz in the boost clock speeds. Then there are the cache sizes which remain unchanged for L1 and L2 cache. That being said, the L3 cache has taken a massive reduction from 16 MB down to 4 MB. The Ryzen 3 3100 was a 'Zen' processor and the Ryzen 3 4100 is a 'Zen 2' processor so there's the improved architecture lending to increased performance but the drop in L3 cache is going to bite in some place or the other

Also, both processors are built on the same 7nm process node, so there aren't exactly a lot of power efficiency metrics to talk about. Even the PCIe revision is different between the two processors and the 3100 has the better deal with PCIe 4.0 support. Lastly, the Ryzen 3 4100 does not feature a graphics die much like the 3100. If we were to personify the Ryzen 3 4100, then this processor is very content in being a budget processor and has very little ambition to do better.

₹9,415

PERFORMANCE
The Ryzen 3 4100 is an entry-level processor so the type of tests and the performance profiles used to benchmark are in tune with the expectations of an entry-level processor. We kick off the benchmarks with Cinebench R20 and the Ryzen 3 4100 scores around 456 points which is very much in line with the other Zen 2 processors. Zen 3 processors typically have a single core score around 600 points. Multi-core scores are around 2104 points which is also a decent score on its own. To compare against the 4100, we have the previous gen Ryzen 3 3100 and the Intel Core i3-12100F. Both processors are priced about the same. The Intel processor is also a 4-Core/8-Thread processor with slightly higher clock speeds and that does help with the Cinebench scores as the 12100F comes ahead with a clear 900+ point lead. That's about a 30 per cent higher score. The Ryzen 3 3100 also scores around 2270 points which makes it more than the 4100. This could be one of the fallouts of the reduced L3 cache.

Switching to compression and decompression benchmarks, the 7-Zip test shows a performance difference

76

PERFORMANCE..........67
VALUE FOR MONEY ... 85

of close to 30 per cent again when compared to the Intel 12100F with the 12100F taking the lead.

In day-to-day productivity tasks, the performance difference between the Ryzen 3 4100 and the Intel Core i3-12100F narrows down but Intel still has the lead in this scenario. While the benchmark scores are quite different, during actual use, the processor doesn't appear to be all that different in performance. Tasks such as writing, browsing and consuming content seem to be running without any hiccups.

As for gaming, the Ryzen 3 4100, like most entry-level processors, does bottleneck a high-end GPU. Then again, folks buying an entry-level processor don't pair them with a high-end GPU. Compared to the 12100F, there is a marked difference in performance with certain eSports titles really widening that gap. CS:GO, for example, had a performance difference of close to 150 FPS which is nearly a 44 per cent difference. However, in games which are not that optimised such as Metro Exodus, the performance difference comes down to 20 FPS. That's barely 13 per cent.

VERDICT
While on paper, the Ryzen 3 4100 might appear to be a worthy successor to the Ryzen 3 3100, the reduced L3 Cache seems to be affecting the performance quite a bit. But when you consider the fact that entry-level processors are mainly used in office machines and basic rigs, then the 4100 ends up being a decent processor. However, the Core i3-12100F is a much more value for money offering considering how much more performance it provides within the same price bracket.

–Mithun Mohandas

SPECIFICATIONS
CORES: 4 | THREADS: 8 | GPU CORES: N/A | BASE CLOCK: 3.8 GHz | BOOST CLOCK: 4.0 GHz | PROCESSOR NODE: 7nm | L3 CACHE: 4 MB | L2 CACHE: 512 KB per core | TDP: 65 W

CONTACT
AMD INDIA | PHONE: N/A | EMAIL: support.amd.com | WEBSITE: www.amd.com

Redmi K50i 5G
Performance without panache

₹25,999

T he Redmi K50i marks the return of the Redmi K-series India three years after the Redmi K20 series, which turned out to be quite the bestseller for Xiaomi. Redmi is here to stake its claim back in the sub-₹30,000 price segment with the Redmi K50i and its powerful feature set. But does it have enough style and substance to follow the legacy of the Redmi K20 series? That's what we're going to find out in this review.

BUILD AND DESIGN
The Redmi K50i is being offered in three colours Stealth Black, Phantom Blue and Quick Silver. The black version has a soft-touch matte finish, while the blue and silver colours have a shimmering gradient effect which changes as the light shifts. Being a Redmi K-series phone, the K50i doesn't have any of the iconic markings of the K20 series and doesn't stand out from the crowd as the K20 series did.

DISPLAY
The Redmi K50i has an FFS LCD display where FFS stands for Fringe Field Switching. This isn't a new technology per se, but you won't find many smartphones using this LCD technology. It also offers wider viewing angles than normal LCD panels and has high response times. All said and done, it's still not up to the standards of an AMOLED screen, which is a bummer, in our opinion.

The display is decent enough to watch something on YouTube or even a movie on Netflix since it is HDR10 and Dolby Vision compliant. The refresh rate can go up to 144Hz, which is great since it allows for increased smoothness. Since it's not an AMOLED panel, it doesn't exhibit pitch black colours, and the minimum brightness is around 3 nits.

PERFORMANCE
The Redmi K50i draws all its power from the Dimensity 8100 chipset, which gives it a solid boost in day-to-day usage. This phone is fast and smooth, and when it comes to raw performance, it leaves the competition in the dust. The audio performance of the K50i is decent and nothing extraordinary, but it's great to see that the K50i doesn't do away with the 3.5mm audio jack. We ran multiple rounds of CPU throttling tests wherein the K50i constantly proved itself to be a stable performer capable of easily handling thermals.

CAMERAS
In typical Redmi fashion, the K50i produces decent sharp-looking pictures in daylight but fails to impress at night. The colours and dynamic range are on point for the most part, but when shooting at night, it's the main camera which shines the most. The pictures are vibrant from the get-go, and you can get Instagram-worthy images without much effort.

The ultra-wide camera manages to capture details in the middle of the frame, but as you move away and

towards the four corners, you'll notice the barrel distortion effect as well as purple fringing on the edges. Similarly, at night, the ultra-wide camera has a lot of noise, an influx of artefacts, and lens fringing. The macro camera produces pictures with washed-out colours, and it's mostly a hit-and-miss affair. Images from the selfie camera are workable, but you won't find many details when you go pixel-peeping.

BATTERY LIFE
The K50i has a sizable 5,080mAh battery which can easily last a day if you're someone who's regularly taking pictures, watching videos, playing games and checking your social feeds. However, if you're a casual user, you can easily get over a day's worth of use, especially with the stand-by optimisations in place. It takes around an hour to fully charge the K50i from 0-100 per cent, which will be decent enough for most users.

VERDICT
The Redmi K50i is a very capable smartphone that doesn't skimp on performance and offers an efficient battery life. While it doesn't have the marquee features of the K20 series, wherever the K50i compromises, it more than makes up for it with raw performance and gaming chops. You won't mind its FFS LCD screen for some casual watching. If you're out in the market looking for a performance-driven phone, the K50i is one of the best phones you can get right now.

–Siddharth Chauhan

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BUILD	73
FEATURES	73
PERFORMANCE	77
VALUE	75

SPECIFICATIONS
DISPLAY: 6.6-inch FFS LCD, FHD+, 144Hz refresh rate | THICKNESS: 8.9mm | WEIGHT: 200g | PLATFORM: MediaTek Dimensity 8100 | RAM: 6GB/8GB LPDDR5 | BUILT-IN STORAGE: 128GB/256GB UFS 3.1 | EXPANDABLE STORAGE: No | 3.5MM JACK: Yes | OS: MIUI 13 based on Android 12 | REAR CAMERA: 64MP + 8MP ultra-wide + 2MP macro | REAR CAMERA VIDEO: Up To 4K (30FPS) | FRONT CAMERA: 16MP | SPEAKERS: Stereo speakers | BATTERY AND CHARGING: 5,080mAh, 67W wired

CONTACT
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Samsung Galaxy Z Flip 4
Flex, flip or flick – this unique flagship can handle it all

The Samsung Galaxy Z Flip 4 brings back the fun in using phones and the generational improvements only make this foldable much more usable. The iconic clamshell design makes Flip 4 a compact phone but don't let its unique form-factor fool you into believing that it compromises its usability. If you're looking to buy a foldable phone and here's how it is living with one.

BUILD AND DESIGN
Samsung has almost perfected the foldable clamshell design and the Flip 4 is a testament to this fact. It has a great in-hand feel, is extremely pocketable and has a reinforced armour aluminium design along with an IPX8 rating. The hinge design is also solid. The Flip 4 has a slimmer hinge mechanism than the Flip 3 which allowed Samsung engineers to trim the bezels even further. On the flip side (heh), the Flip 4 is 4 grams heavier than Flip 3. While these are marginal differences, the fact remains that the Flip 4 isn't fragile and is now ready to face any challenges on a daily basis.

DISPLAY
The Flip 4 has the same display as the Flip 3 and it's a bright screen that offers a great viewing experience. The only difference between the display of both phones is that on the Flip 4 you get Gorilla Glass Victus+ protection on the Cover screen. Samsung has arguably put its best folding display on the Flip 4 which lets you watch content in all of its vibrant, HDR goodness. The adaptive refresh rate keeps every interaction smooth. In our tests, the main display offered 1243 nits of maximum brightness (high brightness mode) and 769 nits of typical brightness.

PERFORMANCE
The Flip 4 offers snappy performance

₹89,999

in daily use. It scores highly on all of our testing benchmarks such as AnTuTu, Geekbench, PCMark, 3DMark and GFXBench. However, the CPU throttling test is where the chinks in Flip 4's armour surfaced and it throttled by 69 per cent of its maximum performance. Then again, it runs heavy games like COD Mobile and Asphalt 9 without breaking a sweat.

Owing to its unique design, One UI offers something Samsung calls the Flex mode panel. It requires the Flip 4 to be positioned upright and accordingly the apps will transition to the top half of the screen. The cover display offers limited functionality but it's practical enough given the screen size.

BATTERY LIFE
The Galaxy Z Flip 4 is equipped with a slightly larger battery than the Flip 3. This means an extended battery life, which is always great. If you are a heavy user, you will be able to get around 5-6 hours of screen time, which is great, but you will have to plug it in at the end of the day. In our video loop test, Flip 4 lasted for 14 hours and 10

minutes, which is a great score. The Flip 4 supports fast charging and Samsung's 25W adapter takes between 1-1.5 hours to fully charge the battery.

CAMERA
The Flip 4 also gets a new primary camera sensor, although it's still 12MP, the performance places this foldable phone right up there with the likes of the iPhone 13 and Vivo X80 Pro. The secondary ultra-wide camera and the selfie camera are the same as on the Flip 3. The main camera is capable of producing stunning images in daylight with a great many details and colours. HDR processing is balanced and the pictures are Instagrammable out-of-the-box. The ultra-wide camera also takes good and detailed wide-angle pictures. The selfie camera is decent and will be enough for most users.

81

BUILD/DESIGN............84
FEATURES 76
PERFORMANCE...........82
VALUE FOR MONEY 81

VERDICT
The Samsung Galaxy Z Flip 4 brings generational improvements which make it more usable than before. Its uniquely designed hinge allows you to flip it open giving you a beautiful large screen with a great viewing experience. The day-to-day performance of the Flip 4 is ever so smooth and the cameras make it a dream come true for many creators. The Flip 4 is an experiential phone; it will be appreciated by those who love compact form-factors or just a differently designed phone that's doesn't skimp out on power.
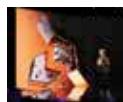
–Siddharth Chauhan

SPECIFICATIONS
DISPLAY: 6.7-inch AMOLED, FHD+ (2640x1080 pixels), 120Hz refresh rate | **COVER DISPLAY:** 1.9-inch AMOLED | **THICKNESS:** 6.9mm (Unfolded) | 17.1mm (Folded) | **WEIGHT:** 187g | **PLATFORM:** Qualcomm Snapdragon 8+ Gen 1 | **RAM:** 8GB LPDDR5 | **BUILT-IN STORAGE:** 128GB/256GB UFS 3.1 | **EXPANDABLE STORAGE:** No | **OS:** One UI 4.1.1 based on Android 12 | **REAR CAMERA:** 12MP + 12MP ultra-wide | **REAR CAMERA VIDEO:** Up to 4K (30/60FPS) | **FRONT CAMERA:** 10MP | **SPEAKERS:** Stereo speakers | **BATTERY AND CHARGING:** 3,700mAh, 25W wired, 15W wireless charging

CONTACT
SAMSUNG | **PHONE:** 180057267864 | **EMAIL:** support. india@samsung.com | **WEBSITE:** https://www. samsung.com/in/

Sony LinkBuds

A unique experience

Sony took the leap and launched their LinkBuds in India, pricing them at ₹19,990. This is the latest addition to Sony's line of premium earbuds. With their unique design and approach towards giving the users a new audio listening and calling experience, they do stand out. The question is, are they good enough to stand up to the standards set by others? Let's find out.

BUILD, DESIGN, AND FIT

The Sony Linkbuds have anything but a mainstream design, and wearing them is a statement. When it comes to the fit of the earbuds, things start getting tricky. They are small and light-weight. However, given their 8-shaped design language, the fit is either a hit or a miss. Even with their silicon loop, which is meant to hold the buds in place, if your ears are small, then these might not fit you.

In terms of the case, Sony trumps most other TWS makers out there. The case is really small and has great pock-etability. The branding is subtle, just like on the buds themselves. However, the overall feel of the case is flimsy, and with no metal bracket support, you could easily break the lid of the case. And, if you like opening your earbuds case with one hand, good luck. You have to press a button in the front to open up the case.

FEATURES

What Sony loses out in terms of the design and build of the case and the fit of the buds, it makes up for it in the features department. Apart from the regular inclusions like in-ear detection and others, the two features that stand out the most are – adaptive volume control and wide area tap.

Let's start with the wide-area tap. What this does is that it extends the touch-sensitive area from the buds over to the region in front of the ears. So,

₹19,990

you can tap on your skin to change tracks. While this may seem like a gimmicky feature at first glance, the actual performance is way above par. The second on the list is the adaptive volume control which automatically changes the volume levels depending upon the ambient noise. This feature, just like the wide-area tap, outper-formed our expectations.

However, the way that these buds are designed, they miss out on what has become a staple in premium earbuds, active noise cancellation. These earbuds lack ANC and often let too much ambient noise in due to the virtue of their design. They have an IPX4 rating, which is sadly nowhere close to what you get with other prod-ucts in the price range or lower.

In terms of the app, these use the Sony Headphones Connect app. To sum it up in a single line, it has most of what you could ask for, including custom EQ controls, option to modify the touch controls, and more.

PERFORMANCE

The Sony LinkBuds live up to the expectations that we had set, espe-cially considering price and the fact that they are made by Sony. The soundstage is wide, and instrument separation is great on this pair. The cherry on top is Sony's Digital Sound Enhancement Engine (DSEE) that fills in all the gaps in the earbuds' sound quality. However, the bass response

was not that great. It sounded muddy and brought down the listening expe-rience in tracks that are laden with bass instruments. The mids and the highs were as we expected them to be.

Now, coming to the microphone performance. Once again, Sony lives up to the standards that they have set for themselves. The audio coming from the microphones is crisp and could be heard with ease by the person at the other end.

75

BUILD	78
PERFORMANCE	77
FEATURES	67
VALUE FOR MONEY	70

BATTERY LIFE

The LinkBuds lasted long during our tests. It took us close to five and half hours at 50 per cent volume to drain the battery of the buds. The case promises to give the buds another 12 hours of juice, which pegs the total battery life at about 17.5 hours in total. So you should get through a couple of days of usage with these. The company is also claiming that with just 10 minutes of charge you can get a listening time of 90 minutes.

VERDICT

The Sony LinkBuds are unique, which means a lot of things. Firstly, there is no product that you can pit them against. Owning these buds is a unique experience, that cannot be matched by the offerings of any other brand. What you earn in terms of style points and unique design and features, you lose out in the form of modern-day essentials like ANC. So, if you are out in the market with a ₹20k budget, and want to try out something new, then go for it. However, if you are looking for anything close to a bang for the buck experience, then stay away from these.

–Satvik Pandey

SPECIFICATIONS
WEIGHT (EARBUDS): Approx. 4.1 g x 2 | HEADPHONE TYPE: Open, Dynamic | FREQUENCY RESPONSE: 20 Hz-20 kHz | IP RATING: Yes (IPX4) | BATTERY LIFE (EARBUDS): Max. 5.5 hrs | BLUETOOTH VERSION: 5.2 | EFFECTIVE RANGE: 10 m | SUPPORTED AUDIO CODEC(S): SBC, AAC

CONTACT
SONY | PHONE: 18001037799 | EMAIL: Web form | WEBSITE: https://www.sony.co.in/

JBL Tune 230NC
High on bass, decent overall

₹5,999

The TWS market has become overly competitive. Especially when it comes to the sub-₹6K price bracket, the competition is even more cutthroat. Nothing has their Ear (1)s, and brands like OnePlus are also out there with their Buds Z2. With JBL coming in with their Tune230NC TWS earbuds, things have gotten even more interesting. Let's see how they fare in this crowded segment.

BUILD AND FIT
The JBL Tune230NC has a matte black charging case that sports aesthetic touches that would match a Japanese sports car. The earbuds look equally appealing. The case is made up of a material that feels super premium to touch and doesn't attract fingerprints.
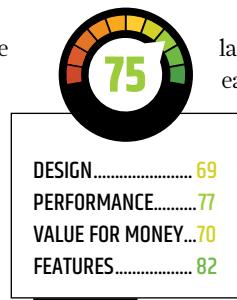
The earbuds' tips have a tasteful presence of JBL's signature orange colour. They have a long stem, which does not add much weight to the earbuds, with an LED indicator on top.

The earbuds fit well in the ears and held well through the 'head-shake' test. They are lightweight and can be customised to fit different ear sizes.

FEATURES
There is not much to complain about the JBL Tune230NC when it comes to the features department. They have touch controls on the stem which are adequate. However, when we look at the Nothing Ear (1) earbuds, which also have volume controls on their substantially smaller stem, we feel that JBL could have done a bit more here. The controls can be customised via the JBL Headphones app that adds a lot to the overall experience.

In terms of noise cancelling, they make up for the lost ground against their competitors. JBL Tune230NC feature great active noise cancel-

75

DESIGN 69
PERFORMANCE 77
VALUE FOR MONEY ... 70
FEATURES 82

lation. The ANC on these earbuds took away most of the annoying sounds during our Mumbai local rides. Another thing that helped them rise high in the rankings was the fact that these come with fast pair, which let us connect to the Android devices with ease. Adding to the ease of use was the compatibility with voice assistants.

PERFORMANCE
The performance of JBL Tune230NC is nothing to write home about. These earbuds failed to live up to our expectations. It wouldn't take an expert to notice the boosted bass response of these earbuds. This boosted bass cannibalises the mid frequencies, which greatly affects the music listening experience. We were thoroughly underwhelmed in songs like *Rescue Me* by *OneRepublic*, where the vocals are the part that we look out for. The bass was overpowering anything that the drivers were trying to push out apart from it. This even affected the overall bass response, too, as it caused the bass to be muddy and not crisp. We had to make changes to the EQ when daily driving the earbuds to get a pleasurable audio experience.

The earbuds in the same price bracket that was able to surpass these in terms of performance were the Nothing Ear (1). The Ear (1)'s bass response is much tamer than the Tune230NC, and that makes for a great

audio experience. The OnePlus Buds Z2 could have matched up but lost out on their mids and fell behind.

In terms of microphone audio quality, there wasn't much to say. These earbuds deliver as expected. During phone calls, the audio remained clear even in noisy environments, and the buds did a decent job of reducing ambient noise.

BATTERY LIFE
In terms of battery life, there was a pleasant surprise waiting for us. In our test, the battery life of these earbuds came out astonishingly close to the bold claims JBL had made. With ANC turned on and volume set to 50 per cent, these earbuds lasted about seven and a half hours, which is impressive.

JBL claims that with 10 minutes of charge, you can get enough battery for two hours of music playback.

VERDICT
The JBL Tune230NC TWS earbuds hold its ground well against its competitors. The build and design are solid, there are plenty of features packed into the device, and the performance is great after a bit of tweaking. The app also features a lot of customisation options which, when coupled with the battery life of these earbuds, make them a solid package. The Nothing Ear (1) would be the only pair that gets past it. But it was meant to be a standout product. Like is the case with a lot of JBL products, the overpowering bass prevents them from being an instant recommendation.

If we were to sum up our experience of using the Tune 230NC, it would be – heavy on bass and they fall short of the top spot in the race.

–Satvik Pandey

SPECIFICATIONS
DRIVER SIZE (MM): 6 | FREQUENCY RESPONSE RANGE: 20 Hz – 20 kHz | EARPIECE WEIGHT (G): 10.2 | BLUETOOTH VERSION: 5.2 | CHARGING TIME (HOURS FROM EMPTY): 2 | MAXIMUM MUSIC PLAY TIME WITH ANC OFF (HOURS): 10 | MAXIMUM MUSIC PLAY TIME WITH ANC ON (HOURS): 8

CONTACT
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Apple to make iPhone 14 in India
Apple iPhone 14 production in India to begin two months after the China-made units are out. https://dgit.in/sep22-51

AI to eliminate hiring bias
Recruiters at Indian startups believe that AI is one of the best ways to improve recruitment. https://dgit.in/sep22-52

Oppo Reno 8 Pro
Undeniable style, questionable value?

₹45,999

"The Portrait Expert". This is the lofty claim Oppo makes for its latest high-end device – the Oppo Reno 8 Pro. With this phone, Oppo aims to capture the camera enthusiast consumer while also providing enough hardware and software chops to aid in daily usage. Can the new kid on the block nudge the market in its favour?

BUILD AND DESIGN
With the Oppo Reno 8 Pro, the company has left no stone unturned to ensure a gorgeous design. The all-glass build with an aluminium frame gives it a premium look. The sides are flat and the display sits almost flush with the sides. The device is comfortable to hold, but it features a large 6.7-inch making, making one-handed usage an improbability. The Reno 8 Pro has what the company dubs a "unibody design" which refers to the camera module seamlessly blending into the rear panel with a single glass sheet. The look achieved is honestly quite stylish and eye-catching. The phone is IP54 certified and uses Gorilla Glass 5.

DISPLAY
The Oppo Reno 8 Pro flaunts a 6.7-inch AMOLED panel with Full HD+ resolution and 120 Hz refresh rate. The panel performs admirably. You get HDR10+ and Widevine L1 support meaning you can enjoy high-definition content. Content consumption is a treat as the display's colours are vibrant. As for the brightness, we recorded a peak brightness of 552 nits in normal usage; while on High Brightness Mode, the screen can touch 800-900 nits. The screen supports 120 Hz refresh rate but there's no dynamic refresh rate switching.

PERFORMANCE
The Oppo Reno 8 Pro is powered by the MediaTek Dimensity 8100-MAX SoC. The chipset is powerful enough for it to perform swimmingly in day-to-day usage. Gaming is smooth on this device, with the phone's GPU being able to handle just about any game thrown at it on High graphics. We ran our usual slew of benchmarks on the Oppo Reno 8 Pro and it performed as expected. But when compared with similarly-priced phones with better SoCs, the phone displayed its questionable value for its asking price. The Moto Edge 30 Pro crushed the Reno 8 Pro's score in every benchmark while the Pixel 6a pulled up similar scores. However, the phone is a capable device despite what benchmark numbers say. Even in the CPU Throttling Test we ran, the phone only throttled to 94 per cent of its peak performance after 15 minutes. This goes to show that the phone can sustain its performance even under considerable workloads.

The Oppo Reno 8 Pro runs ColorOS 12.1 based on Android 12. ColorOS is an extremely feature-rich UI, one we would have probably loved if it weren't for the plethora of bloatware.

CAMERAS
Oppo is pushing the Reno 8 Pro as a camera-centric device, but sadly, the cameras don't meet expectations. In daylight, pictures come out looking good with oodles of detail. However, the colours are too oversaturated. Also, in tricky lighting conditions highlights get overblown and shadows are crushed.

Oppo has called the Reno 8 Pro "The Portrait Expert" and the primary lens is capable of clicking decent portrait shots, but skin tones and textures look a tad too unnatural on the phone. Moving on to video, this is where the phone leverages the MariSilicon X NPU for enhanced low-light videos. In daylight, Oppo's footage has way too much contrast and the highlights are overblown. At night, the MariSilicon X NPU does show its abilities by adjusting exposure on the fly.

BATTERY LIFE
The Oppo Reno 8 Pro draws power from a 4,500 mAh battery. The battery life is excellent with the device lasting over a day with medium usage. In our video loop test, the phone lasted just under 15 hours, which is impressive. The 80 W charger charged the device from zero to full in merely 38 minutes.

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BUILD	73
FEATURES	77
PERFORMANCE	69
VALUE	74

VERDICT
The Oppo Reno 8 Pro is a stellar device, no doubt. But, it doesn't deliver what it promises. What it promises is a reliable camera setup across the board, however, the cameras have some significant weaknesses. All in all, this is a well-rounded phone that does well in most areas but doesn't excel in the one area where it promises to – the camera.

–Dhriti Datta

SPECIFICATIONS
PROCESSOR: MediaTek Dimensity 8100-MAX | NPU: MariSilicon X | RAM: 12 GB LPDDR5 | ROM: 256 GB UFS3.1 | DISPLAY: 6.7-inch AMOLED, FHD+ resolution | REFRESH RATE: 120 Hz | CAMERAS (REAR): 50 MP + 8 MP + 2 MP | CAMERA (FRONT): 32 MP | VIDEO: Up to 4K@30 fps (rear), Up to 1080p@30 fps (front) | BATTERY: 4,500 mAh | CHARGING: 80 W SUPERVOOC | 5G SUPPORT: Yes

CONTACT
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Realme Buds Air 3 Neo
Overshadowed by its brethren

Realme is at the top of its game in the budget audio segment, launching product after product – all with modest price tags and eye-catching features. The Realme Buds Air 3 Neo, priced at ₹1,999, are the company's latest budget entrant. It competes against similarly-priced earphones from Oppo, OnePlus, Xiaomi, and Realme itself. Will these earbuds impress? Let's find out.

BUILD AND FIT
The Realme Buds Air 3 Neo sport an in-ear design with protruding stems. The back of the stems double as capacitive touch sensors. The touch controls work reliably and misreadings are few and far between. The case comes with a half-translucent design. The translucent lid certainly gives it a unique look.

The case is exceptionally slim and compact, so it will easily slip into small handbags and pockets. The case's hinge is reinforced with metal, so it feels sturdy enough, but the plastic lid does feel slightly flimsy.

The earbuds have a matte finish and are white all over except for the back of the stems which possess a glossy silver finish. It does look a bit ostentatious, in our opinion, but the young target audience may like the look. The buds fit exceptionally well and can be used during activities such as gymming, running, or jogging. Weighing merely 4g each, we found the earbuds to be pretty comfortable to wear as well. The buds are also IPX5 water resistant.

FEATURES
For the price of ₹1,999, the Realme Buds Air 3 Neo is brimming with features. The buds are Dolby Atmos-enabled and provide a decent immersive audio experience. They don't have the widest soundstage, so the experience won't be exceptional though. The earbuds are also compatible with Realme's excellent accompanying app – Realme Link. The

₹1,999

app gets you access to some nifty features such as Game Mode, Volume Enhancer Mode, customisable controls, and EQ presets.

You can customise the earbud controls as you wish. You can even set an action for volume controls, something that audio manufacturers usually skip out on. The earbuds also come packing other features such as instant connection, IPX5 water resistance, and Bluetooth v5.2 connectivity. At ₹2K, these are feature-packed earphones but Realme seems to be competing with itself here since the Realme Q2 earphones can now be purchased at the same price of ₹1,999 on e-commerce platforms, but they come packing extra features such as Active Noise Cancellation and Transparency Mode as well.

PERFORMANCE
Equipped with 10mm dynamic drivers and a PEEK + TPU composite diaphragm, the Realme Buds Air 3 Neo has a bass-boosted sound profile that bass-lovers will appreciate. But on the default Bass Boost+ EQ setting, it can sound quite muddy. To combat this, you can choose the Balanced EQ preset within the app which applies a more agreeable sound signature. The result

is still bass-biased, but it does dampen the rattling, muddy bass effect. We found that the mids, by themselves, are depicted pretty accurately with clear vocals and detailed-sounding instruments. In *Hello* by *Adele*, you can hear the small breaths she takes between sentences with the Balanced or Bright EQ preset. The highs are well-produced up to the 8 kHz mark, closely following our in-house curve. The bump in the 3 kHz – 4 kHz mark does cause some unwanted sibilance that can sound a bit unpleasant at times. However, we're still impressed by the highs from the buds at this price point.

As for the microphone performance, it is quite lacklustre. Your voice can sound muffled and ambient sounds get picked up easily.

BATTERY LIFE
Battery life worries are a non-issue with the Realme Buds Air 3 Neo. In our tests, the earbuds surpassed their rated battery life and lasted a little over 7 hours at 70 per cent volume. The charging case provided another 3 charges with juice left to spare. The buds support fast charging, so just 10 minutes of charge time provides a whopping 2 hours of playtime.

VERDICT
The Realme Buds Air 3 Neo are a pretty sweet deal equipped with a plethora of features for its relatively inexpensive price. Add to that, excellent battery life, a decent build, and a comfortable fit. However, Realme's own Buds Q2 is a better deal at just ₹200 more since they come with slightly better sound and extra features such as ANC.

– Dhriti Datta

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BUILD	71
FEATURES	65
PERFORMANCE	68
VALUE	75

SPECIFICATIONS
DRIVER: 10 mm dynamic | BLUETOOTH VERSION: 5.2 | AUDIO CODECS: SBC, AAC | WIRELESS RANGE: Up to 33 feet | BATTERY LIFE (BUDS): 7 hours | BATTERY LIFE (BUDS + CASE): 30 hours | CHARGING TIME: 60 minutes (buds), 120 minutes (buds + case) | COLOURS: Galaxy White, Starry Blue

CONTACT
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HyperX Pulsefire Haste Wireless

Superlight gaming on a budget

The Pulsefire Haste Wireless is the latest gaming mouse from HyperX and is the wired variant of the Pulsefire Haste. The wired Pulsefire Haste was actually our value for money pick for last year's Zero1 awards for great performance at a budget, so we had high hopes going into this review. Did the Pulsefire Haste Wireless manage to exceed our expectations? Read on to find out.

BUILD AND DESIGN
The Pulsefire Haste Wireless comes with the tried and tested honeycomb shell design which is common in superlight mice. We've got a full plastic matte black body, with cutouts throughout the palmrest and a little bit on the left and right click buttons as well.

The build quality is excellent. The materials don't feel cheap despite being extremely lightweight. There's no rattle or moving parts, and there's barely any squeaking or creaking. The mouse is also rated IP55. The TTC Golden Micro Dust Proof Switches are a nice plus. We've also got RGB at the scroll wheel, which is a surprise considering lighting is usually skipped on superlight mice.

As for the shape, we've got a faux ambidextrous mouse design here, which is comfortable for both right-handed and left-handed users. However, it being a faux ambidextrous design, the side buttons are only available to right handed users since they're on the left side of the mouse. The shape itself is very comfortable to use, even over long periods of times.

The mouse features virgin grade PTFE feet which glides smoothly on most surfaces. The box comes with extra feet as well. Additionally, the box comes with grip tape as well, which we found can make a significant difference in the grip feel on the mouse.

PERFORMANCE
The HyperX Pulsefire Haste Wireless

₹7,490

comes with 6 programmable buttons, including the DPI switch button, two side buttons, and the middle click button. The buttons are fairly loud and clicky. The TTC Golden Micro switches are rated for 60 million clicks. The mouse comes with the PixArt PAW3335 sensor, which has a maximum CPI of 16000, and maximum polling rate of 1000 Hz. The minimum CPI on the mouse is 200, and it's adjustable in steps of 100. It would have been better if the steps were a bit more precise though. In our testing we found the PixArt PAW3335 to be quite accurate. When testing with MouseTester and DPI Analyzer, we found an average CPI differential of ffl2 to the set default CPI of 800, which is great.

The only place the Pulsefire Hase Wireless falls short is in the click latency department. There is a noticeable difference in click latency when, say, compared to the recent Logitech G Pro X Superlight. This isn't an issue for casual gamers, however, this could be a big no-no for anyone considering this mouse for competitive esports.

SOFTWARE
Finally, we come to HyperX's NGenuity software. This is where you can see how much battery you have left on the mouse, redefine buttons, adjust CPI steps, polling rate, customise pro-

files, lift-off distance and lighting. The mouse has onboard memory which can be customised via the software.

72

BUILD AND DESIGN..	88
FEATURES....................	55
PERFORMANCE..........	74
VALUE..........................	71

FEATURES
We don't normally expect a ton of features on superlight mice, but the HyperX Pulsefire Haste Wireless has more than we expected. Most of these are software based features however, in terms of hardware these mice are usually barebones. The only standout feature we could see was the presence of RGB lighting.

BATTERY
HyperX advertises a battery life of up to 100 hours on the HyperX Pulsefire Haste Wireless. In our time using the mouse, we haven't found the need to charge the mouse yet. The mouse goes into sleep mode when inactive to preserve battery life.

VERDICT
At ₹7490, the HyperX Pulsefire Haste Wireless is a great ultralight wireless gaming mouse. It features great build quality and is very comfortable to use. The only place the HyperX Pulsefire Haste Wireless falls short is with its higher-than-average click latency. Aside from that, this is probably the best budget wireless gaming mouse you can get your hands on.

–Manish Rajesh
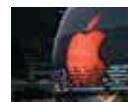
SPECIFICATIONS
LENGTH: 124mm | **WIDTH:** 67mm | **HEIGHT:** 38mm | **WEIGHT:** 59g | **SENSOR:** Pixart PAW3335 | **RESOLUTION:** Up to 16000 DPI | **SPEED:** 450 IPS | **ACCELERATION:** 40G | **BUTTONS:** 6 | **LEFT / RIGHT BUTTON SWITCHES:** TTC Golden Micro Dust Proof Switch | **LEFT / RIGHT BUTTON DURABILITY:** 60 million clicks | **ONBOARD MEMORY:** 1 profile | **CONNECTION TYPE:** 2.4 GHz Wireless / Wired | **POLLING RATE:** 1000 Hz | **BATTERY TYPE:** 370mAh Li-ion polymer battery | **BATTERY LIFE:** Up to 100 hours

CONTACT
HYPERX | **PHONE:** +1 (844) 464-9737 | **EMAIL:** Webform | **WEBSITE:** https://hyperx.com/pages/support

Realme 9i 5G
Same, same, but different

₹16,999

The Realme 9i 5G is Realme's most affordable 5G phone in India. While it follows the Realme 9i 4G which was launched earlier this year, there are cosmetic and internal changes to make it stand out in the sub-₹15,000 budget segment. With competitors like the Poco M4 Pro 5G and Redmi Note 11T 5G, does it make sense to buy the Realme 9i 5G? Let's find out in this review.

BUILD AND DESIGN

The Realme 9i has an eye-catching design with a shiny and reflective finish that's reminiscent of a CD. Realme hasn't gone with a traditional camera island for the 9i 5G instead the phone has four individual cutouts.

The Realme 9i 5G is also one of the thinnest and most lightweight phones in this segment measuring 8.1mm and weighing in at 187 grams. It's got flat edges on all sides that give it a boxy feel and if you are too bothered about this design you can always slap on a case which will give you better grip and ergonomics for daily use.

DISPLAY

The Realme 9i 5G features a 6.6-inch Full HD+ LCD display which supports a 90Hz refresh rate. The screen also has a dated waterdrop notch for the selfie camera and a slightly wide chin. When it comes to watching videos, the display offers crisp visuals but has a slightly bluish tint that makes visuals look cooler. Sadly, the display doesn't support HDR playback.

During our use, we didn't find the brightness of this display to be in line with Realme's claims. The brand claims the typical brightness to be around 400 nits. In our testing, , the Realme 9i 5G could only manage around 314-315 nits of maximum brightness. While the 9i 5G is great for watching content indoors, sunlight legibility is also an issue with such low brightness levels.

PERFORMANCE

The MediaTek Dimensity 810 chip powering the Realme 9i 5G has stood the test of time and is more than sufficient for things like messaging, calling, watching videos, browsing social media feeds and playing casual games. This chip also brings 5G connectivity to the table.

In our testing, the Realme 9i 5G raked in respectable scores in AnTuTu, Geekbench, PCMark and 3DMark benchmarks, performing equally well if not better than the Snapdragon 695 on the Poco X4 Pro or even the Dimensity 810 on the Redmi Note 11T. We stressed the CPU in the throttling test where the Realme 9i throttled to 87 per cent of its maximum performance. The general gameplay performance in games like COD Mobile and Asphalt 9 remained decent with some minor frame drops here and there.

BATTERY LIFE

If you consider yourself to be a heavy phone user, you'll most likely need to plug the Realme 9i 5G into the charger at the end of a hectic day. But if you're a casual user, the 9i 5G will last you for more than a day easily. In our video loop test, the phone ran for around 15 hours before fully discharging. However, Realme supplies a rather slow 18W charging adapter with the 9i 5G.

CAMERA

For its asking price, the Realme 9i 5G takes good pictures in day-to-day use, both from the main and the selfie camera. However, we'll advise buyers not to expect much from the Realme 9i 5G cameras as they are pretty good at producing colourful and detailed images in daylight but lack versatility. It doesn't have an ultra-wide camera and instead, Realme has tried to compensate for it with a macro and depth sensor. However, neither of these sensors brings any kind of holistic improvements to the casual photography experience.

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BUILD/DESIGN 55
FEATURES..................64
PERFORMANCE.........82
VALUE FOR MONEY....71

VERDICT

The Realme 9i 5G is similar to the Realme 9i 4G but gets 5G and a big performance boost at the cost of features such as stereo speakers, and fast charging. So, if 5G tops the feature list for you, the Realme 9i 5G makes sense in every way. It's affordable, looks unique enough to grab attention, has a powerful processor that you can game on and has a good primary camera. Though if features like fast charging, stereo speakers and a better display make your cut, you should definitely look at phones such as the Poco M4 Pro 5G, Samsung Galaxy F23 and Infinix Note 12.

–Siddharth Chauhan

SPECIFICATIONS

DISPLAY: 6.6-inch LCD, FHD+, 90Hz refresh rate, Panda Glass | THICKNESS: 8.1mm | WEIGHT: 187g | PLATFORM: MediaTek Dimensity 810 | RAM: 4GB/6GB | BUILT-IN STORAGE: 64GB/128GB UFS 2.2 | EXPANDABLE STORAGE: Yes, upto 1TB | USB-C: Yes | 3.5MM JACK: Yes | OS: Realme UI 3.0 based on Android 12 | REAR CAMERA: 50MP (f/1.8) + 2MP macro + 2MP depth sensor | REAR CAMERA VIDEO: 1080p (30FPS) | FRONT CAMERA: 8MP (f/2.0) | SPEAKERS: Single speaker | BATTERY AND CHARGING: 5,000mAh, 18W wired

CONTACT

REALME | PHONE: NA | EMAIL: service@realme.com | WEBSITE: https://www.realme.com/in/

Samsung Galaxy Z Fold 4
Finally a foldable for the here and now!

Since its entry into the foldable phone market, Samsung has remained the undisputed king in the segment. But despite being impressive pieces of technologies, the Galaxy Z Fold series devices have had some crippling issues every year. Does this change with the Z Fold 4?

₹1,54,999

DESIGN
Samsung has stuck to a similar form factor as the Galaxy Z Fold 3. We do have an improved hinge mechanism and use of lighter materials to make the Galaxy Z Fold 4 more ergonomic. The new hinge mechanism of the Galaxy Z Fold 4 also feels more durable. The back has also gotten a nice matte finish, which is great for resisting fingerprints. Unfolding the device is still very much a two handed task. However, snapping the phone shut has now become a more seamless experience. There's still no slot for the S Pen stylus though, if you're looking to buy one.

DISPLAYS
As a foldable, we have two panels on the Galaxy Z Fold 4. The first one is the cover story. This is a 6.2-inch dynamic AMOLED panel that's capable of up to 120 Hz refresh rate and outputing a billion colours. The panel is also quite crisp with its high pixel density and can accurately reproduce solid blacks and vibrant colors. However, the biggest improvement is the fact that the cover display is slightly wider compared to the last foldable's front panel.

Once you open up the Fold 4, you're welcomed to a world of new experiences, with a big 7.6-inch flexible display. This is also a dynamic AMOLED panel which again is capable 120Hz refresh rate and easily reproduces deep blacks and punchy colours. Watching videos, playing games, scrolling through social media apps or browsing the web is immensely satisfying tasks on this device. Samsung has worked on the crease and clipped the bezels, so the experience has improved significantly.

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PERFORMANCE
The main story here is the Snapdragon 8+ Gen 1 chip which, in our time with the device, has helped the phone perform almost flawlessly. This new chip is a massive upgrade over the Snapdragon 888 on the Z Fold 3 last year.

Both in terms of performance and power efficiency, the Snapdragon 8+ Gen 1 is a significant upgrade. This is because unlike other flagship chips from Qualcomm with the Plus moniker in the past, the Snapdragon 8+ Gen 1 does not come with overclocked cores. Instead, it brings redesigned cores for improved performance.

In real life, the chip combines with Samsung's OneUI 4.1.1 to bring to life smooth, lag-free experiences on the Galaxy Z Fold 4. This is something that's also proven by the numbers, with AnTuTu, GeekBench and 3DMark WildLife showing the phone is capable of hitting some really high scores.

And we're very happy to report that because of the new chipset, we also experienced improved battery life on the phone. On paper, the Galaxy Z Fold 4 gets the same 4400 mAh battery pack that we saw on the Z Fold 3. Once fully charged though, the phone can easily get you through a day on moderate use. Gaming, however, does drain the phone's battery quite fast.

CAMERAS
For the first time on a Fold device, Samsung has thrown in its very best camera hardware. While the selfie lenses are still nothing to write much about, the three main lenses on the back of the device offer large sensors which capture more light and details than we've seen on previous generation foldable phones from Samsung.

In fact, they capture enough data to actually be put in the same bracket as the iPhone 13 Pro, Galaxy S22 Ultra and the Vivo X80 Pro, making the Z Fold 4 a terrefic camera phone to carry in your pocket.

VERDICT
Because of the nature of its technology, the Galaxy Z Fold 4 has very few direct competitors, and honestly none when it comes to ones available in the Indian market. Because of that it becomes a no-brainer if you are looking to buy a foldable phone in the country. However, is the Galaxy Z Fold 4 a better buy than a Galaxy S22 Ultra or an iPhone 13 Pro Max? For the first time in the history of foldable phones in the country, we see ourselves answering in the affirmative. The Galaxy Z Fold 4 is a well-rounded foldable device that finally gives you all you'd expect from a flagship phone .

–Sushant Talwar

SPECIFICATIONS
DISPLAY: 7.5-inch Dynamic AMOLED, 120 Hz refresh rate | **COVER DISPLAY:** 6.2-inch AMOLED, 120 Hz refresh rate | **WEIGHT:** 263g | **PLATFORM:** Snapdragon 8+ Gen 1 | **RAM:** 12 GB | **BUILT-IN STORAGE:** 256GB/512GB/1TB | **OS:** One UI 4.1.1 based on Android 12 | **REAR CAMERA:** 50 MP + 10 MP + 12 MP | **FRONT CAMERA:** 4 MP/ 10 MP (cover camera) | **BATTERY AND CHARGING:** 4,400 mAh, 25 W wired charging, 15 W wireless charging

CONTACT
SAMSUNG | **PHONE:** 180057267864 | **EMAIL:** support. india@samsung.com | **WEBSITE:** https://www. samsung.com/in/

Motorola Moto G62
Faced with stiff competition
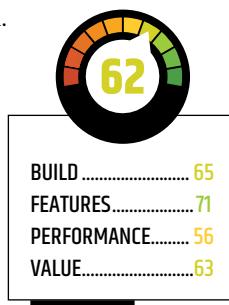
With the recent 5G spectrum auction in India, the slew of 5G phones in India finally have a purpose – future-proofing a user's purchase. Motorola has introduced a new player to the sub-20K 5G smartphone market – the Motorola Moto G62. Will the phone make a splash in this segment? Let's find out.

BUILD AND DESIGN
Motorola continues the "diet" its phones have been on lately with the Moto G62 weighing a modest 184 g. The phone is also pretty slim at 8.6 mm. The sharp side edges of the phone can dig into your hand, making it slightly uncomfortable to hold though. The rear panel of the G62 is built out of PMMA plastic which has a glass-like finish. The rounded camera island looks fantastic; extremely premium, in our opinion. There's a capacitive fingerprint sensor embedded in the power button that is speedy and accurate. The stereo speakers on the phone are Dolby Atmos-certified as well. The bezels are pretty chunky which dilutes some of the premium feel. The phone is also IP52-certified.

DISPLAY
One of the areas the Moto G62 cuts corners and saves some bucks is the display. While the cheaper Moto G52 and G42 come equipped with AMOLED screens, the G62 only features an IPS LCD screen. The drawbacks of this are obvious – blacks aren't as deep, battery life is slightly impacted, and colours are also not as vibrant. The display is a 6.5-inch IPS LCD panel with Full HD+ resolution and 120 Hz refresh rate. There are some 5G phones in the same price range that not only offer high refresh rate but also an AMOLED panel; for example, the Redmi Note 11 Pro+ 5G and Poco X4 Pro 5G. The Note 11 Pro+ even comes with HDR10 support which is absent on the G62. If

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content consumption is your primary concern, the competitors we mentioned offer more value for your money. As for brightness, we recorded 220 nits of peak brightness but with Adaptive Brightness, the numbers should be higher. The legibility of the screen in sunlight is poor.

PERFORMANCE
The Moto G62 is powered by the Snapdragon 695 5G SoC that's an upgrade over the Snapdragon 680 powering the G52 and G42. Although the Snapdragon 680 has higher clock speeds, in our observations, the Snapdragon 695 shows up with better AnTuTu and GeekBench scores. In real-world usage, the Motorola G62 performed most tasks well; this includes texting, calling, social media, clicking photos, and web browsing. We received the 6 GB RAM variant for review and multitasking was a breeze as well.

We also ran a set of benchmarks on this device. In AnTuTu, the phone beat out both the OnePlus Nord CE 2 Lite and the Redmi Note 11 Pro+ by a slight margin but in GeekBench, the phone

lagged behind the other two by a slight margin. For gaming as well, the Moto G62 performed well. We played COD: Mobile and Asphalt on high graphics and frame drops were minimal.

CAMERAS
The Motorola Moto G62 feature the same set of cameras found in the Moto G52 and G42. In our Moto G42 review, we mentioned being disappointed with the cameras, and we were hoping Motorola made some optimisations in the software, at least, to correct some of the misgivings of the camera stack. However, that wasn't really the case. The Redmi Note 11 Pro+ and the OnePlus Nord CE 2 Lite have more reliable cameras in the same price range.

BATTERY LIFE
The Moto G62 draws power from a 5,000 mAh cell. The phone will easily last all users over a day, and light users will see 2 days' worth of battery life. In our video loop test, the phone lasted 16 hours. However, when it comes to charging speeds, the Moto G62 falls behind. The phone comes with a 20 W charger that took 2 hours and 15 minutes to charge from zero to full battery.

VERDICT
The Motorola Moto G62 aims to be the 5G smartphone of choice under ₹20,000, but its misgivings in the camera and display segment maim the phone's chance to be the obvious choice. If future-proofing your device with 5G support isn't something that's integral for you, the Moto G52 is a better value proposition. If 5G is a necessity, maybe consider the OnePlus Nord CE 2 Lite and the Redmi Note 11 Pro+ instead of this one.

–Dhriti Datta

SPECIFICATIONS
OS: Android 12 | INTERNAL STORAGE: 128 GB | RAM: 6/8 GB | PROCESSOR: Snapdragon 695 | BATTERY SIZE: 5,000 mAh | CHARGER TYPE: 20W | DISPLAY SIZE: 6.5-inch IPS LCD, 120 Hz, FHD+ | WEIGHT: 184 g | IP RATING: IP52 | CAMERAS: 50 MP + 8 MP + 2 MP, 16 MP selfie

CONTACT
MOTOROLA | PHONE: NA | EMAIL: Web form | WEBSITE: https://www.motorola.in/

FPS Gaming Mouse

Logitech G PRO X Superlight...................₹13,595
Razer Viper Ultimate.....................................₹9,325
Glorious Model O...₹9,514

Budget Smartphones

Motorola Moto G60.....................................₹18,499
Motorola Moto G31......................................₹11,390
Infinix HOT 10S...₹12,999

Ultrabooks

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Apple MacBook Air M2...........................₹1,19,900
Microsoft Surface Laptop 3..................₹89,990

4K TVs

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Sony X80AJ...₹77,390
Samsung The Frame 2021 43-inch......₹53,990

Headphones Under ₹2,000

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Audio Technica ATH-AX1iS........................₹2,000
Sennheiser CX275S.......................................₹1,724

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Samsung Galaxy Watch 4........................₹31,999
Garmin Forerunner 245............................₹29,990
FITBIT Sense Smartwatch........................₹33,970

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Intel Core i7-12700K...................................₹38,199
AMD Ryzen 9 5000X.....................................₹37,599

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Apple iPad Pro 11 inch..............................₹71,900
Samsung Galaxy Tab S7+ LTE...............₹49,999

VR Headsets

HTC VIVE Pro...₹1,54,199
Oculus Rift...₹79,747
HTC Vive Cosmos Elite.............................₹69,999

Soundbars under ₹5,000

Mi Soundbar...₹4,949
Philips HTL2060/94 60 W
Bluetooth Soundbar....................................₹4,999
Thomson SBW10..₹3,999

THE BATTLE OF THE CAMERA PHONES UNDER ₹50K

We pit the cameras of the Nothing Phone (1), Google Pixel 6a, and Oppo Reno8 Pro against each other to see who rises to the top

Dhriti Datta | dhriti@digit.in

Smartphone photography has come a long way since its inception. Image quality which was considered state-of-the-class just a decade ago is now bested by even entry-level devices. In 2022, the competition between camera phones is heated in every price bracket. Every OEM is trying to incorporate cutting-edge camera and videography features into their camera phones to set them apart from the rest.

Recently, three phones launched in the sub-50K price segment – two of which have a camera-first focus. These phones are the Google Pixel 6a, Oppo

Reno8 Pro, and Nothing Phone (1). While the Nothing Phone (1) has gained mass recognition due to its unique design, the Pixel 6a and Reno8 Pro are marketed as camera-focused devices. All of these phones are priced under ₹50K, but the Nothing Phone (1) is actually cheaper than the other two and can be purchased for under ₹40K. If you're a smartphone camera enthusiast and you're scouring the market for a good camera phone under 50K, these are some of the best options out there.

We spent a considerable amount of time with these phones, testing all their camera modes and features for hours on end. So, if you're confused about which of these phones to pick up for its camera, this camera comparison should alleviate some of that confusion.

CAMERA SPECIFICATIONS

The Oppo Reno8 Pro houses a triple rear camera stack with a 50 MP Sony IMX766 primary sensor, an 8 MP ultrawide shooter, and a 2 MP macro lens. For selfies, it uses a 32 MP Sony IMX709 shooter. The phone shoots video at up to 4K@30 fps from the rear camera, and 1080p@30 fps from the selfie camera. Unfortunately, there's no Optical Image Stabilization (OIS). The Reno8 Pro also comes packing the MariSilicon X NPU that is supposed to produce enhanced low-light videos.

Moving on to the Nothing Phone (1), it houses a dual-camera stack with a 50 MP Sony IMX766 primary lens and a 50 MP Samsung JN1 ultrawide shooter. For selfies, the phone features a 16 MP Sony IMX471 shooter. The phone shoots video at up to 4K@30 fps from the rear camera and 1080p@30 fps from the front camera. There is EIS and OIS support as well. Finally, the Google Pixel 6a houses a dual rear camera setup comprising of a 12.2 MP

Sony IMX363 lens, which was also used on previous Pixel phones, and a 12 MP ultrawide shooter. The phone houses an 8 MP selfie camera as well. The Pixel 6a shoots video at up to 4K@60 fps from the rear camera and 1080p@30 fps from the selfie camera. Like the Nothing Phone (1), you get OIS and EIS support.

PRIMARY SENSOR

With the specifications out of the way, let's get started with the comparison. Images taken in the daylight come out pretty crisp and detailed on all three phones in well-lit conditions. The Pixel 6a's colours, however, look the most natural and true-to-life. Nothing's photos have a cool tone while Oppo's colours are extremely saturated.

In close-up photos, all three phones blur the background without portrait mode turned on, but the blur is more apparent on Oppo and Nothing due to larger sensors. We found that there was some softness in Oppo's close-up photos, especially if you zoom into the photo, which is not the case with Nothing and Pixel. There's also occasional lens flare in Oppo's close-up shots.

Moving on to the dynamic range, Oppo tends to crush shadows and blow out highlights in many shots. Also, Oppo and Nothing try to oversharpen the photo a tad too much which sometimes, negatively impacts the dynamic range. But the Pixel 6a performs the best with the most detail captured, even in tricky lighting conditions.

Thanks to Pixel's excellent computational photography, photos come out looking sharp and crisp even if the

viewfinder doesn't show as sharp of a result when you're clicking the photo. Moving objects are captured well on the Nothing and Pixel, but Oppo's moving shots are often soft or blurry due to the lack of OIS. You also get HDR support on all three phones, and the results are pretty great in daylight. Nothing and Oppo also come with a dedicated 50 MP mode that captures more detailed shots.

Moving on to portrait images. By default, Pixel's portrait images have a more cropped frame than that of the

Pixel 6a (left), Nothing Phone (1) (centre), Oppo Reno8 Pro (right)

Oppo and Nothing. To get a similar effect, we moved closer to the object when clicking portrait photos from the Oppo and Nothing. Skin tones are the most natural on the Pixel 6a. Skin tones look way too cool and unnatural on the Nothing Phone (1) and the Oppo Reno8 Pro smoothens out the skin textures a bit too much (even with Beauty mode turned off). In daylight, all three cameras have decent edge detection but, at times, they do miss out on a stray hair or a part of your sunglasses.

ULTRAWIDE SENSOR

Nothing's ultrawide camera imitates the cool colour tone present on its primary camera, which is a good thing. The Oppo and Pixel also do a good job of keeping the colour tone consistent across lenses. We found that Oppo's ultrawide shooter is the weakest at bringing details out. The shadows are crushed, more often than not, and the corners are somewhat noisy.

The Pixel carries out its true-to-life colour tone here as well and it also does

a great job at bringing out details. Nothing's ultrawide shots are also packed with detail, but we did notice some rare occasions when the corners had a fair amount of graininess. Barrelling is similar on all three phones, objects in the corners do appear slightly warped but that's to be expected from most ultrawide cameras. Overall, we found Pixel's ultrawide camera performance in daylight to be the most consistent, colour-accurate, and detailed.

MACRO SENSOR

The Pixel 6a doesn't boast macro functionality but the Oppo Reno8 Pro and Nothing Phone (1) do. The Reno8 Pro features a 2 MP macro shooter while the Nothing Phone (1) utilises its ultrawide lens to extract macro shots. Honestly, Oppo's macro lens is just to bump up the lens count. Nothing isn't too impressive in the macro department as well. The shots were nothing to write home about, but they are slightly more usable than the shots we got out of the Reno8 Pro's macro camera.

Pixel 6a (left), Nothing Phone (1) (centre), Oppo Reno8 Pro (right)

LOW LIGHT PHOTOGRAPHY

Now, we've reached the low light photography section. In low-lit conditions, all three phones automatically defer to long-exposure shots. You get Pixel's famous Night Sight Mode and the Oppo and Nothing also have Night Modes.

In medium low light, all three phones do a good job at clicking well-lit, crisp photos with quite a bit of detail. Oppo crushes the details in the shadows at times. In some photos, Nothing also fails to maintain the integrity of the photo in the shadows but Pixel does a great job in medium low light.

All three phones fall victim to lens flare in nighttime photos, but Oppo does the best job at curtailing the lens flare. For portrait shots, Nothing has a trick up its sleeve using the Glyph interface. You can use the LEDs as a studio light to light up subjects in low light, and it works quite well. We liked using this better than the flash which makes the photos look a bit too harsh.

However, in low light, Nothing messes up the skin tone of subjects

Pixel 6a (left), Nothing Phone (1) (centre), Oppo Reno8 Pro (right)

Pixel 6a (left), Nothing Phone (1) (centre), Oppo Reno8 Pro (right)

quite a bit. Human subjects look quite unnatural in low light. Comparatively, the Pixel does the best at replicating skin tone in low-light conditions. Oppo also takes bright and clear night shots with human subjects, but the skin textures are smoothened once again.

In ultra-low light, the Pixel 6a's camera fails to impress. There's extreme amounts of noise and softness in the Pixel's photos in extremely low-lit conditions. In comparison, the Nothing does a better job at minimising noise; but the Oppo captures the most detail in these conditions with minimal noise. By extreme low light, we mean indoor rooms with no lights turned on. In low light, the ultrawide camera that

performed the worst was the Oppo Reno8 Pro's camera. The 8 MP lens struggled considerably at clicking good photos in low light; its photos had a lot of softness and noise. Nothing brings out the best low-light ultrawide photos, but you can still see some noise creep in here as well.

SELFIE CAMERA

In daylight, all three phones click good selfies with good detail retention. Colours, once again, look the most natural on the Pixel 6a. Oppo clicks pretty good selfies as well, but the Nothing Phone (1)'s selfie camera smoothens the skin a lot even without Beauty Mode turned on. Nothing also sometimes over-exposes highlights in selfies. Portrait selfies look good on all three phones with good edge detection, but you'll find that Nothing tampers with the skin textures too much again.

Low light selfies are the softest and most noisy on Nothing since Night Mode doesn't activate when clicking selfies on the Nothing Phone (1). Pixel and Oppo can click good selfies even without flash turned on, since they have Night Mode for the selfie cameras as well. With flash, all three phones click

detailed selfies with the best being on the Oppo.

VIDEOGRAPHY

All three phones can shoot 4K video but the Nothing and Oppo top out at 30 fps while the Pixel can shoot 4K at 60 fps. We found the Nothing Phone (1)'s video footage to be the most colour accurate. Pixel's footage is a bit too bright and over-exposed while Oppo's footage has too much contrast. AI mode on the Oppo increases the contrast even more, so we suggest turning it on only in Night Time videos since it leverages Oppo's MariSilicon X NPU as it allows you to take brighter videos at night.

For selfie videos, you can record footage at 1080p at 30 fps on all three phones. We found the Pixel 6a's footage to be the most natural with good detail and dynamic range. In both Nothing and Oppo's selfie videos, the highlights get blown out of proportion at times.

VERDICT

This neatly brings us to the verdict. We felt that in the area of utmost importance – clicking consistent pictures in daylight – the Pixel 6a is the most reliable. You get crisp and detailed photos with great dynamic range and accurate colour reproduction. The Oppo Reno8 Pro consistently disappointed us while the Nothing Phone (1) just sat in the middle of the pack. If you can extend your budget to ₹55,000, the Vivo X80 does a much better job in low light photography. If not, then the Pixel 6a is your best option, followed by the Nothing Phone (1) and then the Oppo Reno8 Pro. **d**

IQOO 9T VS ONEPLUS 10T

Find out how the iQOO 9T compares against the OnePlus 10T

Sushant Talwar | sushant@digit.in

QOO 9T and the OnePlus 10T are two of the most sought-after high-end phones in the market right now. At the time of their launch, both these phones were the first two devices to come with the Snapdragon 8+ Gen 1 chip, making them very interesting devices from the enthusiast's perspective. In our time with the two phones, we put them through a number of tests to not only understand which of these two is better in terms of performance, but also understand if the Snapdragon 8+ Gen 1 chip is a worth upgrading to in the first place.

WHATS'S THE SNAPDRAGON 8+ GEN ALL ABOUT?
But before start comparing the two,

let's just try and understand what exactly the Snapdragon 8+ Gen is all about and what is it that the chip brings to the table.

For the scope of this comparison, we will test these two phones on the basis of their core performance and relevant specifications to understand which of these two devices makes better use of the new Snapdragon 8+ Gen 1.

So, unlike other flagship chips from Qualcomm with the Plus moniker in the past, the Snapdragon 8+ Gen 1 is not simply a binned chip with overclocked cores to get some extra power out of the primary chip. Instead, this new chip is pretty much a mid-year refresh which brings improved CPU and GPU performance, along with a new Spectra ISP and crucially, improved power efficiency. So according to the numbers shared by Qualcomm, the SD 8+ Gen 1 brings not only a 10 per cent uptick in both CPU 10 per cent and GPU performance, but what the most important thing is that it is promised to allow for 30 per cent improved power efficiency over the Snapdragon 8 Gen 1. This is a big deal, because this uptick

in power efficiency should ideally translate to decreased heat generation and as a result lower concerns with the chip eventually throttling, which quite honestly are two main issues plaguing the Snapdragon 8 Gen 1.

IQOO 9T VS ONEPLUS 10T: WHICH IS THE BETTER OF THE TWO PHONES?
But just having a good SoC powering a phone is no guarantee of good performance. The Snapdragon 8 Gen 1, on paper at least, is a brilliant chip. However, in real world usage it proved to be a raging dumpster fire on most phones it was fitted inside.

So is that going to be the case with Snapdragon 8+ gen 1 as well? Well, it doesn't look like it. If these two devices are an indication of the performance you can expect from Snapdragon 8+ Gen 1 phones in the future, then we're happy to say the future for this chip looks A-Okayyyyy. Let us explain why. In our time with the two phones, we found them handling all basic tasks such as browsing the internet or using apps of daily use like Twitter, Instagram and their ilk, without any trouble.

Both the phones ran equally cool and showed no signs of stress at any point of time. There's really nothing here to differentiate them on the basis of basic performance and both these phones did noty miss a beat, making sure the our interactions with the phones were smooth and lag-free.

However, where the difference between the phones start to emerge is when you fire up games, or start evaluating their performance using synthetic benchmarks. Let's start with the gaming performance of the two phones. For this, we tested them using Call of Duty Mobile and Asphalt 9 Legends. The performance of the devices in each game was recorded using our trusted Gamebench service. In Call of Duty Mobile, the IQOO 9T and the OnePlus 9T both recorded very good scores, with the OnePlus just ever so slightly nudging ahead in the frame rate stability department. However, in Asphalt 9 Legends, both devices showed similar performance, flawless performance.

With almost nothing to choose between the two when it comes to gaming, we switched focus to benchmarks, to find out which of the two phones is best optimised for handling resource intensive applications. For this, we relied on our battery of benchmark tests, that lay bare the truth in front of us.

The results were very surprising because there was a significant difference between the scores achieved by the two phones, despite being powered by the same chipset. For example, in AnTutu, the OnePlut 10T clocked a score about 20 per cent lower than that seen on the iQOO 9T. and interestingly, the difference in performance in this benchmark wasn't an isolated case. In fact, in benchmarks such as Geekbench, this gulf increased to about 30 per cent.

Suffice to say, this is a serious difference in performance that you're getting between the two. While we aren't sure why the OnePlus 10T isn't performing at the same levels as the iQOO 9T, our best guess is that it's probably because the OnePlus 10T is slightly underclocking it to keep the thermals in check.

Which, going by our tests it has managed to do quite well. But the funny thing is, thermals and throttling is where iQOO 9T has also managed to do almost as well as the OnePlus 10T, and that too without compromising on peak performance. So i'm not sure what's the game that OnePlus is playing here.

Unlesss of course, the game is to hide possible issues with OnePlus 10Ts thermal management, because of which the company has decided to hide evidence of it by underclocking the SoC for acceptable thermal results.

IQOO 9T VS ONEPLUS 10T: WHICH ONE SHOULD YOU BUY?

So on to the most important question, which of these two phones is worth your money if you're looking to buy a new Snapdragon 8+ Gen 1 phone for gaming and running resource intensive applications?

Our money here goes to the iQOO 9T. It runs almost as cool as the OnePlus 9T, throttles as little and also games as well the OnePlus 10T, but still manages to give you significantly better performance in benchmarks, thereby suggesting it will be a much better device to hold on to in the next few years when compared to the OnePlus 10T.

But does it make sense to buy the iQOO 9T over an existing Snapdragon 8 Gen 1 phone if gaming and performance is your prime concern?

In my humble opinion, yes it does. And this is simply because of the Snapdragon 8+ Gen 1, which according to what we've seen so far is not only a faster, but also a much more stable and cooler chip than the Snapdragon 8 Gen 1.

And with the documented troubles of the Snapdragon 8 Gen 1 on most phones, is it really a risk you want to take at the moment? But if you're not convinced, we'd suggest just waiting a while longer for more Snapdragon 8+ Gen 1 phones to drop and then make the decision to buy the device of your choice. **d**
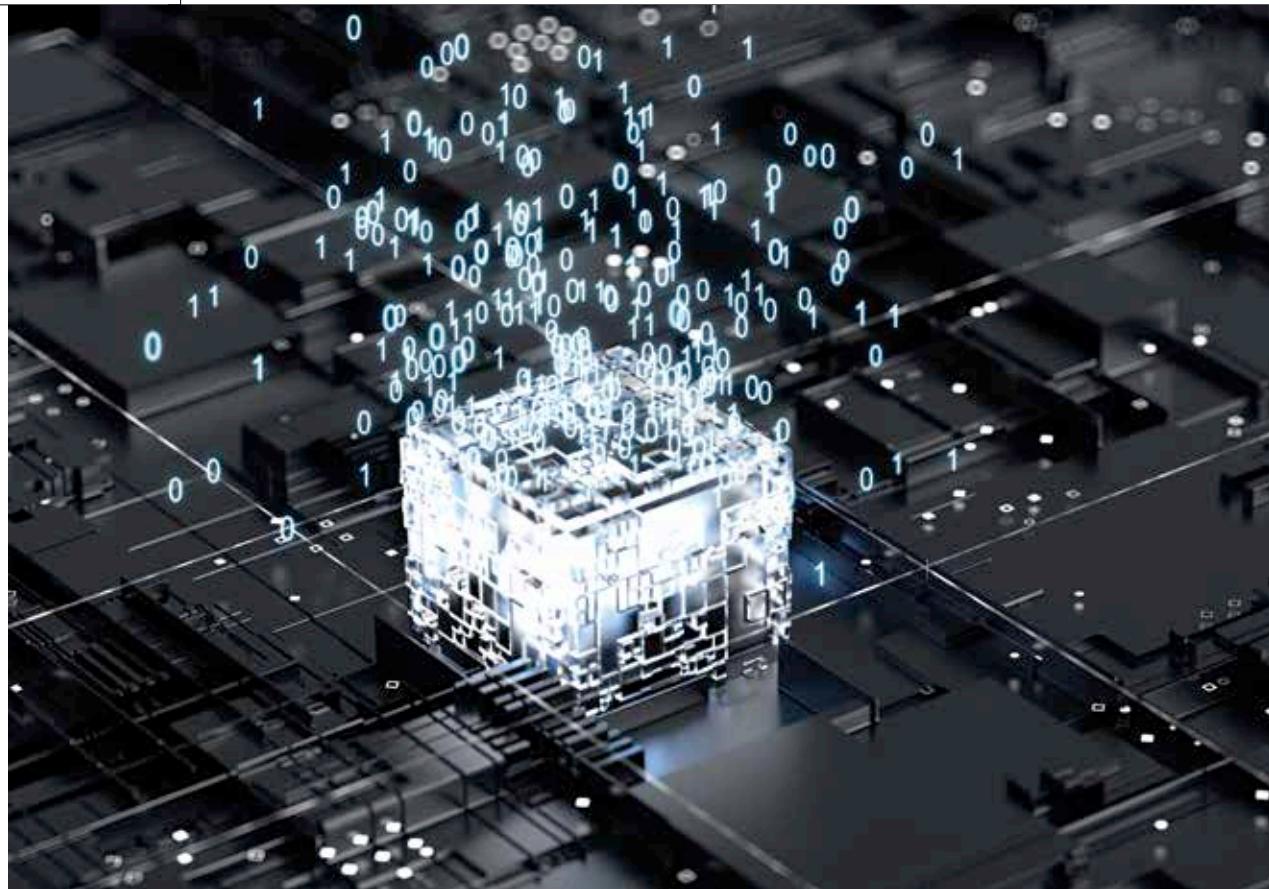
LOGIC GATES

How many NANDs, ANDs, and ORs?

Paarth Pareek | feedback@digit.in

The logic gates that we know of and use in every day technology weren't always so small and useful. In fact, they weren't even developed with the vision and intent to be what they are today! A lot of famous names have contributed either knowingly or unknowingly to the process and led us to where we are in the world of technology and of course, Logic Gates have one of the biggest roles to play in the progress that we have made.

INTRODUCTION TO THE LANGUAGE OF LOGIC GATES

01001000 01100101 01101100 01101100 01101111.

For the ones who don't know what that was, let us tell you that no it isn't a printing error and neither did a cat did not just run through our keyboard. That was us saying hello to you in the language that logic gates function in.

Anyways, much like any other piece of tech in the world, binary was also nonexistent at some point in time. And yes, as difficult as that may be to believe, that's the truth.

Before modern binary was developed to what it is, there were multiple other number systems that are said to have influenced Gottfried Wilhelm Leibniz's journey in developing the language of 0s and 1s.

A few of the most common ones that are usually brought up are the African, Arabian, and Chinese number systems which were very similar in terms of symbology and expression of different numbers.

A blog by Viznut named Counter-Complex made the observations for the world and also for generations to come back in 2011 while talking about the above image when he said: "This is the scheme that works best for I Ching analysis. The bits on the bottom are considered heavier and more significant, and they change less frequently, so the normal big-endian reading starts from the bottom. The "yang" line, consisting of a single element, maps quite naturally to the binary "1", especially given that both "yang" and "1" are commonly associ-
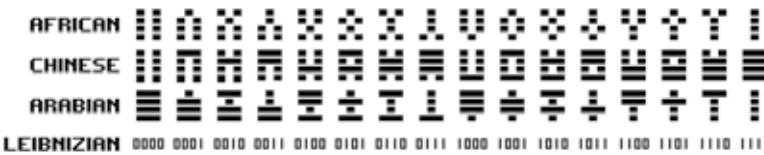
Credit: **CounterComplex**

An image depicting the resemblance of the different ancient number systems

ated with activity." While making the observation, Viznut made it clear that whether or not Liebniz had some inspiration from the ancient world. There were definitely a lot of similarities in the way that humans worked towards progress and the binary system was no different.

Before we dive deep into the hows and whats of the numbers though, let us understand the underlying principles of the digits we know as 0s and 1s. We have covered the origins of the binary numbers back in November 2020 and you can check it out if you want at: https://dgit.in/BinaryNosOrigins

Basically, instead of the regular decimal system where we have ten symbols to represent the various numbers, in the binary system, we have only 2 of those said symbols in the form of the 0 and the 1, and believe it or not, we can represent any and every number using only these two puny yet powerful symbols! Anyways, we're not here to discuss

the specifics of the language that logic gates use rather we are here to focus on the small devices that help us perform almost every task that requires a technical device.

THE FIRST FEW USES OF LOGIC BASED SYSTEMS

The first logic-based machine came around in the form of Charles Babbage's Difference Engine. It used mechanical gears as processors for the logic that it needed to perform calculations.

It can also be credited to be the first-ever device to use an actual logic gate. Though Babbage later on also designed the Analytical Engine which would also use similar mechanisms. But that never got built until the 1980s as Babbage failed to secure funds to make it himself.

However, the first more commonly used component which functioned as a logic gate was the electromagnetic relay made by Joseph Henry back in 1835 which surprisingly went unno-

ticed until it proved its usefulness by being used in the telegraph and also in the later developed Rotary dial that used even more complex relays with 10 positions. These tubes functioned as basic on-off switches and helped in the processing of data that would have to be transversed.

These laid down the foundations of the kind of technology that would be used in the future and greatly helped in shaping the same.
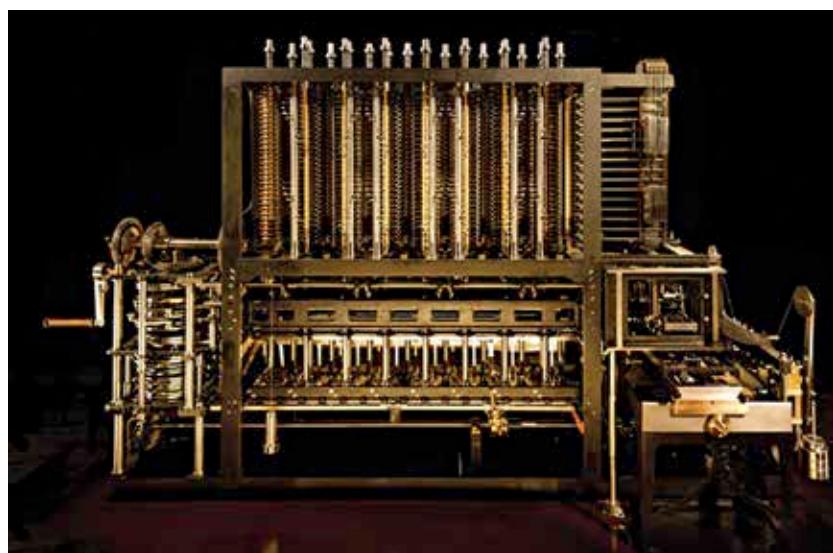
Once the electromagnetic relay found its pace however, along came one of the greatest inventors of all

Nikola Tesla

time, Nikola Tesla. Tesla, in 1898, introduced the "teleautomation", a patented technology that would allow for the usage of technology over long distances essentially creating the first ever remote controlled device. He demonstrated the technology with the usage of a remote controlled boat that used a specific method to decode Hetzian waves. It used to decode the signals it would get and perform bassed on the provided inputs which made it function essentially as what we know today to be an AND Gate.

After the relays, it was time for the vacuum tube to shine. These tubes had been in development over a long period of time but never for the field of computing. Not yet at least. Scientists like Edison and Tesla experimented with such tubes as they were treated as novelties except for the case of the light bulb which was slowly turning into a household object.
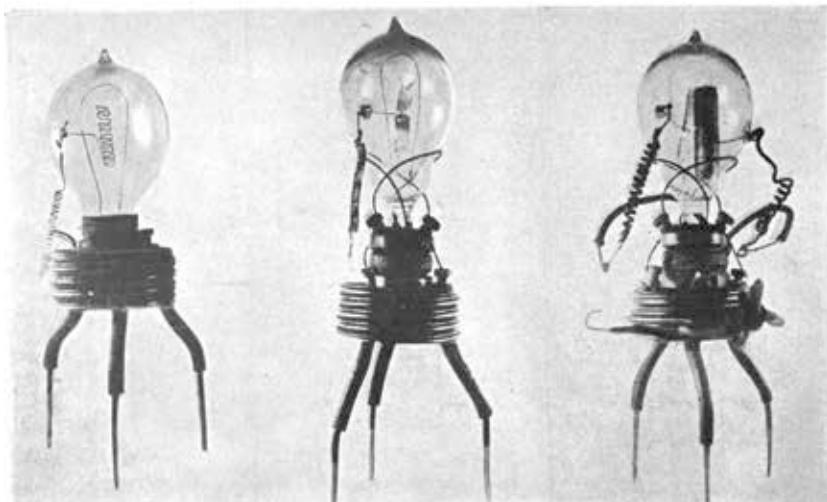
Charles Babbage's Difference Engine

Fleming's First Diodes

3-Input NOR Gate from the Motorola Data Book

These tubes were later worked on more by John Ambrose Fleming until he figured out a way to use them to detect radio signals as opposed to the earlier tubes which worked on a magnetic detector. This was the major step that helped in the adoption of the vacuum tubes to be adopted into the more mainstream world of computers. Famous pieces of marvelous technology such as the ENIAC, Colossus, and Alan Turing's Pilot Ace, all used vacuum tubes at their hearts but of course, as we know, the above listed computers were not exactly pocket friendly, neither in size nor in price. Hence, major developments still needed to be done for them to become a part of people's everyday lives.

THE DIFFERENT ITERATIONS OF LOGIC FAMILIES

Trying to solve exactly that problem, Resistor-Transistor Logic was cre-ated in the 1960s along with the Transistor-Transistor Logic. RTLs being the first ever logic gates to be used in Integrated Circuits and also in the Apollo Guidance computers later on. RTLs were soon followed by DTLs which used Diodes instead of resistors and were faster compared to their predecessors. These were a part of the series known as the 930 series. On the other hand, The first TTL ICs were developed in 1963 by Sylvania and were made famous by TI's 7400 series. Since then, modern logic circuitry has been shrinking these concepts and adding additional Boolean gates with time.

TTL systems made it possible for us to use 5V supplies to drive most of our daily electronics as the reverse breakdown voltage of these runs from anywhere around 6-7 volts. For the same reason, however, the supply voltage couldn't be a higher number and the need for a new Logic Family was felt. Fulfilling those requests, came CMOS in the 1970s in the form of the '4000 series'. These used MOSFET transistors that had no base current meaning they didn't use any current when idle which reduced the power consumption by a lot. An obvious added advantage of this family was the range of voltage it could be used in(3V-18V).

From then on, things haven't changed much. We are still using the CMOS family. Alhough with drastic improvements in terms of processing speeds, from 1/10th of TTL speeds, to them now being in the GigaHertz region, CMOS has come a long way and is now seen almost in every single digital electronic device.

There were of course other smaller and lesser known logic gate families that didn't gain the same traction and now aren't produced, such as the ECL family which stood for Emitter Coupled Logic that required a negative supply voltage. Such Logic Families never actually took off very well but were always a big part of the development that the world saw in terms of all things Logic. **d**

ColorOS 13: A more streamlined experience

We tested out Oppo's latest ColorOS 13 and here's what we thought

Dhriti Datta | dhriti@digit.in

Oppo recently unveiled its latest ColorOS iteration – ColorOS 13. As the nomenclature suggests, ColorOS 13 is based on Android 13 that runs alongside, under the hood. While it is named ColorOS 13, this is, in actuality, Oppo's tenth major version of its OS. Oppo synced the numbers to match the Android version of the year back when ColorOS 11 launched. Oppo's ColorOS 13 puts its own spin on Android 13, especially in the visual department. While the global version of ColorOS 13 is now live, it will slowly be rolled out to Oppo devices.
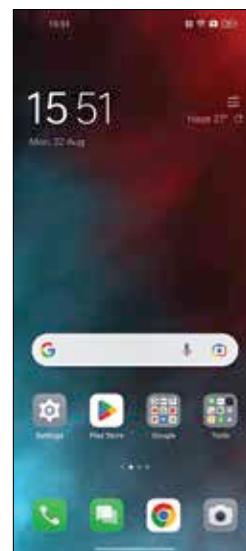
ColorOS bears similarities to OxygenOS, and while the idea of unifying both operating systems has been scraped, you can still see some obvious similarities between the two. Since its inception, ColorOS has evolved into becoming quite feature-rich and pretty user-friendly. There are some issues though such as rampant bloatware and ad notifications. With that said, let's get into the meat of the matter. We tested the Beta version of ColorOS 13 for an entire week, and here's what we think about Oppo's latest OS iteration.

Note: We tested a Beta version of ColorOS 13 on the Oppo Find X5 Pro that was loaned to us by Oppo India. The company had no input into the contents of this article.

VISUAL CHANGES

Oppo has brought a visual overhaul to ColorOS 13 and a couple of iterative upgrades over ColorOS 12. It makes sense since Android 13 is also a comparatively small, iterative upgrade to Android 12. ColorOS 13 has adopted a design language dubbed "Aquamorphic Design" which is inspired by water and its motion. This is apparent in the smooth transitions and animations, and the use of more rounded shapes for icons, folders, and widgets – meant to emulate pebbles.

The design isn't too different from the one on ColorOS 12 but there are enough small tweaks to make it feel fresh. If you so wish, you can choose to use Material Style icons in Settings rather than using Oppo's new Aquamorphic style of icons. Additionally, there are tons of customisation options available. You can edit shapes, colour, text size, and more as per your preference. Not just Oppo and Google apps, but third-party app icons can also be styled to a certain extent. Users who are fond of customising their devices

ColorOS 13 Home Screen

can easily sink hours into customisation. As for colour palettes, you can cstomise that as you please also. The preset palettes follow the aquatic theme and nature-inspired theme, with shades such as yellows, oranges, and blues being the dominant ones. The shade also changes throughout the day, to emulate sunrise and sunset times. You can change the system colour based on your wallpaper, but the implementation is not solid, and sadly, there is no Material You implementation yet as well.

There is a new Live Wallpaper that follows the "Aquamorphic Design" template as well. This wallpaper is called "Blossom" wallpaper and it provides an interesting way to measure the time spent on your time. You can set a phone usage target in hours within the wallpapers' settings and as you use your phone, the plant will blossom. But once you exceed your allotted time, the plant will begin to wither. It's a pretty interesting take on alerting users about their screen time.

The user interface has a card layout for easy visual

separation. This also kind of continues the rounded "pebble" theme as seen on icons and widgets. Sometimes though, the rounded-boxy card interface minimised how much information could be placed. If the corners of the cards were tightened up a bit more, there would be more space to fit in additional information or more notifications on a single screen.

Nevertheless, we quite enjoyed the revamped look of ColorOS 13. It looks a lot more classy, fluid, and simple. Although it's not quite as simple and minimalist as Stock Android or even One UI, this is a step in the right direction.

HOME SCREEN AND CONTROL CENTRE

The newly-designed app icons, that we spoke about above, are meant to be more recognisable and readable – even for people with visual impairments, according to Oppo. While we wouldn't go that far, we can definitely say that the contrast has been upped to make icons more recognisable. Also, the new 'Oppo Sans' font looks great with the Aquamorphic theme.

Oppo has also added a new type of folder to the home screen called Enlarged Folders. These folders eliminate the step of having to tap on the folder and then click on the app you're looking for. Instead, these folders are 2x2 folders that house app icons (without the names) that can be tapped on to directly open them – no extra steps required. You can also swipe within the folder to access more apps. We found these enlarged folders quite nifty, but since they eliminate the app's name, you should use these with easily recognisable app icons to avoid confusion. Oppo drew inspiration from iOS here and that's clear, but it's still nifty nonetheless.

New Blossom Wallpaper

Home Screen with Enlarged Folders

ColorOS also comes with a Shelf that's very similar to OnePlus' Shelf. You can pull down anywhere on the screen to access it. There is not a lot you can do with the Shelf at the moment except add some custom widgets and Spotify integration.

The Control Centre has been redesigned as well. The top part of the Control Centre houses two large toggles on the left and a media playback widget on the right. These toggles alongside the top five tiles are available even if you swipe down the notification bar just once, making them easy to access. The names of the small tiles are omitted when you swipe down once, but when you swipe down again to open the expanded control panel, the names appear. This helps keep things uncluttered and clean.

Another nice touch is the changes in the Control Panel or Centre in landscape mode. The Control Panel and Notifications Bar take up the whole screen in landscape mode now which looks much better compared to the panel with tons of empty space on the sides in ColorOS 12. Additionally, the Control Centre moves to the left while the Notifications Panel is situated on the right in landscape mode which makes it slightly easier to respond to notifications without having to scroll too far down.

ALWAYS-ON DISPLAY

Oppo has revamped its Always-On Display as well. Users can access and control Spotify and show relevant information from food delivery apps such as Zomato and Swiggy, all without unlocking the screen. We used the Spotify integration and found it to

be a bit buggy, double-tapping to access the music controls menu would take a bit too long to show up. Hopefully, this gets fixed when the OS is out of Beta.

Food delivery apps' integration is pretty great. The screen displays information such as "Order accepted", "Meal Picked Up", the distance to the destination, and more, so you don't have to constantly check these apps to know where your food has reached.

Oppo has also added extra Always-On animations featuring animals and nature. One wallpaper depicts changes in animals' homes due to temperature changes based on the daily temperature change in your area. It's a pretty cool concept, albeit a bit gimmicky. There's also an Insight Always-On display that tracks the user's number of phone unlocks in a day. There's a coloured line running across

Control Centre on ColorOS 13 (left) vs Control Centre on ColorOS 12 (right)

the screen and every time you unlock the phone and spend time on time, it creates a little dink or groove in the line.

Lastly, Oppo has continued on Bitmoji integration with ColorOS 13. You can display your own Bitmoji on the Always-On Display in various states such as working, listening to music, eating, and more. We personally don't see ourselves using this feature much and find it a bit unnecessary but some users may enjoy it.

All in all, Oppo has expanded the use cases of its Always-On display adding some meaningful features such as Spotify, Zomato and Swiggy integration. However, we really hope Oppo adds sup-

port for additional music players in the future since limiting this feature to just one music player seems wasteful.

PRIVACY AND SECURITY

ColorOS 13 has integrated some of the underlying privacy capabilities of Android 13 such as deleting clipboard history after a designated period of time. There's also the Nearby Wi-Fi feature that allows users to use Wi-Fi without revealing any specific location information.

Aside from Android 13 privacy and security features, Oppo has integrated some additional ones from their side as well. Firstly, there's the Auto Screenshot Pixelate feature. If you've ever wanted to take a screenshot of a conversation and share it, you may find this feature very useful. ColorOS 13 can automatically pixellate avatars and names in screenshots of chats. It uses AI algorithms to intelligently predict which part of the chat needs to be blurred out.

When we used this feature, it seemed buggy since there were many instances when the phone just gave out an Auto Pixellate error. Nevertheless, at times, it did work as advertised. Hopefully, the feature gets more stable and reliable over time since it is something that's pretty useful. This feature is available in Oppo's Messages app, WhatsApp, and Facebook Messenger for now.
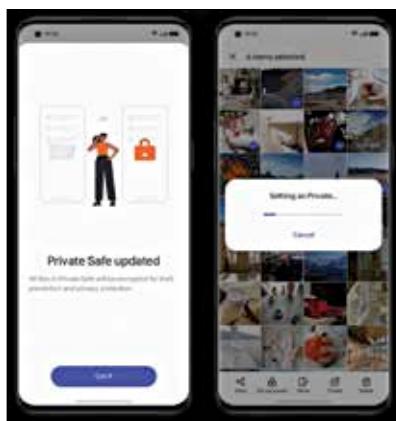
Another privacy feature added by Oppo is the Private Safe. This is a folder that is encrypted using the AES algorithm that stores the files in a private directory.

MISCELLANEOUS

Oppo's cross-device collaboration feature dubbed 'Multi-screen connect' has become more powerful in ColorOS 13. Multi-screen connect was first limited to Windows PCs, but it can now be used on an Oppo tablet too such as the Oppo Pad Air. The feature allows you to seamlessly transfer files between your phone and connected device. ColorOS 13 has added support for more file types. You can also directly edit files stored on your phone from your PC or Oppo tablet, which is very useful.

The newest addition to this feature in ColorOS 13 is the ability to get all of your notifications synced and to be able to fully control your phone remotely. At times, we found that clipboard sync was a bit buggy, where the clipboard data did not show up on the connected device, but most times, the feature worked quite well.

Private Safe

ColorOS 13 also sports a feature called 'Meeting Assistant'. It includes features such as simplified or less distracting banner notifications during online meetings, note-taking in a pop-up window, and background network optimisation for video calls.

Aside from these, Oppo also claims that its new software is more battery efficient. The company also states that more apps can remain active in the background due to improved memory management. We haven't tested these claims thoroughly yet, but when we do, we'll surely update this article with our findings.

COLOROS ROLLOUT SCHEDULE

Due to Oppo's close ties with Google on the Android OS front, Oppo users usually benefit from earlier and timely updates for their devices. Oppo has shared a tentative ColorOS 13 rollout schedule that is subject to change, so take it with a grain of salt. Oppo notes that all of these upcoming ColorOS 13 updates will be based on Android 13. Here's the tentative rollout schedule:

- From September 2022: Reno8 Pro 5G
- From October 2022: Reno8 5G, Reno7 Pro 5G, Reno7 5G, Reno6 5G, F21 Pro, K10 5G, A76
- From November 2022: Reno6 Pro 5G, Reno6 Pro 5G Diwali Edition, Reno5 Pro 5G, F21 Pro 5G, F19 Pro+, K10, A96
- From December 2022: Find X2, A74 5G
- From H1 2023: Oppo Pad Air, F19 Pro, F19, F19s, A77, A57, A55, A53s 5G

VERDICT

ColorOS 13 continues Oppo's trend of improving their operating system year after year, bringing it closer than ever to a Stock Android minimalist look and feel. While there are still some bugs and tons of bloatware, ColorOS 13 feels more fluid and responsive than its previous renditions. The visual flair and tweaks are quite elegant yet muted. They don't ever feel too garish. Additionally, features such as multi-screen connect with notifications sync, auto pixellate, AOD improvements, and more are not just gimmicks. These are features that we actually found to be quite nifty in real life. Overall, ColorOS 13 is the best iteration of Oppo's operating system yet. d

digit Config

Everything you'll ever need to build your own PC. Whatever your budget.

INTEL

BASIC RIG

Processor	Intel Core i3-12100	11,550
Motherboard	ASUS PRIME H610M-E D4	7,200
RAM	Crucial DDR4 3200 MHz (2 x 4GB)	3,400
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	Intel UHD Graphics 730	0
PSU	Corsair CV450	3,099
Speakers	None	0
Mouse	Logitech MK200 Wired Keyboard and Mouse Combo	980
Keyboard	Logitech MK200 Wired Keyboard and Mouse Combo	0
Sound Card	None	0
Sub-total	(Excluding Monitor)	30,528
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	OEM Cabinet	1,000
TOTAL		**₹41,728**

ENTRY-LEVEL GAMING

Processor	Intel Core i5-12400F	16,150
Motherboard	ASUS PRIME H610M-E D4	7,200
RAM	G.SKILL Sniper X Series DDR4 (2 x 8GB) 3600 MHz	6,299
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Corsair CV450	3,099
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	86,170
Monitor	Samsung Odyssey 24-inch LF24T352FHWXXL	13,387
Cabinet	MONTECH X3	5,450
TOTAL		**₹1,05,007**

SEMI-PRO VIDEO EDITING RIG

Processor	Intel Core i9-12900K + Noctua NH-D15	63,438
Motherboard	MSI MAG Z690 TOMAHAWK WIFI	25,199
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	Seagate Barracuda 2 TB (ST2000DM005)	4,399
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headphones	beyerdynamic DT 770 PRO Studio Headphones	12,999
Mouse	Logitech MX Master 3	6,999
Keyboard	Logitech MX Keys	10,299
SSD	Crucial P2 1 TB SSD	6,899
Sub-total	(Excluding Monitor)	2,06,431
Monitor	Dell U2723QE	54,667
Cabinet	Cooler Master MASTERBOX TD500	8,184
TOTAL		**₹2,69,282**

BASIC GAMING

Processor	Intel Core i5-12400F	16,150
Motherboard	ASUS PRIME H610M-E D4	7,200
RAM	Corsair Vengeance RGB DDR4 (2x 8GB) 3200 MHz	5,400
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	Gigabyte GeForce GTX 1650 D6 OC	18,199
PSU	Corsair CV450	3,099
Headset	ASUS TUF Gaming H3	3,099
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	63,970
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	MONTECH X3	5,450
TOTAL		**₹79,620**

MID-RANGE GAMING

Processor	Intel Core i7-12700F + Noctua NH-C14S	35,798
Motherboard	MSI PRO B660M-A DDR4	14,950
RAM	Corsair Vengeance LPX DDR4 (2 x 8GB) 3600MHz	6,190
HDD	Seagate Barracuda 1 TB (ST1000DM010)	3,250
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master MWE Gold 650W V2	6,900
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	Cooler Master CK550 V2	6,962
SSD	WD SN570 500GB NVMe M.2 SSD	4,233
Sub-total	(Excluding Monitor and Cabinet)	1,23,782
Monitor	LG 24GN650-B 24-inch 144 Hz	16,150
Cabinet	Cooler Master Masterbox K501L	3,950
TOTAL		**₹1,43,882**

RIDICULOUS GAMING

CPU	Intel Core i9-12900K	53,500
Motherboard	GIGABYTE Z690 AORUS MASTER	43,899
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	NVIDIA RTX 3080 Ti Founders Edition	1,13,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headset	HyperX Cloud II	9,990
Mouse	Razer Basilisk V3	6,565
Keyboard	SteelSeries Apex Pro	27,999
SSD	AORUS Gen4 7000s SSD 1TB	15,149
CPU Cooler	Fractal Design Celsius S24 Prisma Liquid Cooler	16,649
Monitor	Samsung Odyssey G7 32-inch 2K 240 Hz	43,750
Cabinet	Fractal Design Torrent	15,490
TOTAL		**₹3,88,489**

CONFIGS

REJOICE PC MASTERRACE! FOR THE FIRST TIME IN A LONG TIME WE HAVE SEEN A DROP IN THE PRICES OF GPUs AND OTHER COMPONENTS. IS THIS THE SIGN OF ALL THE GOOD THINGS TO COME, OR A FALSE HOPE?

AMD

▶ BASIC RIG

Processor	AMD Athlon 3000G	6,399
Motherboard	GIGABYTE GA-A320M-S2H	4,340
RAM	Crucial DDR4 3200 MHz (2 x 4GB)	3,400
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	Radeon Vega 3 Graphics	0
PSU	Corsair CV450	3,099
Speakers	None	0
Mouse	Logitech MK200 Wired Keyboard and Mouse Combo	980
Keyboard	Logitech MK200 Wired Keyboard and Mouse Combo	0
Sound Card	None	0
Sub-total	(Excluding Monitor)	22,517
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	OEM Cabinet	1,000
TOTAL		**₹33,717**

▶ BASIC GAMING

Processor	AMD Ryzen 5 4500	9,999
Motherboard	GIGABYTE A520M S2H	5,970
RAM	Corsair Vengeance RGB DDR4 (2x 8GB) 3200 MHz	5,400
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	Gigabyte GeForce GTX 1650 D6 OC	18,199
PSU	Corsair CV450	3,099
Headset	ASUS TUF Gaming H3	3,099
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	56,589
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	MONTECH X3	5,450
TOTAL		**₹72,239**

▶ ENTRY-LEVEL GAMING

Processor	AMD Ryzen 5 5600X	17,499
Motherboard	ASUS PRIME A520M-K	5,225
RAM	G.SKILL Sniper X Series DDR4 (2 x 8GB) 3600 MHz	6,299
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Corsair CV450	3,099
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	85,544
Monitor	Samsung Odyssey 24-inch LF24T352FHWXXL	13,387
Cabinet	MONTECH X3	5,450
TOTAL		**₹1,04,381**

▶ MID-RANGE GAMING

Processor	AMD Ryzen 7 5800X + Noctua NH-C14S	34,249
Motherboard	ASUS TUF GAMING B550 PLUS	15,400
RAM	Corsair Vengeance LPX DDR4 (2 x 8GB) 3600MHz	6,190
HDD	Seagate Barracuda 1 TB (ST1000DM010)	3,250
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master MWE Gold 650W V2	6,900
Headphones	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	Cooler Master CK550 V2	6,962
SSD	WD SN570 500GB NVMe M.2 SSD	4,233
Sub-total	(Excluding Monitor and Cabinet)	1,22,683
Monitor	LG 24GN650-B 24-inch 144 Hz	16,150
Cabinet	Cooler Master Masterbox K501L	3,950
TOTAL		**₹1,42,783**

▶ SEMI-PRO VIDEO EDITING RIG

Processor	AMD Ryzen 9 5950X + Noctua NH-D15	56,138
Motherboard	ASUS ROG Strix X570-F	29,280
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	Seagate Barracuda 2 TB (ST2000DM005)	4,399
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headphones	beyerdynamic DT 770 PRO Studio Headphones	12,999
Mouse	Logitech MX Master 3	6,999
Keyboard	Logitech MX Keys	10,299
SSD	Crucial P2 1 TB SSD	6,899
Sub-total	(Excluding Monitor)	2,03,212
Monitor	Dell U2723QE	54,667
Cabinet	Cooler Master MASTERBOX TD500	8,184
TOTAL		**₹2,66,063**

▶ RIDICULOUS GAMING

CPU	AMD Ryzen 9 5900X	37,599
Motherboard	MSI MPG X570S CARBON MAX WIFI	32,700
RAM	Patriot Viper RGB (2x 16GB) DDR4 3200MHz	23,199
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	NVIDIA RTX 3080 Ti Founders Edition	1,13,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headset	HyperX Cloud II	9,990
Mouse	Razer Basilisk V3	6,565
Keyboard	SteelSeries Apex Pro	27,999
SSD	AORUS Gen4 7000s SSD 1TB	15,149
CPU Cooler	Fractal Design Celsius S24 Prisma Liquid Cooler	16,649
Monitor	Samsung Odyssey G7 32-inch 2K 240 Hz	43,750
Cabinet	Fractal Design Torrent	15,490
TOTAL		**₹3,61,389**

Geminos

Link: dgit.in/Geminos
Funding: $ 2,085,581 pledged of the $ 25,000 goal

If you are a productivity freak or like most of us at Digit a fan of multi-display setups, then these Geminos - Stacked screens are just the right product for you. Built with the purpose to let you have "enhanced productivity", this Kickstarter product comes packed with features.

There are two variants, the Geminos and the Geminos X. It has two touchscreen 24-inch displays 1440p displays, which have an advertised peak brightness of 300 nits. Additionally, the creators claim that the display will have a built-in 1080P webcam and speaker setup.

For the casual gamers out there, the display is capable of reaching refresh rates up to 75 Hz. In terms of power, this display has 100W USB-C passthrough charging, and the option to add additional accessories.

The lower tier variant, the Geminos has two 24-inch non touch displays, which have a peak brightness of 250 nits, and a lower refresh rate of 60 Hz. This display is also capable of supporting the advertised additional accessories, which include a Kapsule pod speaker, mobile pixels keyboard and mouse set, etc.

As advertised, this display setup is targeted towards providing an ergonomic experience to its backers, ensuring that they make the most of their time too! Backing up this claim is the fact that this display set-up, which if executed well would be the perfect all-inclusive setup, thanks to the single point USB-C connection.

BANDO 4.0

Link: dgit.in/Bando
Funding: $ 150,844 pledged of the $ 10,000 goal

BANDO 4.0 is the product that accurately matches the modern lifestyle trends. It is a multifunctional slim wallet, which brings to the table, a plethora of features and options, while being a slim package, overall. After several studies reflected the adverse effects of sitting on one's wallets for a prolonged period of time, there was a surge in demand for slim wallets. And BANDO 4.0 aims to fulfil this demand.

It is a minimalist slim wallet, which the creators claim, "does everything you need". Well, their claims are in line with the advertised features. The wallet claims to have features like a magnetic security latch that prevents your cards and other contents of the wallet to slip out. Additionally, there's the one touch quickdraw, giving you quick access to the cards stored in your wallet. It also has a transparent ID flap, which lets you instantly display your ID card when needed.

There is also the gel grip cash band to hold your currency notes. Inside the BANDO 4.0, there is also a secret compartment for storing important cards and valuables. The material used to make this wallet is premium microfiber leather canvas, so it should also last you for a relatively long time. The three colours that it is advertised to come in are – cobalt blue, vantablack, and sand.

Kaarto

Link: dgit.in/Kaarto
Pledge: $22,544 pledged of the $980 goal

Kaarto is more than a pen. At least, that is what its creators claim. This bird-feather-like pen is marketed to revolutionise the next generation of pens that we would be looking forward to. The makers of this pen on the product page, tout it to be a "Precise and light ergonomic pen".

The other promises that have been made on the project page include the fact that it is precision-machined, which lends it a quality in construction and longevity, meaning that you won't need to buy another £35 pen after you pledge the money on its Kickstarter page. The maker of this pen, Mehrshad Abbaslou, commenting on the finish of this pen wrote on the page, "I also designed a stand for Kaarto that would make it into the perfect stationary piece. With my love for pens and stationeries, I wanted to design something that was minimal, yet strong and timeless. I want you to be happy displaying Kaarto on your desk."
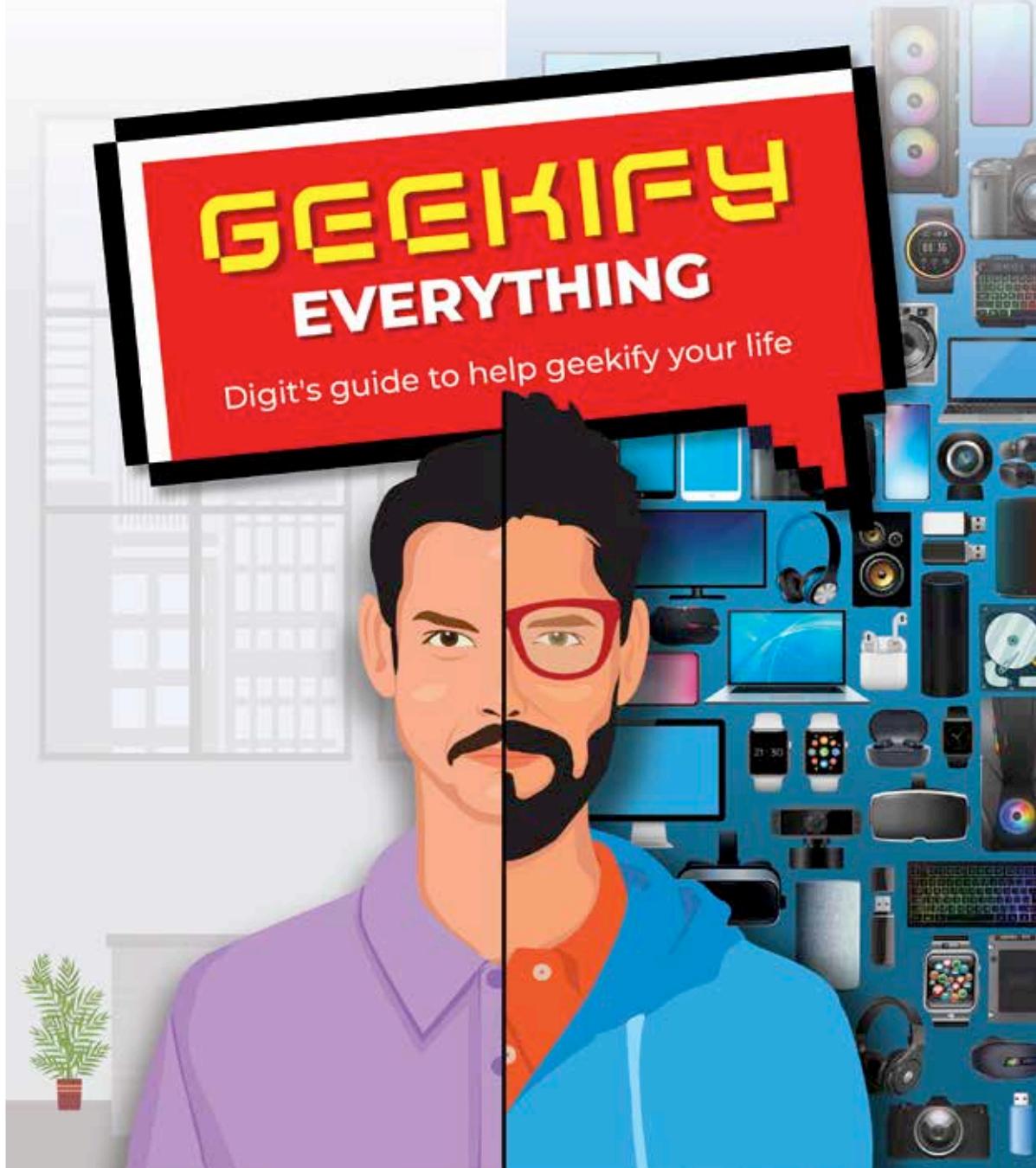
All in all, this is a pen that you would not buy to write your next examination in a crunch. This is something that you would buy as a novelty piece to test this new proof of concept floated by its creator.

GEEKIFY
EVERYTHING
Digit's guide to help geekify your life

This month's cover story is focussed on giving you ideas about how you can geekify your home, workspace, desktop and even your life as you travel. What makes us all geeks is our ability to use technology in ways most common folk wouldn't. We're not going to spoon-feed you a bunch of DIYs however, because that would just make you one of tens of thousands of people who would follow this guide. Instead, we're going to whet your appetite and encourage you to think out of the box and be unique... be yourself!

INDEX

Imaging: Anil VK

WORKSPACE

Boss, this week's colour theme is dedicated to Baby Yoda!

Satvik Pandey | satvik@digit.in

Our workspaces are one of the most challenging places to geekify. There is often very little that can be done to make your workspace geekier. There's also a mountain of things you need to consider when making changes to the aesthetic appearance and overall vibe of your workspace, because you don't own that space, the company does. However, there is always a way, even if options are limited. In this article, we've collected some of those ways to help you get started with geekifying your workspace.

UNDERSTAND THE PHILOSOPHY OF COLOUR

Coordinating colours at your workspace can be task, but try to do it as well as you can, because it adds a lot to the overall vibe of the place. It is not just us saying that. Several thorough psychological studies and research have proven that choosing the right colours in a space like your workspace makes a big difference to your productivity.

A research paper titled 'Introduction to Philosophy of Colour' by Derek H. Brown and Fiona Macpherson, notes: "Colour is, unsurprisingly, central to work in vision and, for better or worse, vision often dominates philosophy of per-

ception. In this way, colour informs our understanding of the nature of perceptual states, the appearance-reality division, and of perceptual phenomenal character."

While we can't list out all of the studies done on the topic, the results are pretty much similar. Just use Google Scholar to search for "colour in the workspace", and you will be presented with a plethora of research papers and scientific literature that will help you understand the philosophy of colours better.

However, you're not going to show up at work with paint, drop sheets and brushes, and start painting your cubicle or cabin! Instead, one of the best ways for you to make sure that the colours are in-line with what you want to reflect in your workspace is to colour match the accessories and other things that you have in and

Despite being in the same setting, there is a stark difference in the vibe of both the workspaces

around your workspace. Then you can simply pick and choose your desk accessories and posters that are colour coordinated.

If you want to go the extra mile, then you can always go ahead and skin your gadgets and get your colour co-ordination game to the next level. One of the many tools available online to help you get started with choosing the perfect base colour for your workspace is a tool developed by 99designs. You can get started with this tool at the following link: https://dgit.in/99Colours and if you want to read the research paper that we referred to, you can find it at the following URL: https://dgit.in/ColourPhilosophy

REPURPOSE STORAGE

While this isn't the most groundbreaking advice we've given in this magazine, it's something a lot of people still surprisingly forget to do. A true geek should be repurposing old empty boxes of the tech or gadgets that you buy to make your workspace look even more interesting and reflect your geekiness. At Digit, we get a lot of special edition packages, and you will see many of these making an appearance on our desks. Many of us also use special edition game/tech boxes on our desks to store our knick-knacks.

Not only does reusing boxes make your workspace look and feel cool and adds that geeky touch to it, but you are also doing your bit to save the environment. So that is hitting two targets with a single shot! Also, don't forget to use our posters at work as well as at home.

GET HANDS ON!

Make your own stuff! If you are a true geek or on the path to being one, then you'd probably know that there is a whole different level of pride that

you'd get by seeing a table lamp that you made on your own. Why not do the same for your workspace? Get your hands dirty and get inspiration from the internet, which honestly is filled with articles and guides. And you don't have to just copy them blindly, use them as inspiration to put your own unique spin on the ideas and make them your own.

Not only will a bespoke desk ornament that you created yourself fill you with pride, it's also a great talking piece with colleagues, and even your bosses. If it reflects your geek culture interests it could help you make a new friend in the office who has the same interests. And of course, everyone loves creative people, and it's in your interest to be known as that in your company.

INVEST

This is not a call for you to go and start investing your money and making it 'work' for you while you toil away at your workplace. This section is for our WFH readers who sit in the worst of positions while working on their laptops or computers, and probably have to end their day with a dose of pain killers. if you're going to be working from home for long period, or even every alternate day, start investing in making sure you have an ergonomic

Source: Van Neistat via YouTube

If that is not a cool looking lamp then we don't know what is!

setup, or space where you can work from. And don't forget to make it feel like a place where work gets done.

Of course, top quality ergonomic tech commands a premium that not too many of us can afford, but that doesn't mean we do nothing. Take it slow, and do the basics first. Start with changing small things like adjusting the level of your monitor to meet your eye level can make a world of difference on its own. Work on posture, lumbar support and all of the things that doctors recommend (easily found online).

If you want to buy tech, start small with a good ergonomic mouse and keyboard. Our recommendations here would be the Logitech MX Master 3 or the 3S. If you run short on money, you can even settle for the last-generation Master 2S from Logitech.

Working from home doesn't have to result in neck or back pain

If you want to stick with your existing keyboard, then propping up the legs on the back and getting a wrist rest could go a long way towards helping you avoid wrist pain. If you are open to experimentation, then the Microsoft 5KV-00001 Sculpt Ergonomic Wireless Keyboard, is a good bet.

When it comes to seating, this can be subjective. Our recommendation would be the Herman Miller Embody. Yes, it is an expensive chair, but if you spend hours in your chair working and gaming, your back will thank you in the long run.

We hope our suggestions help you not only make your workspace unique, but also more comfortable, and more a statement of who you are. If you use any of our suggestions, or want to show off your workspace, send over a picture to **editor@digit.in** or DM us on Instagram (**@digit.in**).

SOCIAL MEDIA

A profile without a Yoda theme? Pfft...

Jayesh Shinde | Jayesh@digit.in

hether it's watching an endless stream of Reels on Instagram or scrolling through tweets on Twitter, forwarding a meme on your family WhatsApp group or tapping into your news feed on Facebook, social media platforms are increasingly becoming our gateway to most of what we do online. How you act on social media will go a long way in deciding how people perceive you, at least to begin with.

From famous social media personalities with millions of followers to profiles of places, institutions, companies or things, you'll see that the secret for attaining success on social media is nearly the same for all of them.

DON'T BE FACELESS

How would you feel if you were reading posts made by a faceless social media profile, or a social profile that doesn't have a display picture? Our brains create identities of social media entities the same way we create

personas of people we meet in real-life, scientific studies have shown. Therefore, having your mugshot is the absolute bare minimum to make your social media profile, well, personable and relatable – apart from your short bio, of course, please don't ignore it as well.

Remember, it's important to not be faceless on social media, but that's not the same as saying you should be obsessed with how you look either. While the former is a courtesy, the latter is a slippery slope that's actually one of the biggest ill-effects of social media, especially with Gen Z and millennials.

FACT CHECK EVERYTHING
Another menace of social media is the explosion of fake news. Experts are calling it an 'infodemic', a deluge of information overload of such unimaginable magnitude that sifting through it to verify if it is fake or not is almost always going to be an

immensely time-consuming effort. Browser extensions like B.S. Detector helps label a piece of information if it originates from its database of fake news websites. Online destinations like FactCheck.org take the help of independent fact checkers to label incorrect information floating around on social media, and WayBack Machine can always let you compare a website or online fact across different snapshots of time.

Next time you want to forward something on your WhatsApp

groups, think if that piece of content is actually true and if it can cause damage by being misinterpreted.

IMAGE > WORDS
The old adage of a picture being worth a thousand words couldn't be more true, especially in a space-

starved social media post going up on Twitter – after all, 280 characters is still too low. Because our brains respond so quickly to images and colour in comparison to other types of information, an image is an almost irresistible way to draw attention to your post on social media. It's crucial to ramp up your social media chops.
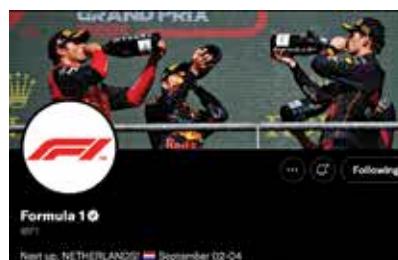
Get used to applying impactful image-led posts for conveying deeply meaningful messages, where less is more in every sense of the word. Use websites like Canva.com for templating your image-related social media posts. Instead of text, try making your post into an infographic instead from time to time.

NAME YOUR HANDLE WELL
Part of your social media identity is going to be defined by your online name. It's what most people will associate yourself with when they're trying to think about you,

of course. If you want to be taken seriously by others on social media, then it's imperative you have a non-trivial name.

Choose your real name or something that's associated with your pedigree or personality. A lot of people still like to stay anonymous, which is fine — but that's not the same as choosing a name that's reminiscent of the "screen name" trend of Yahoo Messengers, ICQ and AIM chat apps.

BE HUMAN
Whether your posting on social media on behalf of a company or brand or doing so in your own personal capacity, it's important to remain human in all your online posts and interactions. Treat people with respect, be polite and don't ever post anything that will divide or upset the reader.

Passing the captcha test doesn't make you particularly human. Behave like one.

CONSISTENCY IS KEY
One of the biggest reasons why social media posts don't resonate with the audience is simply down to lack of consistency. It can be as

Gotta pump those Snap blasts out!

simple as consistently posting certain stories during certain times of the day, ensuring consistency of tone and voice especially if it's a serious message. Whether you're posting an image or Infograph, be consistent in your look and feel from every possible aspect to gain user trust and better engagement. 🅳

COMMUTE

Carpe diem baby!

Satvik Pandev | satvik@digit.in

ommutes to school or work are our daily lives' most mundane and tedious parts. Most of us are stuck in a crowded bus or a train, or if you are travelling using your own vehicle, there's a very high chance that you are stuck for hours in traffic, all by yourself. And, with the limited resources and the enormous brain power we have as geeks, very little can be done to, you know, "kill time" during your commute. So, we found some ways in which you can geekify your travel and spend your commute time in the best way possible.

GET THE CHORES OUT OF THE WAY

We are not talking about you going to town with cleaning every corner of your backpack when on the bus ride back home. What we mean by saying that your commute can be a great time to get your chores out of the way is that you can use your commute time to get rid of the digital chores.

The five things that you could tackle as a part of your daily digital chores are:

- Declutter your email inbox and delete unnecessary emails,
- Unsubscribe from mailing lists,
- Get your cloud backups sorted,
- Organise your digital photo library, and
- Weed out apps and services that you no longer use.

Performing these tasks in the time you would otherwise spend getting bored is something that could prove immensely useful in the long run. Once you get into the habit of doing

Get your digital affairs in order

these things on your commute, you will get a schedule in order that you wouldn't even realise becoming a part of your daily lives.

SMART TECH
Whether you use HomePod by Apple or other assistant devices by Google and Amazon that are available on the market, they're all a great starting point for your smart home setup. Once you have chosen the base platform, you can start buying products with interoperability with your platform inbuilt. You could start with something simple like a smart plug to control an older dumb device or appliance from your phone. This could be for something as simple as turning on the kettle for tea as you're reaching home. You could also start your washing machine at the opportune time to have freshly washed laundry to hang up as you reach home, or an air condi-

Let me start baking that pizza...

tioner to arrive home to a comfortably cooled or heated home. More importantly, you could use smart cameras, or doorbells to attend to deliveries while you're away from home, and use two way communication to even talk to them. Very useful when you're running a tad late and that courier you've been waiting desperately for shows up. Now you could ask them to wait for a few minutes instead of re-arranging a delivery time.

Of course there are a plethora of other things you could do as well, with everything from smart TVs to fridges, cameras, speakers and more, and your imagination is the only limiting factor.

SWITCH OR DECK IT UP!
You may have seen this one coming but for geeks, there is nothing better than squeezing in a round or two of your favourite game during your

commutes. Well, there is no harm in gifting yourself a Nintendo Switch, or we hear talks that Steam Deck could land in India soon, so you could get one of those if you want to.

The Switch is a 5-year-old portable console that had come in as a replacement for the fabled Wii U and 3DS from Nintendo. Despite its age, it is clear that Nintendo plans to continue supporting it for a long time from now. At least in technology years. Even if Nintendo plans to make a newer console, the indications are that there will be backwards compatibility, so you should be set for some time. There is an extensive library of games that is available on the Switch for you to look into, and if you are running short on cash and still want the Nintendo experience, then you can also consider getting the Nintendo Switch Lite. As for the Steam Deck, the international reviews look promising. However, we can't make any promises unless we get the unit in hand. But you can hope to see the Deck being listed on Steam's India portal soon.

TOOL IT UP
If you travel using your own mode of transport, say a motorcycle, an electric scooter, or a bicycle, one of the best recommendations for you is

NOT THE CHAMPION... Get the Champ

to invest in a multi-tool. Yes, it might not be the geekiest of things on first look, but it is extremely practical and is something that you can flaunt whenever and wherever you want, looking like Keanu Reeves in speed wedging open an elevator door! And... They also come in handy for multiple purposes. They come with a pliers, a scissor, a serrated knife, and even a pen!

We have three different recommendations for you. If you are looking to spend a little bit, then you can go for the Leatherman 831426 Wingman Multitool or the Victorinox Swiss Champ Multitool. Keep in mind it is the Champ, and not a Champion. Both these multi tools come in around the ₹7,000 mark and are available in India on multiple major ecommerce stores. If you are on a budget, and do not want to spend that amount of money, then you can also look at the Bosch 12-in-1 Metal and Plastic Tool Plier Set. It comes in at a tenth of the price of the offerings from Victorinox or Leatherman. But keep in mind, that the reduction in price comes in with a reduction in quality too.

DO NOTHING
Yeah, you read it right. Before or after an intense day of work or school, it is important to keep your mind clear and uncluttered. Instead of overloading your brain with tech, maybe you want to do *nothing*. If a blank mind seems impossible to do, spend time isolating your mind at least. Read a book, listen to your favourite tunes, do some planning, make a to-do list, or just work on yourself. All of these things you can do when in public transport, including dozing off for a short power nap.

Obviously if you're the one driving you cannot do any of that as you need to pay attention to the road and traffic. You can still work on yourself by listening to podcasts, or an audio book, and something we don't do enough of, is catching up with family. There's nothing like using the boredom of a commute alone in a car to catch up with family members or friends who you don't get to spend enough time talking to. ◼ **d**

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DESKTOP

JARVIS... Fetch me a bottle of Coke, please

Satvik Pandey | satvik@digit.in

As a geek, your computer must be one of those devices that you are glued to for most of your day. And, if you haven't already, you already must be looking for ways to make your computer geekier or, you know, make it like JARVIS. Well, we aren't smart enough to tell you how to make your own sentient AI assistant, however, we sure have some things that would help you make your desktop geekier.

AUTOMATE EVERYTHING!

We are on the brink of the era where one voice command or a click of a mouse button would enable us to do virtually everything that we could think of. Unknown to most users, our normal-looking operating systems, be it on the phone or computer systems, come equipped with features that enable the automation of tasks to a great extent. Windows, macOS, or even Linux; every oper-

ating system environment has tools you can use to eliminate the hassle of performing mundane tasks on your devices. And, we geeks are known for living life the 'easy' way. So, let's have a look at how you can automate tasks in your OS of choice.

Windows
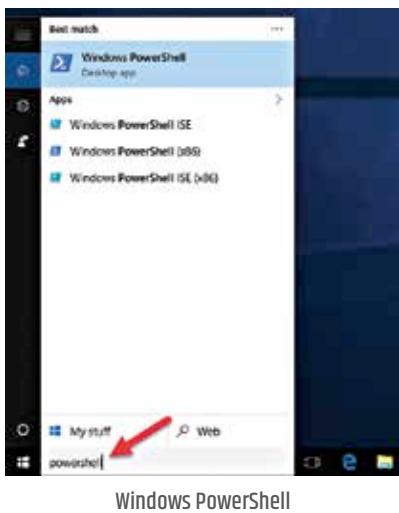
There are three main tools in Microsoft Windows that allow users to automate tasks. They are PowerShell, Command Prompt with Batch Files, and Task Scheduler. Each of these three tools has its own purpose and can be used

by users with varying levels of proficiency when it comes to writing code and playing around with batch files.

There are countless code snippets that are available online that would help you automate tasks in Windows. For us, one of our go-to snippets is the one that shuts down our PC automatically at a certain time of the day. We love to game and browse Reddit for hours at end, but having adequate rest is important too, so you'd find many of us here at Digit running the following script on our Windows machines:

```
Code:
@echo off
:a
If %time%==00:00:00.00 goto :b
goto a:
:b
shutdown.exe /s /f /t 120 /c "GO TO SLEEP!"
exit
```

All you need to do is take this piece of code, write it in Notepad, and save it as a .bat file. Next, take this file and

Windows PowerShell

place it in the Startup folder of your system. This script, when enabled, displays the message in quotes at midnight and then proceeds to shut off the machine after two minutes. You can customise the message, by changing the text in quotes, time by changing the value mentioned after `%time%`, and the warning period by changing the number after `/t`. If you are working on something important, and want to stop your machine from shutting down, you can do this by pressing `Windows + [R]`, then typing `shutdown -a`, and pressing `[Enter]`. And, for someone looking to further experiment with pre-made scripts, the doors of GitHub are always open.

macOS
macOS has always been known to be a relatively restrictive operating system, especially when it comes to customisation and modifications to "make it your own". However, the operating system ships with an app called, Automator that helps you easily setup automated on your MacBooks.

To create an automated task on your MacBook, just open the app, and select the type of automation you want on your machine. There are six categories – Workflows (Series of tasks running within Automator when its open), Applications (Self-running workflows that run without Automator), Services (Workflows related to the contextual menus of apps), Printer Plugin

(All things printer related), Folder Actions (Folder related tasks that are triggered by changes made to the attached folder), Calendar Alarms (Workflows linked to calendar events), Image Capture Plugin (Workflows from the Image Capture App), and Dictation Commands (Workflows triggered by dictation commands).

Once you have selected the category, there is a unqiue way in which you have to then go and create your custom workflow. Apple has a comprehensive workflow guide on their webpage that you can refer to. Follow this link to get to the guide: **https://dgit.in/AutoGuide**

For the people who prefer to go the Linux route, there is a good chance that you might already be on the distro that suits your needs. If not, you can always refer to the list of distros that we feature in our eDVD, or refer to distro directories like DistroWatch, which are regularly updated, and find the distro of your choice.

MAKE IT YOUR OWN
Now that you have automated tasks, and configured your system to shut down at a fixed time, we'd like to delve into some customisation options that you can use to ensure that your system looks and feels like it truly belongs to you. There are several ways to achieve great levels of customisation.
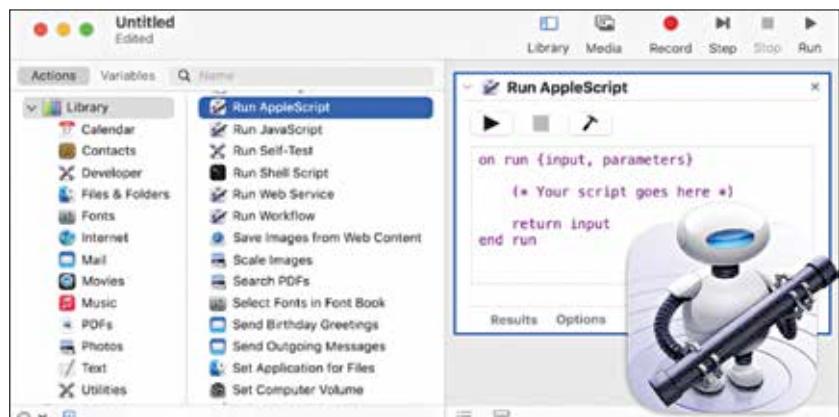
On Windows, you can customise literally anything. When talking about looks, you can opt for premade themes. r/DesktopThemes and r/Windows10 have several posts made by curators and developers of themes for Windows that let you give your

device a complete visual overhaul. There's also a tool called RainMeter that is popular in the PC customisation community. It allows for a greater level of customisation control that would help you make your PC look much better than it was before.

You also customise your mouse cursor. Just head over to the `Control Panel > Mouse Properties > Pointers`. From there, click the `Scheme` button, and then click `Customise` for the pointer you want to change. Click on Browse and select the pointer. After that, click Open, and your cursor will be set to the style of your liking. To get additional cursor designs, you can visit repositories like Deviant Art and RE Designer to get cursors for free for personal use. You can modify the alert and other clicking sounds on your Windows machine to sound like an R2D2 or whatever you want.

Over time, you can also build your own repository of wallpapers and desktop backgrounds that you can cycle through. There are certain wallpapers available for free on the internet which, when coupled with well-arranged icons can make your PC look great! Talking about icons, Windows also allows for installation of custom icon packs. So, you can experiment with those too!
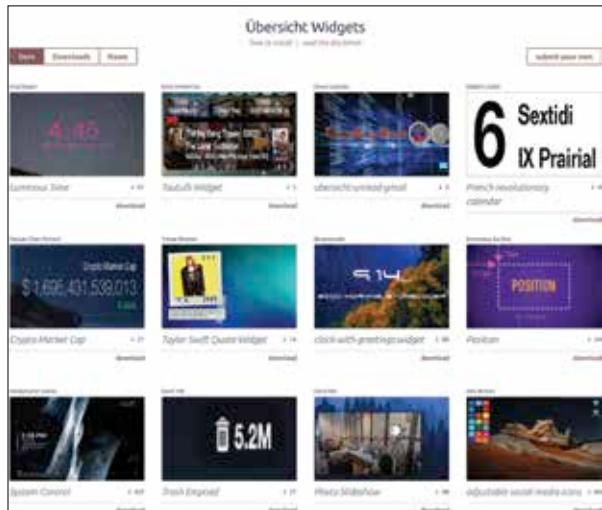
For macOS users, the options are limited. macOS itself does not allow for plenty of customisations apart from basic tweaking here and there. However, apps like Übersicht allow for customisation of your desktop. Übersicht is a tool that runs on MacOS, helping users customize

Apple's macOS Automator

A custom desktop made using RainMeter

Übersicht offers various custom widgets for macOS users

their desktop space with cool and extremely useful widgets written in JavaScript and HTML 5. Developed in Germany, Übersicht is known for being user friendly as a tool, and something that can be used by anyone who can find their way through PowerPoint.

When talking about Linux users, there are endless possibilities. There is Font Squirrel that provides one of the best and most comprehensive font libraries of all. You also have Conky, GNOME, Cinnamon, Xfce, KDE Plasma, etc. which basically open the door to endless possibilities. You just have to know the right commands and you're set. And, there's no dearth of guides for beginners either.

CREATE AN RSS FEED
This tip might look like something straight out of the ancient scriptures for the zoomers and Gen Z readers, but having an RSS feed is the way to go if you want to read internet content the geek way. It does look like a

tedious job to setup an RSS feed from scratch but once set, it can be really useful, and help you stay up to date.

Nowadays, you can even your RSS feed to Apple Podcasts, Google Podcasts, and Spotify to your RSS feed. There are aggregators available that can help you get fresh content delivered to your feed as soon as it is published online. Some of the popular RSS feed aggregators are the RSS Feed Reader Chrome Extension by Feeder.co, Feedly, Feeder, News-Blur, Inoreader, and Feedreader Online.

CUT DOWN ON THE SPAM
These days spam content on your email or phone is something that many can't seem to get rid of. Despite our best efforts these internet predators find a way into your mailbox. Especially if you are a geek, you'd not want that weekly Game of Thrones newsletter to be stuck behind a bunch of spam emails. And, once you are on the mailing list of these spam services, there is no way you'd be getting rid of the thousands of emails that you will get from the Crowned Prince of NOObistan, who'd want to transfer all their inherited funds to your account.

Getting rid of spam emails is a pain. While Google and most other email service providers these days do a great job of filtering spam emails, there are dedicated spam filters that we would recommend you to try out. Spam filter services like SpamArrest provide dedicated solutions for filtering out spam content from your email mailbox. Most of these services have a simple setup process after

which you can focus on your work rather than being blasted by hundreds of unwanted emails a day.

One thing that we'd like to caution you against is that before installing any such service, always do your background research about the legitimacy of the service. Since most of these services work by getting partial access to your email, anyone with malicious intent can cause a lot of damage. They'll work away in silence, and you'd only know about the damage that has been caused much later when it's too late to do anything.

CREATE YOUR OWN JARVIS
If you remember, at the start of this article we said we can't tell you how to make your own JARVIS-like system? We weren't ling. Instead you can pretend to be Tony Stark. This Indian-made app's name is LINKS (available at **mega-voice-command. com**). Currently, it's in beta, but it's available to download and try.

You can choose a name for the assistant during setup, and of course we chose JARVIS. After that, you can throw basic voice commands at it like "Jarvis, open Google", "Jarvis, play music", "Jarvis, what's the weather", and "Jarvis, get a new email." This system does not work flawlessly, and your phone is probably capable of more, but what your phone doesn't have, are the large speakers or nice headphones that most of us have

At least it looks cool

attached to our PCs. There's just something about talking to your desktop PC that feels more empowering. You can of course get Alexa for your desktop too from the Microsoft Store, but there's just something about being able to specify a unique name that you choose. Such a small yet powerful difference that other assistants need to consider copying! **d**

cult

THIS MONTH IN CULT: Know what the experts have to say about lo-fi music and look back at some of the best Batmobiles to have been used by the fabled DC comics superhero!

Grand Scheme

DC CEO Zlasav has announced that DC will be taking a page off of Marvel's books by forming a 10-year plan for producing its content. Zlasav had recently also announced that Batgirl had been cancelled. **https://dgit.in/lemmecopy**

A longer treat

If you are a fan of the John Wick franchise of films, and while leaving the theatres have wished that the film was a touch longer so that you got a bit more of your favourite character, well, then you are in for a treat. John Wick Director, Chad Stahelski in an interview with Collider, told that the upcoming film in the franchise, John Wick 4 would be the longest film of the franchise.

He said, "It's longer than the other three, but not that long." Chad further added, "We're on the final stretch for picture lock, and then we have our VFX music." He further commented on the film's developments and told, "But this is the furthest along I've ever been, this much in post. We love the music that we've got so far. We still have Tyler Bates doing the composition on some of the bigger sequences.

With this longer film in the works, it will be interesting to see how well it is received by the fans of the franchise who have already started the hype-train. **https://dgit.in/LongerWick**

Twitter starts testing multimedia Tweets

Twitter developers have been exceptionally proactive recently. They have been pushing out updates and news about new features regularly. The most one came in when the microblogging platform, in a statement, confirmed that the users would soon be able to post multimedia Tweets. This update to the platform first surfaced in April earlier this year. Now, it has been confirmed to be in testing.
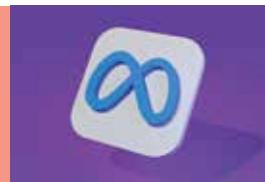
With this feature, users will be able to add multiple forms of media to a single Tweet. It would eliminate the need for users to create a thread of Tweets to post multiple forms of media in a single Tweet. Till now, users have been able to add only a single form of media to a Tweet. This means that, at the moment, users can add either a video or a GIF or an Image file to a Tweet. If you wanted to post multiple different forms of media in a single Tweet, for example, while covering an event, it wasn't possible. This new feature aims to solve this issue. **https://dgit.in/MultiTwitter**

Meta testing influencer streaming platform

Reports have suggested that tech giant Meta is testing a new live-streaming platform for influencers called "Super". The new platform would allow influencers to host live streams, earn revenue and engage with viewers. **https://dgit.in/MetaInfluence**

Reliance launches its new service - JioGamesWatch

JioGamesWatch is the new streaming service which has been introduced under the JioGames platform in the country. Through this new feature, users will be able to stream and watch games through various devices. **https://dgit.in/GamesWatch**

Instagram is all set to test tall photos soon

Adam Mosseri, Instagram's Chief Executive Officer, revealed that the company would begin testing ultra-tall 9:16 photographs "within a week or two" during a recent Ask Me Anything session. **https://dgit.in/InstaTall**

BATMOBILES

BEST OF THE CAPED CRUSADER'S VEHICLES OF CHOICE OVER THE YEARS

Satvik Pandey | Satvik@digit.in

Batman (1989) Batmobile

If you have come anywhere close to the topic of Batmobiles, then there are chances that this vehicle would be the one you would have been introduced to. This iconic vehicle was introduced in the 1989 Batman movie and later made an appearance in the 1992 film Batman Returns. It is an iconic Batmobile that most DC fans will know and love.

Source: Famdom

Batman vs Superman Batmobile

This particular version of the Batmobile was featured in the film Batman vs Superman. A spectacle of modern fictional machinery, the car was modified a bit and featured again in the film Justice League. Many might argue against it, but this wasn't the most cool-looking Batmobile to have existed. However, it was a vehicle that would surely intimidate anyone if it was heading toward them.

1996 Batmobile

A converted Ford Futura concept car, the 1996 Batmobile, as it is popularly called, was Adam West's Batman's vehicle of choice. This Batmobile was known to be equipped with all sorts of tech, including an atomic turbine engine, nose-mounted chain slicer, lasers, rockets, telephone, radar, dash monitor, onboard computer, police beacon, rear-mounted 10-foot parachutes for quick 180-degree turns, and everything else you'd envision a Batmobile to have.

Source: Rocket League

The Batman (2022) Batmobile

The latest entrant in the list of Batmobiles and one of the three most normal-looking cars driven by Batman featured in this list, the 2022 Batmobile is a spectacle in its own right. From the first look, it gives an impression of being a hybrid between a stunt car and a typical American muscle car. The mid-engine design and its intimidating looks make it a perfect vehicle to be driven around the streets by 2022's Batman. A version of this car was also featured in the video game Rocket League.

iQOO 9T launched In India
The iQOO 9T with SD 8+ Gen 1 launches in India with an AMOLED display and 120 W fast charging.
https://dgit.in/sep22-03

Zomato to be renamed "Eternal"
After gaining approval to acquire a delivery startup, the company will be renamed to Eternal.
https://dgit.in/sep22-04

culture

1000 WORDS

Source: Famdom

The Dark Knight Batmobile, a.k.a. The "Tumbler."
The modern-day Batman's "Tumbler" is a tank-esque Batmobile that made appearances in the iconic Zack Snyder's Dark Knight Trilogy. This Christian Bale-driven mammoth is one of the biggest and bulkiest looking Batmobiles to have ever been featured in the Batman universe.

Batman Forever Batmobile
If you give a goth artist a chassis to design a Batmobile around, this car is what you'd get. The Batmobile from the film, Batman Forever, gives you the vibe of the 1989 car whose shell has been overhauled to make for a more modern and intimidating piece of the fictional automobile.

Source: Batman News

Batwoman's Batmobile
This Batmobile finds its origins in the second season of the Batwoman series. A modified Corvette C7, this Batmobile is a looker if there ever was one. Well, not quite if you are talking by the standards set by the other cars on this list. However, in its own right, it is a car that cannot be looked past.
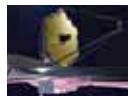
Gotham Batmobile
The third most normal-looking and the most controversial entrant in this list, this car, in the opinion of many fans of the Batman franchise, wouldn't even qualify to be a Batmobile. But, we beg to differ. This 2018 Mustang GT Premium Flashback was driven by Bruce Wayne when he began his vigilante journey.

The food for the modern soul

Pranita Bose | feedback@digit.in

I t's been pouring non-stop. The lazy drizzle now picks up its pace to sudden bursts of sharp showers. Bouts of thunderbolts seemed to tremble her senses but could hardly jolt her out of her reverie. The muggy nights of monsoon cast a spell of longing and loneliness on misty-eyed Meghna. She gazes at the overcast sky from her cosy bedroom window with a steaming hot cuppa in hand. The cool breeze brushes past her face, fluttering her locks. Wish Manav was by her side at this moment. She misses his company and those usual sweet nothings that he occasionally whispers in her ears.

MOOD MIRROR
Matching this mood, Bollywood hitmaker Arijit Singh's voice grows heavy, bold and sluggish with the soul-stirring 'Ayat' number from filmmaker Sanjay Leela Bhansali's magnum opus *Bajirao Mastani*. The loud drum beats, the lingering echo-effect, the dawdling tonal texture... all create a lasting impression on listeners' mind. Meghna's mobile phone plays this semi-classical gem from the cyber jukebox and she soaks it like a sponge, immersed deep in her fond memories.

Slow and reverb Lo-fi. Yes, you got that right. This latest digital revolution in the spectrum of music has been a huge rage over the Internet and in social media of late. Still clueless about the genre? Well then, let's dive in to check it out.

LOW-DOWN ON LO-FI
Etymologically, Lo-fi is the short form of low fidelity. It is a kind of music or production quality, wherein imperfect elements are retained purposely, which otherwise would be discarded and edited while recording compositions in a studio or when rendering a performance. YouTube buffs are having a whale of a time tuning into lo-fi tracks on a loop. Reverb is like a cherry on top in this innovation. It is an electronically produced echo effect in recorded music. Precisely, it's an outcome whereby the sound produced by an amplifier or an amplified musical instrument is made to reverberate slightly.

IN THE LOOP OF LO-FI
"Earlier, I used to burn the midnight oil studying, reading or wrapping up my pending office work over several cups of coffee or black tea. But now it's mostly Lo-fi music. I think am already addicted to it. It acts like a magic potion for me, with my focus intact on the activity at hand," avers 30-yearold software engineer Vani Mishra.

An hour-long lo-fi diet is no harm for today's Gen-Z and millennials,

Judge rejects Musk's demand
A US judge rejected Elon Musk's demand from Twitter to hand over data for 200 million user accounts. https://dgit.in/sep22-31

No sensitive Insta content
Instagram has announced that it will limit sensitive content for new teen users by default. https://dgit.in/sep22-32

Who doesn't know her?

who prefer watching the viral videos or enjoying their favourite playlists on the go. With ear plugs in place, they remain connected to the virtual space 24X7 via mobile phones and tablets, partially losing touch with the reality. The pragmatic world is too complex and stressful for them. Therefore, while commuting or managing their academic assignments, they click on music links to shut all worries out.

"Music is indispensable to me. Whether am suffering insomnia or feeling low, heart-warming ballads, relaxing strains and lilting melodies work wonders for me. It rejuvenates me and acts as a great mood lifter. So, depending on the mental make-up I'm wearing at a given time, my choices vary," shares middle-aged homemaker Alkananda Rawal in between her household chores.

Banker Adil Perwez takes his nightdrive quite seriously while returning home from his workstation. "I turn to my Android phone's webpage of Lo-fi stocks and let the music flow at ease, seeping through my senses. This is my daily detox routine after a long hard day with money matters and number crunching," he reveals.

Melancholy, dejection, romance, heartaches, lovelorn status, pensiveness... for every emotion, get a taste of this useful Lo-fi medicine. "It could be equivalent to a pep talk or

Catharsis, transporting your senses to a peaceful haven or submerging you into a sea of tranquility," opines a psychologist. "Log in to house music for a foot-tapping tempo or those mushy mashups for that desirable analgesic impact," is the pat remark of a keen YouTuber.

Never gets old

REPEAT VALUE
Remakes and remixes rehashed with *jhankaar* beats have been doing the rounds of Bollywood music scene for years now. From an elite aficionado's abode in high-rises to the humble layman down on the streets — also labeled as the lowest common denominator — all have been exposed to the pulsating beats interspersed with rap and English lyrics as well as Hindi-Urdu *shayari,* fast-paced rhythmic patterns, itemized songs, *et al* over decades. Some even shook a leg to these chartbusters as party animals with throbbing DJ music under the psychedelic lights at discs, while others heard the same in a local shop on speakers. Interestingly, at a crucial

juncture of experimental music world-wide, when the millennium is still young at heart and is yet to touch a quarter of the century, lo-fi marches in with flying colours. It stokes the repeat value of widely lapped-up songs through the art of repackaging.

WIDGET-FRIENDLY TAKERS
"Today's music junkies are tech-savvy and gadget freaks. They are app-friendly and more inclined to pictorial representations. Until recently, a compilation would be played either with the lyrics or film visuals. Now with the advent of lo-fi, images are lent a Prisma effect, which is a photo editing app. This certainly lets your imagination run riot as animated pictures invariably grab eyeballs," opines graphic artiste Jignesh Dave.

Music has no boundaries. It is always in a flux. A gamut of diverse genres replenishes the musical realm. "Trends will come and go but explorations will continue," observes sound recordist and audio engineer Ajay Pawar of Delhi-based Sonic Field Studios.

"I've been working on lo-fi style for the past couple of years. I can manufacture this musical type with a mélange of low frequency, thumping beats, pitter-patter of the rain, a smattering of foreign wordings and other add-ons," he assures with confidence. After a pause, he further informs: "Lo-fi will soon be replaced by its cousin with a dash of hip-hop and also the R&B (rhythm and blues) genre with the same effect. Like in the United States, mumble rap was already famous, which gained momentum in India much later. So, within 2023, we can expect more musical inventions. Even house music is being rejuvenated."

As independent artistes refuse to get straitjacketed by any conventional method or norm, they naturally look forward to offbeat genres and formats to experiment at free will with whatever catches their fancy. "Bollywood caters to popular tastes and the public

at large listens to mainstream stuff. That is why lo-fi Bollywood with a high dose of emotions via sad and romantic songs is currently witnessing record views and likes," reasons Pawar.

MARKET DIVIDER: CAPTURING A BIGGER SLICE OF THE PIE?

Reprised versions are nothing new in Bollywood. But one wonders if lo-fi threatens to eat into the business of music labels that are putting out albums on the Internet before a film hits the screens. The trend even invaded the vernacular domain with Punjabi and Bengali songs getting a lo-fi spin. Among the foreign languages, Japanese compositions are noticeably being lo-fied. "Why blame lo-fi alone? Club version, disc version and covers by raw, amateur talents handpicked through talent hunts are also flooding the space. So I guess, there's room for all and sundry and every genre has its own target group to reach out and cater to. There's no question of market encroachment or one's hampering business activity by another party," Manoj Karnani of Mumbai-based Muzibition Studio sets the record straight.

It is but natural that music production companies would want wider publicity and promotion of their song releases. "It's the more, the merrier for them actually! Look, in a way, they also benefit from the extra mileage that the songs are receiving after being launched and already tagged as a superhit! It won't be surprising if tomorrow some music labels ask composers to unveil a lo-fi edition along with the original number for its resounding success. This will further boost their revenues," pinpoints Karnani, who trebles up as a dj, programmer and arranger.

Reddit has been going crazy over lo-fi themes
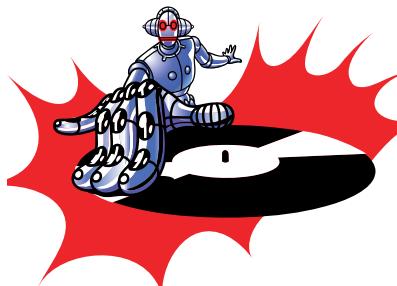
NEW-AGE AI-AIDED MUSIC

Data scientists dig their hands into mining information and mapping the emotional quotient of people to analyze their sentiments through AI-enabled tools. These techniques help understand customer behavior and identify their preferences. "Influenced and guided by the recommendations that machine learning provides, consumers click on the product/services they wish to opt for at a particular time. So, it's important to know a user's history, likes and dislikes before offering any suggestions and this is exactly what AI does," explains IT exponent Francis Gomes.

MUSIC: FROM THE FOOD OF LOVE TO A HEALTHY MIND

Sounds of flute, harp, cello, piano and other instruments create a soothing effect on frayed nerves, according to many specialists.

"I'm fond of serene music and while browsing the Internet for some sleep music, I stumbled upon a few pleasing tracks. Gurgling of bamboo water in a stream, chirping of birds, shedding of raindrops, whistling of wind are some of the sound-effects that form an integral part of such eclectic online collections," lists an avid teen music lover. "More often than not, I

download a host of music files on my iPod to keep the same saved for hearing it at leisure," she admits.

Music therapist and motivational speaker Roshan Mansukhani of Mumbai-based, Music — A Holistic Heal emphasizes the importance of mental health. "I just shudder to think that the present generation is so depressed and stress-ridden. You won't believe that I have been able dissuade at least 27 youngsters from taking a drastic step ever since the pandemic struck us!" he rues over the sorry state. "Your mind should be like an empty bottle. If you clog it with too many things and suppress it all the time, you may face dire consequences," he opines. "Better clean your mind-slate to rewrite everything anew," he dispenses his advice.

As a healer, he designs and structures an array of existing pieces of music into small portions to prescribe for each patient who comes seeking his help at the counseling sessions. "Whether it's soft or fast numbers, I always recommend quality music," he confirms. Music equips one with the ability to accept, helps revisiting him/herself and bolsters the confidence levels. "There's a lot of soul-searching involved you see. You learn to be positive, creative and constructive," chips in Mansukhani.

PARTING SHOT

Silent discos, break-up songs, chill-out tunes or a surround sound system may liven up your spirits when the chips are down. Almost bordering on these features, lo-fi redefines the listening experience for music enthusiasts from the comforts

Perfection...

Vox Populi on Lo-Fi

Composer and music producer Ishaan Chhabra is open to any kind of reinterpretation as long as it is done the right way and respectfully. "The original song exudes its own keys and tempo that the composer had in mind while scoring it. So, it's pointless to randomly distort the true essence of one's creation. For instance, A.R. Rahmansaab's 'Rehna Tu' from Delhi 6 already has a brilliant arrangement. So there was no need for an alternate one," he objects.

"Misrepresentation of myriad Bollywood songs doesn't really do justice to their actual flavor. Like melodies have an in-built ear-pleasing sweetness and a calming effect. There's no reason why unnecessary elements should tamper with the genre," he cautions. Having said that, Chhabra confesses to have heard some really great reboots of the past releases. "Personally, it's always interesting to lend an ear to a new spin to the older versions that I've loved and grown up listening to," he concedes.

Similar sentiment is echoed by singer-songwriter Aanchal Srivastva. "I love what sounds nice! Even if it is a lo-fi mix, I've no qualms with it. See, every style has its potential and audience, and thus it becomes a mad craze," she adds. Coming to the criticism against transforming the vocalist's tonal quality with a heavy and bold texture, Aanchal rests all speculations. "It is not always a thumbs-down case after all! 'Jhoom's' lo-fi version is simply great with the character of the original voice intact in it," she reminds.

With music having become more technologically driven now, even normal notes are given a metallic, hip-hop twist. When asked if she subscribes to this approach, she gleefully adds with a cackle that "I always welcome a new perspective and isn't that every first will have its initial hiccups?"

Reworked songs are no longer a novelty factor in Bollywood music circuit and are often dismissed as trash. So, will lo-fi continue its momentum with its unplugged, analog recording like quality? "As long as it can make people skip a beat, it is here to stay, no matter how unmastered it may occasionally sound. Look, music producers are smart enough to know that the shelf-life of every genre is short-lived today. Today's audience is susceptible to varied options with its widespread exposure to the vast repertory of world music. Hence, this too shall pass as a phase and drift into another genre seamlessly," she thinks.

Regarding her take on ceaseless mashups of chart-toppers with different singers chipping in, she affirms that she finds the move to be "absolutely cool". She praises the punch of freshness that mashups and new voices bring to the songs.

Although singer-composer Ujjwal Kashyap appreciates the vibe of lo-fi, slowing down the original composition in the existing tracks doesn't really go down well with him. "It kills the soul in some songs," he complains, conveying his selective inclination for the lo-fi fad. Whether tweaking the rendition style and shifting the pitch add any qualitative value or a different dimension, to that, Kashyap bluntly remarks that "Lo-fi at times takes away the original zone."

He is not so fond of music with high-on-technology base. "I like the idea of mixing organic instruments with electronica. Music with hi-tech quality dies down after a point. It lacks eternal appeal," he states.

Remixes have always drawn a lot of flak as mindless output for allegedly spoiling the original pattern of the songs. On this front, he comments: "Lo-fi might work only if the makers keep the richness of the original numbers untouched. They may enhance the orchestration but certainly spare the vocals."

As far as mashups are concerned, he dubs the same great if played in an agreeable ambience. "It definitely gives a continuous kind of effect like a running stream to its listeners who do enjoy such genres off and on," he signs off.

of their homes. So, if your mood is ever off, find some solace or a perfect confidante in lo-fi. It scans the prevailing condition of your mind and marries it with music in absolute harmony as if bearing its reflection ditto like a mirror. No wonder then that zillions of netizens are increasingly skimming the lo-fi music directory on a daily basis.

Will lo-fi turn out to be a flash in the pan or have permanent appeal, only time will tell. But you in the meantime, may drown yourself in the ocean of Lo-fi love even in the wee hours. A WhatsApp notification broke into Meghna's solitude. The message reads: *Returning soon. The wait has been long but not endless and it's never going to be fruitless either.* 😊 *I promise!*

The sender's DP brings back that sunny smile on her face, which Manav always craves. The doleful silence now creeps into a ray of rejoice. Arijit's passionate voice now assumes a low-pitched baritone with poise, crooning: *Shayad kabhi na keh sakoon main tumko/ Kahe bina samajh lo tum shayad....*the notes float around in the air and the lady-love dreams away! d

Fan Theories

They're just... just... insane!

Boo-Man | boo@digit.in

In all my years of experiencing the content culture, if I may call it so, I have never found anything worthy enough for me to fanboy over. I don't mind others being fans of things that fascinate them. Be it TV shows, gadgets or anything. As much as it would surprise you, I don't mind people fanboying at all.

Things get on my nerves, though, when people start theorising the next move of whatever entity they are fans of and start coming up with theories. Hell, they even start posting them online. I mean, does it make any sense for a person just to sit there and theorise what the next episode of the TV show they are watching would entail? And then going ahead and posting it on an Internet forum only to get other people to comment on it and come up with "better theories". Often, the stuff that they come up with is even worse.

While this issue seems superficial, the creators of the content that these theories are for bear the brunt of this pile of garbage created by the so-called 'fans' of a show or TV series. When writing fan theories, what people tend to do is that they snatch the cap from the director's head, wear it and twist the arms of the creators into making them create a piece of content that they initially did not intend to at all. Take the example of The Dark Knight, and the theory that suggested that the Joker was actually the hero of the film. WHAT IS THIS BASED ON?! From what I can gauge,

one fan just saw the film, found some gaps in the storyline, formed some postulates, and was like, I feel creative today. And, what did that lead to? *grunts out of spite*
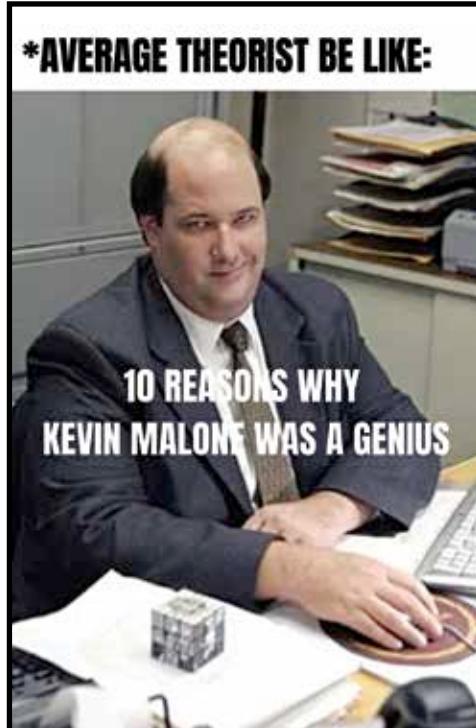
Another thing that annoys me a lot about fan theories is the sheer number of theories that are out there on the internet. Right now if you see, there is an embarrassingly large number

of fan theories doing rounds on the Internet. Emphasis on the word "embarrassing". Just type the following keywords into a Google search - *show name* fan theories. And, just look at the number of Reddit threads and Fandom forums you are guided to. It's just ridiculous.

The worst thing of all is the in-your-face approach taken by theorists. They'll write anything and post it on a 100 different platforms. And, you will then be left with a battle to

fight, where you have to make your way through to a sane review after scouring through the 100s of theories and ways that these people thought the said piece of content could have been made better.

For example, let's take the case of Game of Thrones. For someone who hasn't read the books or been fed the narrative that the show could have ended better if so and so things (no spoilers here) were done a certain way, the show's ending was... adequate. I didn't particularly love the way the last season was scripted, but it didn't warrant the treatment it got from the fans. They absolutely trashed a show's end in a way in which it did not deserve at all.

I would accept a good fan theory, heck even read through it, if there was some evidence backing it. Just making stuff up out of thin air is nothing but idiocy for me. And, if you do that, then I will ask questions and even come after you. Creative and constructive feedback is everything, and I am sure creators would love getting that. However, just presenting an alternative storyline to a piece of content that was produced after investing hundreds of thousands of dollars is something that is just plain ridiculous.

Even when you are trying to establish connections between different parts and characters present in a piece of content, have some substance to your claims. Don't come at me with, "Iron Man hired Thanos to attack Earth so that he could sell the idea of having a shield around the planet, ensuring that he makes profits in his business." I'mma blow up! d

Sci

THIS MONTH IN SCIENCE:

In Space Age, we delve into the evolution of Mars rovers; and Origins covers the history of light switches and its evolution.

Rapid testing for cancer

A team of international researchers from the UK, US and Germany built a new easy-to-use test that could quickly diagnose non-infectious diseases like heart attacks and cancers. **https://dgit.in/CancerTests**

Pipeline for NASA

The US space agency has asked university students to design a metal production pipeline on the Moon – from extracting metal from lunar minerals to creating structures and tools. The ability to extract metal and build needed infrastructure on the Moon advances the Artemis Programme goal of a sustained human presence on the lunar surface, NASA said in a statement. The 2023 Breakthrough, Innovative and Game-Changing (BIG) Idea Challenge invites university students to tackle some of the most critical needs facing space exploration and help create the mission capabilities that could make new discoveries possible. Student teams will develop innovative ways to extract and convert metals from minerals found on the Moon, to enable metal manufacturing. The NASA-funded challenge provides development awards of up to $180,000 to up to eight selected teams. The availability of derived metals on the Moon would allow infrastructure needed for a lunar base – including pipes, power cables, landing pads, transport rails, and pressure vessels to contain volatiles like fuel – to be made locally using additive manufacturing, or 3D printing. **https://dgit.in/NASAPipeline**

NASA discovers CO2 in an exoplanet system for the first time

NASA's James Webb Space Telescope has captured the first-ever clear evidence for carbon dioxide in the atmosphere of a planet outside the solar system. The finding offers hope that in the future, Webb may be able to detect and measure carbon dioxide in the thinner atmospheres of smaller rocky planets. This observation of a gas giant planet named 'WASP-39 b provides important insights into the composition and formation of the planet. Previous observations from other telescopes, including NASA's Hubble and Spitzer space telescopes, revealed the presence of water vapour, sodium, and potassium in the planet's atmosphere. "Detecting such a clear signal of carbon dioxide on WASP-39 b bodes well for the detection of atmospheres on smaller, terrestrial-sized planets," said Natalie Batalha of the University of California at Santa Cruz, who leads the team. **https://dgit.in/JWSTAgain**

Using smartphones can improve memory

A new study has found that smartphones and other digital devices could actually help improve memory skills rather than causing people to become lazy or forgetful. Huh, quite a revelation! **https://dgit.in/PhoneGood**

Mimicking human brains

A team of US researchers have developed a flexible, stretchable computing chip that processes information by mimicking the human brain. The device, described in the journal Matter, aims to change the way health data is processed. **https://dgit.in/HumanAI**

Blenderbot 3 beta test begins

BlenderBot 3 has been released to public users in the US for beta testing. The bot is a prototype based on Meta's previous work with large language models (LLMS) and is trained on massive text datasets to find statistical patterns and produce language. **https://dgit.in/BB3**

EVOLUTION OF
MARS ROVERS

What is a Mars rover and why do we need one (or many)?

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Ever since Italian astronomer Giovanni Virginio Schiaparelli first mapped the so-called "Canali" on Mars in 1857, the red planet has captured the imagination of astronomers and the public alike. The curiosity has been engrained in us, and we have sent multiple rovers over the years to explore the surface of the mysterious red planet. Simply put, a rover is a remotely controlled vehicle designed to navigate a terrain. The first Martian landers were Mars 2 and Mars 3 by the Soviet Union in 1971. So far, NASA has successfully sent five rovers to Mars starting with the rover named Sojourner in 1997.

China also launched its own rover named Zhurong in 2021 as part of Tianwen-1 mission. India launched its first interplanetary Mars Orbiter Mission (MOM), also called Mangalyaan in 2014. In case you were wondering, none of these rovers/orbiters have encountered any form of intelligent life and none were crushed by a Transformer… yet! Each country would have its own interests to explore Mars. These goals are lofty and represent the pinnacle of humankind's scientific endeavor. But first, we must get there in one piece!

THE FIRST ROVERS — UNRAVELING THE PAGES OF MARTIAN HISTORY

Getting to Mars is no easy task, and each mission presents its own set of challenges. In the words of Steve Squyres, Principal Investigator for NASA's Spirit and Opportunity Mars Rovers, "Mars is a spacecraft graveyard".

The arduous 150.9 million mile-journey from Earth to Mars takes seven months if the spacecraft travels nearly 97,000 kilometers an hour. Squyres says that hitting the precise landing site on Mars from Earth is like, "shooting a basketball from Los Angeles to New York and having it go through the hoop without touching the rim". That being said, there have been some notable attempts to get the ball rolling on Mars.

Mars 2 and Mars 3

The Mars 2 and Mars 3 missions comprised of identical spacecraft launched by the Soviet Union on May 19 and May 28, 1971, respectively.

Mars 2's lander became the first human-made object to land on Mars. However, the lander crashed on Mars possibly due to a steep angle of entry and was lost. Due to this, the PrOP-M rover that the lander carried could not be deployed. Mars 3 was designed to perform a soft landing on Mars and send back data on meteorological conditions, atmospheric composition, and soil properties. Mars 3 was first spacecraft to make a successful soft landing on Mars.

Between December 1971 and March 1972, both Mars 2 and Mars 3 transmitted a total of 60 images. On August 22, 1972, after completing 362 and 20 orbits, respectively, Mars 2 and Mars 3 were declared mission complete.

Sojourner

Sojourner was part of NASA's Mars Pathfinder mission, which was conceived with the objective of delivering a lander and a robotic rover on Mars in a cost-effective manner. The Pathfinder mission was launched on December 4, 1996. Sojourner landed on Mars on July 4, 1997, in an ancient flood plain in the Martian northern hemisphere named Ares Vallis. it sent back more than 550 images while the lander transmitted more than 16,500. The Pathfinder mission helped NASA collect vital information pertaining to rocks at the landing site, indications of liquid water flows in the past, water ice clouds in lower atmosphere, weather patterns, and more.

NASA last heard from Pathfinder on September 27, 1997. The cause of failure is suspected to be a dead battery.

Spirit and Opportunity

Learnings from Sojourner paved the way for the twin "geologist" rovers, Spirit and Opportunity. The objective of these rovers was to land on opposite sides of the Red Planet and explore the rocks and soil there for past water activity. Scientists used data from these rovers to reconstruct Mars' ancient history. Both these rovers explored far more surface than any rover before and returned more than 100,000 images before dying.

Spirit was launched on June 10, 2003, onboard the Delta 7925-9.5 rocket, and the rover landed on Mars on January 4, 2004, in the Gusev Crater. Opportunity was launched on July 8, 2003, onboard the Delta 7925H rocket, and it reached the Meridiani Planum landing site on Mars on January 25, 2004.

Though originally planned for 90-day missions, both Spirit and Opportunity lived well beyond their lifetimes. Spirit kept on roving from one crater to the other over the course of its lifetime — a natural cleaning of its solar panels thanks to dust storms on Mars further kept propelling the mission. Soon, it developed issues with its wheels and storms on the planet reduced the output of its solar panels. NASA finally ended contact with Spirit on May 25, 2011.

Opportunity had its share of firsts too. It was the first rover to exceed a marathon travel distance on another world. It also holds the record for ascending the steepest slope driven by any Martian rover. NASA extended Opportunity's missions several times, and finally declared its mission complete on February 13, 2019.

CURRENT ROVERS — PROBING FOR SIGNS OF MARTIAN LIFE

The first rovers gave us a wealth of information about Mars' geological features and learnings from these rovers paved the way for successive, more sophisticated designs.

Curiosity

Curiosity launched on November 26, 2011, onboard the Atlas V-451 rocket and was destined for the Gale Crater on Mars on August 5, 2012. Curiosity, part of the Mars Science Laboratory mission, is one of the largest rovers on Mars with an array of advanced instrumentation including 10 science instruments, 17 cameras, a laser, and a drill.

So far, Curiosity has sent a total of 975,610 images and has spent ten years on the Martian surface, continuing to offer vital data. It also discovered fluctuating methane levels in the atmosphere, performed the first other-worldly rock dating, presence of jarosite, a molecule required for RNA, DNA, and protein synthesis. Radiation levels measured by Curiosity helped NASA determine that a manned mission to Mars is feasible in the future. The rover continues to explore Mars to this day, well past its two-year mission time.

Perseverance

Building on from Curiosity, NASA designed the Perseverance rover with a major aim of unlocking Mars' astrobiology. Part of the Mars 2020 Mission, the Perseverance rover seeks to study habitability that supports microbial life, collecting samples of the Martian surface, and laying the groundwork for future missions.

NASA launched Perseverance aboard the Atlas V-541 rocket on July 30, 2020. The rover landed at the Jezero Crater on February 18, 2021. Scientists suspect that the structure of the Jezero Crater makes it a likely ancient water reservoir.

The rover also carries with it a Mars Helicopter, which is a tech demo to understand powered flight in the Martian atmosphere. Learnings from this helicopter will let scientists determine the feasibility of designing robotic scouts in future missions for aerial surveillance.

Perseverance is designed to last for at least one Martian year (687 Earth days) and, if experience is any indication, the rover will outlast its shelf life for many more years to come.

Zhurong

China's Tianwen-1 mission is the country's first Mars mission with a lofty aim of putting both an orbiter and a rover on Mars in the very first attempt. Tianwen-1 launched on China's largest rocket, the Long March-5, on July 23, 2020. The orbiter entered the Martian orbit in February 2021 while the rover, named Zhurong, landed in the Utopia Planitia region on May 14, 2021.

Similar to NASA's Perseverance, Zhurong also aims to cache samples for eventual return to Earth. Zhurong has about 14 onboard instruments for collecting scientific data from the Martian atmosphere and rocks. It also carries with it a radar for underground 3D surface mapping to discover potential water ice.

Zhurong has an expected lifespan of at least 90 Martian days while the orbiter is slated to last for one Martian year (687 Earth days).

DESTINATION, MARS?

Rovers, past and present, have given equipped us with knowledge and opened new avenues hitherto thought to be impossible. There are certain ethical considerations as well. Such as protecting the Red Plant from what is known as forward contamination. Forward contamination refers to transfer of microorganisms from spacecraft onto Mars. If life exists of Mars, the contamination from spacecraft and future humans can override the natural life in that area leading to errors in scientific experiments. Such questions are somethings we need to consider for sure as we continue to explore. d

Light
Switches

Enlightening origins

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Circa 1880, an Electro-chemical Component popularly known as the electrical switch entered humankind's lives. Since then, in the years of regulating the flow of current, controlling lights, and performing other functions, these switches have advanced significantly.

More than 150 years have passed since Thomas Edison developed the ingenious idea of a functional light bulb, which fundamentally changed how people used energy in both homes and offices. Since the invention of the first light bulb, patented in 1878, engineers and manufacturers have worked hard to improve both the aesthetic and functionality of light switches. While many innovators made some ground-breaking discoveries over the 130-year-long journey of the light switch, others could not create a more significant influence on the world. Nevertheless, their efforts have even-

tually brought us to the way we know light switches today.

Going back in time, we observe that Thomas Edison, who also significantly contributed to the development of the light bulb, also built the first ever electrical light switch. He created a range of electric appliances, including the electrical switch, for light displays in the 1880's New Year's celebration. Soon after he developed the switch, other engineers and manufacturers worldwide began creating electrical switches that were considered safer and easier to operate by ordinary folks.

John Henry Holmes, an English electrical engineer, invented the first innovative light switch technique in the year 1883 with the 'quick-break technology' at his workplace in

The simple discovery of the light switch paved the way for innumerable inventions and advancement in technology.

Shieldfield. His innovative, quick-break technology basically solved the issue of electrical arcing that used to occur in the switch contacts every time it was opened or closed. By ensuring that the connections came together and separated quickly, Holmes' rapid-break design ensured that the arc would not be given enough time to develop. This breakthrough technology culminated in a switch with long operational life and reduced fire danger for everyone involved.

In the same year, the Wellburn family mansion at Newcastle became the first building to be lit up by electricity as Holmes equipped it with light bulbs and switches created with the 'rapid-break technology.' Consequently, in the year 1884, he obtained a patent for this innovation in both Great Britain as well as in the United States.

Many manufacturers worldwide profoundly used John henry's fast break technique while making

The first lightbulb was created by Thomas Edison

their switches. From here on, the journey of light switches sped up, and subsequently, more innovations were witnessed by the people of coming generations.

LIGHT SWITCHES OVER THE YEARS –

1. Push Switch
The push switch includes touch panels that are located on the top side of the operational button. An electric current is switched on and off via the circuit by pushing it. This switch included two buttons that are pressed one by one; one is pushed while the other is lifted. The elevated button

'The Flash' to End With Season 9
The Flash's upcoming season will be its last. The CW announced that it will be a 13-episode run. https://dgit.in/sep22-13

Genshin Will Changex
New Genshin Impact leak reveals that it will see improvements in the upcoming update. https://dgit.in/sep22-14

can be pressed to activate or close the alternating energy or electric current.

2. Dimmer Switch
In 1896, Granville Woods invented the Dimmer switch, a little less-discussed yet incredibly practical invention. Dimmer is an instrument primarily used to control the brightness of a light source attached to the socket. Simply put, the intensity of the light output can be decreased by modifying the output voltages delivered to the source.

When dimmers initially came to the market in the 1890s, they had to be manually moved to be operated. As a result, this operation became increasingly risky, challenging, and wasted a lot of energy. Therefore, it failed to gain popularity among typical households and was only used in theatres.

3. Toggle Light Switches
In 1916, Morris Goldberg and William J. Newton filed a patent for the new and innovative concept of toggle mechanism in Light Switches. Little did we know that this innovation would become a ground-breaking invention that would pave the way for the utilization of switches that we use in modern times.

This mechanism alters the definition of the switches in literal terms. Rather than directly controlling them,

The push switches are still available in some places

the switch controller regulates the contacts with a series of springs and levers. The spring's energy is released when the mechanism crosses the center point. The spring then forces the connections quickly and firmly into the closed position with a discernible "snapping" sound.

It was in the year 1984 that the toggle switches were replaced by the 'silent switch,' which included the snap action with a much weaker capacity. However, the quality had not diminished. In fact, it now boasts larger, better-quality contacts that can safely transfer residential loads and are pretty safe to use, manual to operate, and simple to understand.

4. Rocker Switch
You have probably noticed one of these switches in your home or workplace. Rocker switches are the most popular among consumers due to their simplicity and durability. They are touted to endure one million clicks- and are currently in widespread usage. Due to their ability to toggle, these switches are also widely known as 'seesaw switches.' The current flow can start or stop with each press on these switches. These switches can be turned off or on with a slight push.

Compared to toggle switches, these are by far the least alike. In contrast to toggle switches, which rise when pressed and fall back to their original position when released, rocker switches stay in their tilted position unless they are altered or pushed with external force. One essential illustration of a rocker switch is the Light Switch in your room.

5. Smart Switch
Smart switches are a product of the fact that we live in a century in which we encounter technological break-

throughs nearly every day. It would be fair to state that the smart ones are gradually replacing the traditional switches. Who knows, maybe the conventional switches will be entirely replaced in the next ten years? Switches like the Iotty smart switch, which uses Wi-Fi, don't have typical buttons; instead, you only need to touch them to fill in your command. Additionally, you can also control them using your phone. Similarly, Alexa is a newer and more popular innovation by which lights are turned on and off today.

Although not many people are aware of these switches, since they are still in their infancy, there is an extreme likelihood that they will become widely utilized within a decade since innovation in the 21st century progresses rapidly. Like the Holmes breakthrough 130 years ago, these smart switches mark the beginning of a new invention in the era of light switches.

WHERE DO WE STAND NOW?
The next evolution in light switch technology is already here. Considering the rapid increment of materials and technology we have seen in the last decade, a new age of lighting automation can very well be anticipated in the near future.

Perhaps, we have already accepted that automation is the future of Light Switches, and we are ready for it. The introduction of Wi-Fi switches in the market has already signaled the beginning of the transition of light switch technology. You can now use innovative smart technology or a smartphone to regulate your lights whenever you want.
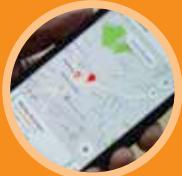
The only point to note here is that not everyone around us has advanced to the point where they use this innovative technology in their daily lives. It would be safer to say that this development is only getting started. Furthermore, many people continue using conventional switches composed of plastic and fossils that have undergone minimal modifications in recent years. **d**

Toggle switch is still popularly used for MCB's to control a home or facility's lighting phases even today. The full form of MCB is a 'miniature circuit breaker' as it protects the circuits against short circuits and overloads.

This month in ALT:

In Feature, we delve into the journey and challenges of UPI, in Desire, we list out some of the coolest gadgets that launched recently, in Temptation, we review some interesting books, and much more!

Marching towards inclusivity

To show increased support for Asian businesses and stand against violent acts targeting the Asian community, Google is adding a feature that would let self-identified Asian-owned businesses tag themselves on its searches and maps.
https://dgit.in/GMaps

Ukrainian researcher claims PF data leak of 28 crore Indians

Hackers leaked about 28 crore consumers' Provident Fund (PF) data in the beginning of August. Bob Diachenko, a cybersecurity researcher from Ukraine, discovered this on August 1. He found that Universal Account Numbers (UANs), names, marital status, Aadhaar details, gender, and bank account details were released online. He found two clusters of leaked data on two different internet portals. These IPs were hosted on Microsoft's Azure cloud storage service. The researcher said he was immediately certain he was looking at something big and important. He was not able to find who owned the data. Both the IP addresses were hosted on Microsoft's Azure. Both were also Indian based, but he couldn't obtain more information via a reverse DNS analysis. Indian Computer Emergency Response Team (CERT-In) was tagged in a post on Twitter disclosing the leak. In response, CERT-In requested the report of the hack in an email. After that, within 12 hours of his tweet, both IP addresses were taken down. According to Diachenko, no company or agency has taken responsibility for the leak yet. **https://dgit.in/PFDataLeak**

Standard charging ports in India!

The European Union passed legislation urging tech brands to provide consumers with a common charging port for all their devices by June of this year. Not just for charging, but for connectivity and data transfer as well. As per a recent News18 report, the Indian Government is likely to adopt similar legislation and is currently planning to set a committee meeting for the same. At present, consumer electronic brands use a variety of ports for charging, data transfer, and connectivity. While laptops and cameras have proprietary ports for inputs and outputs, smartphone brands like Apple use lighting ports for charging. If the motion is passed, it will urge the consumer electronic brands to set common charging, input, and output ports for all devices. The committee for the same will be held on the 17th of August to understand and set the decided legislation legally.
https://dgit.in/UGetUSBc

Twilio hacked in a phishing attack

US-based enterprise software vendor company Twilio has said it had been hacked as someone gained "unauthorised access" to information related to its customer accounts. Twilio has more than 150,000 customers, including Facebook and Uber.
https://dgit.in/Twilio

DuckDuckGo disables Microsoft web trackers

DuckDuckGo is following through on its pledge to protect user privacy by finally blocking Microsoft tracking scripts. DuckDuckGo plans to build an advertisement conversion tracking protocol in the future as well.
https://dgit.in/DuckDuckNo

89 per cent of Indians want a 5G upgrade

As India gears up to usher in the 5G era, a new report has shown that 89 per cent of consumers wish to upgrade to 5G network in India while 48 per cent would upgrade to 5G even if it calls for switching service providers.
https://dgit.in/5Gforyou

SwitchBot Smart Lock

Ever wondered what it would feel like to live in a world where a robot would unlock your door? Well, if you shell out $100 USD, then you can get yourself a robot that does just that. The product that we are talking about here is the SwitchBot Smart Lock. As labelled by The Verge, it is literally "a tiny robot hand that unlocks your door".

This lock, unlike others on the market, does not replace the lock that you currently have on your door. Rather, it attaches on top of your latch and does the job. It is a functional device that will definitely catch the eye of anyone who enters your home. Also, it has a simple installation process! Or so they claim, we haven't tested it so we can't judge.

It also can be souped-up with an optional keypad that comes with a fingerprint reader. However, you will have to shell out some 70 extra dollars to get this seemingly simple upgrade. The lock comes with Bluetooth 5.0, and is capable of working with smart voice assistants like Amazon Alexa, Google Home, Siri Shortcuts, IFTTT, and SmartThings. From the looks of it, the SwitchBot Smart Lock can be a sweet little addition to your home.

Bajaj CT125X

The Pune-based bike maker Bajaj recently announced its latest entrant in the bike market, the CT125X. This is not one of the higher priced models on offer by Bajaj, however from the information that Bajaj has let out on their latest release, it sure looks to be a perfect entry-level bike.

For starters, it sure is a looker. Well, if you are out there pitting it against a Ducati Scrambler then yeah, this one looks like it came out of a knock-off maker's factory. However, considering its announced base ex-showroom price of ₹71,354, it is a looker when specced up with disc brakes. Powered by a 124.4 cc, single-cylinder, air-cooled engine that pumps out 10.7 bhp at 8,000 rpm and 11 Nm of peak torque at 5,500 rpm.

The Bajaj CT125X also features a five-speed gear box, a round headlight with a guard, front cowl-mounted LED DRL, rubber tank pads, engine bash plate, and a rear luggage rack for the traveler kind. The bike will be available in three colours namely – Ebony Black with Green decals, Ebony Black with Blue decals, and Ebony Black with Red decals.

Insta360 Link

Were you suffering from the fear of missing out on Apple's Center Stage feature on your Windows/ Linux machine? Well, now you won't have to. Bring out the bands, spread the news in all directions, and welcome Insta360 Link webcam – your very own non-Apple Center Stage solution!

Right from the first look that you'll have of this device, it will feel different. This is because it has a real gimbal on it. Yes, you read it right. This device's camera is mounted on a DJI Pocket 2 style gimbal using which it moves around to track the face of the subject that is talking in the frame, just like Apple does using software. However, it is lacking in one aspect when com-

pared to Apple's offering. If there are multiple people in the frame, it will only track the face of the person who takes the majority part of the frame. This means that if you tend to have video calls with multiple people in the frame, then this is not something that you should be looking to buy.

This device has immense potential and can prove to be the one true competitor to Apple. There are several other features that in some respects make it an even more enticing aspect than Apple's Center Stage in some respects. But there are some corrections that need to be made to set it on the right course. Especially with its price of £347.99, it will definitely be a bold and interesting purchase for anyone.

Logitech MX Mechanical Mini

A t a glance the Logitech MX Mechanical Mini has a slim body with a modern looking aesthetic, featuring a two-tone colour scheme of black and grey. It wouldn't look out of place at home or at the office. The keyboard itself is pretty sturdy and we found that there was little to no flex, probably helped by the fact that the keyboard has a metal top plate. Overall, the design is fairly minimalistic, doesn't stand out too much - in a good way, and will look pretty good on any desktop.

As a 75 percent keyboard, we've already established that there's no numpad. But we've still got the function keys and the arrow keys. It's all packed together nicely, with good spacing, so as not to hamper the typing experience. As far as compact keyboard form factors go, we have no complaints. We personally still prefer standard layout keyboards however, but that's ultimately subjective.

Coming to the switches, we've got what looks like three options, Tactile Quiet, Linear, and Clicky. The unit we got came with Linear switches which are similar to Cherry MX Red

switches. However, while other similar low profile keyboards, like Keycron's offerings for example, come with hot swappable switches, that won't be possible with the MX Mechanical or Mechanical Mini. You're going to have to bring a soldering iron for any kind of switch swapping.

The Logitech MX Mechanical Mini is a great office keyboard if you're looking for a low-profile mechanical keyboard that can seamlessly switch between up to three platforms. The build quality and overall aesthetics are also pretty good, and our typing experience was also pleasant. It's also got impressive battery life, which ultimately leaves only one major thing that's not in the MX Mechanical keyboard's favour. The high price tag. At 17,495, you could get your hands on a host of other mechanical keyboards which might offer similar (or even better) typing experience. While they might not be wireless and be able to seamlessly switch between devices, you would be spending half as much.
PRICE: ₹17,495

Dyson V15 Detect

T he Dyson V15 Detect is the perfect example of engineering done right. A vacuum cleaner might be regarded as just a simple home appliance but one look at the Dyson V15 Detect and you just might assume it to be a phaser rifle right out of Star Trek. We'd like to imagine an Andorian Disruptor Rifle, might be the closest thing. Cosplay potential aside, the Dyson V15 Detect really is a vacuum cleaner like no other. It's expensive and photos might not give off the impression of how much technology is packed into the vacuum cleaner but this thing really is the best home vacuum cleaner that money can buy.

It has a mostly plastic body like most vacuum cleaners. This keeps it lightweight and easy to use on a daily basis. Also, the dirt chamber being clear plastic gives you constant visibility of how full the chamber is and makes it easier to empty it out before the contents become an obstruction for the vacuum cleaner. Less congestion also means that the motor doesn't have to go into overdrive to compensate. Admittedly, all of this
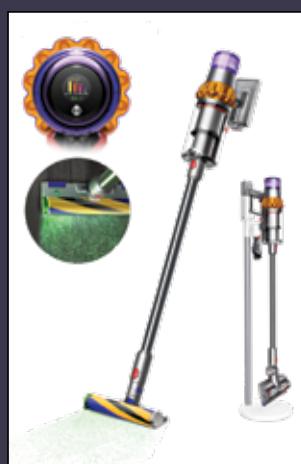
depends on the user to clean the chamber regularly.

There are no electrical cords here since this is battery powered, so the typical scenario of 'minding the wire' never arises. Yes, that is often replaced with 'charging the battery' but we found the battery capacity to be enough for casual cleaning sessions.

Swapping out the various components is very easy. The various tools and attachments snap fit in a very clean manner and detaching them is as simple as pressing

down on a release tab or pulling at a lever.

If you're an early adopter and would like to have fun while doing a little house cleaning then the Dyson V15 Detect is a really good vacuum cleaner unlike no other. It's built to last, the suction power is the highest from the Dyson family of vacuum cleaners and the provided accessories should more more than sufficient for most households. An additional battery pack would have been a worthwhile addition, especially considering the price of INR 62,900 for which the Dyson V15 Detect retails for, in India.
PRICE: ₹62,900

zunpulse Striplight

If you are a PCMR devotee or someone who is remotely connected to the geek culture, then there is a high chance that you live by virtue of – RGB everything. And, zunpulse with its Striplight (ZUNSL15W) aims to help you abide by that virtue of yours. This smart led striplight comes in at a retail box price of ₹3,990, and with its advertised features feels like a steal. However, in real-world use, it falls short of the promises that its makers send your way while trying to sell this to you.

This LED light strip is Wi-Fi enabled, offering global remote access to the owners. This means that you could possibly be sitting on a beach in France while changing the colours of the lighting in your room to be of the perfect colour when you come back. However, if you are planning on doing that, then hold off on that thought,

because the app did not do anything for us apart from basic shifting between lighting modes. Most of the features of the app are just for show, or that was at least the case when we set the light up and connected it to our phone for the first time.

Coming to the light itself, there is only so much that you can say about a glowing strip of colour-changing LEDs. If you plan on using them as ambient lights for your room, then they are bright enough. And, if you plan on using them in a video setup in the background, then they do not flicker. However, given the length of the strip, you will only be able to line up one rack or a decently sized painting in your background.

All in all, this LED smart light promises to be a great deal for the price, as long as the makers show some love and care to the app, which is totally achievable. Once that is sorted out, and you can match the level of customisation available with, say, a Philips Hue that would cost double the cost of this strip, you have a pretty enticing deal.
PRICE: ₹3,990

Dyson Airwrap (2022)

Dropping a cool ₹46K for a hair styler may seem like a mindless investment, but merely spending a week with the new-generation Dyson Airwrap convinced us otherwise. This multi-styler is a lesson in sound engineering, complete with not one, not two, but seven high-quality styling attachments.

It brings over much-loved features from the OG Airwrap including hyper-precise air-flow speeds, intelligent temperature control to minimise heat damage, and adds features such as the curling attachments, being able to curl clockwise and counterclockwise, a new flyaway tool, and much more.

If you already own the previous-gen Airwrap, you can just splurge on just the new attachments since they are compatible with the old model. This will just set you back by ₹14,900, which is a relief. The newer variant is also much more user-friendly and carries out actions way quicker.

It still amazes us to see hair strands being pulled into the barrels like a magnet and just a few strokes ensure silky waves or curls. Cold shot works well in setting your style, however, if you have straightened or smoothened hair, the styling doesn't stay put for very long.
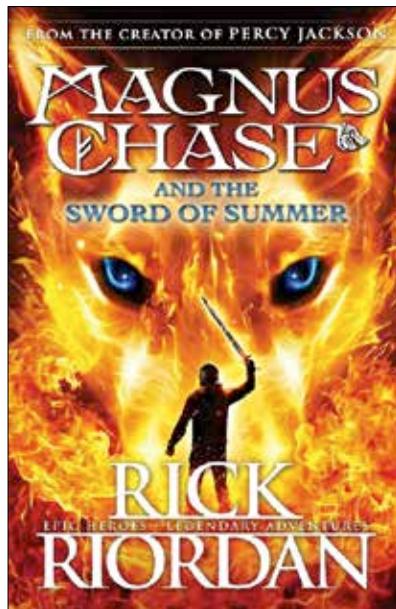
The Dyson Airwrap is a serious investment, one that isn't forgiving to your wallet. But if you're someone who styles your hair every day or opts for costly smoothening/straightening processes to keep your frizzy hair controlled, this is an investment worth looking into. It is simply the best multi-functional hair styling tool on the market and it can carry out various processes - from drying, to smoothening, to curling and setting.
PRICE: ₹45,900

Magnus Chase and the Sword of the Summer

★★★★⯪ | *Okay, we know this is not something very new. But hey... books don't expire so here we are!* With a very distinctive writing style, Rick Riordan is mostly known for his debut book series, Percy Jackson and the Gods of Olympus. Famously known to unravel fantastic teenage demigods adventures, these books are cleverly spun with mythological characters and gods in close ties with the modern world. In general, each of these series usually follow a specific mythology and abide by its respective settings, traits and characters. The Magnus Chase and the Gods of Asgard series is a similar addition, set on Norse mythology and depicting how the pro-

tagonist voyages through challenges to delay the 'Ragnarok' doomsday. Along the way he even encounters several renowned Norse gods like Thor, Loki, Frey, Freya, Mimir and many more.

Like Percy Jackson, the series follows the narration by the protagonist himself. Set in Boston, USA, Magnus Chase is briefly introduced at the beginning of the book as a character who is almost 16 and has been homeless for over two years.

He does have what remains of his largely stretching family, but he does not trust them. Especially after his mother warned him not to put any faith in his uncle. The story moves on, and the author does an excellent job of keeping us hooked throughout. Altogether it is a great adventure read for teenagers. There is also emphasis and usage of different cultures. How two people from the same world can have different opinions - their thoughts might clash but they teach each other a lot of new things as well. Besides that, Magnus is a witty fellow and makes lots of snarky comments to ensure that the book never becomes too serious. It is a feast for a fantasy lover with diverse and flamboyant characters, hilarious adventures and rarely a dull moment while reading through.

–Nayan Panda

Locke and Key: The Golden Age review

★★★★☆ | If there's one book that could be classified as a true adult-oriented fantasy, Locke and Key would be it. Written exclusively by Joe Hill and illustrated by Gabriel Rodriguez, Locke and Key charts the story of the Locke family through various ages as they combat extra-dimensional entities using magical keys. The latest in the series, The Golden Age, is a collection of tales that precede the events of the main story. Set in the early 20th century, The Golden Age takes us through the killing fields of WW1 and the prohibition era, giving us a glimpse into the early ancestors of the Lockes and their struggles with the all-powerful keys.

Locke and Key takes familiar fantasy tropes and twists them until they're completely unrecognizable. There's something dangerous about Keyhouse and the Lockes are truly tested, whether it's by familial illness or demonic entities. In fact, there are a few nods to DC fans with a few cameos by the Endless in The Golden Age. If you haven't checked out the original series, it might be a little difficult for you to really get what's going on, so we'd recommend you back and check out the OG series before reading The Golden Age. The stories will make much more sense then. But, if you can't really get your hands on the original series, The Golden Age still contains some of the best fantasy stories that we've read this year.

Just like his father Stephen King, Joe Hill weaves a yarn that is equal parts compelling, action-packed and emotionally weighty. The Lockes feel like a real family, complete with all the dirty laundry that inevitably comes with tight, unshakable bonds. The winding tale is complimented by the precise and expressive artwork of Gabriel Rodriguez. As a former architect, Rodriguez's Keyhouse just feels real and lived in. There's a weight to his work that gives the story its gravitas. If you're looking for a book that will take you on a real journey, you should pick up Locke and Key: The Golden Age.

–Andrew Lu

POCO is one of India's fastest growing smartphone brands, with an interesting line-up of products to its name. Going forward, the company looks likely to double down on this approach, and also tap into the growing demand for 5G phones. We recently sat down with Himanshu Tandon, Country Head for POCO India, to understand the company's plans for the Indian market for the rest of the year. Here's what he had to share.

Tapping into the growing 5G demands

Himanshu Tandon,
Country Head, POCO India

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A sneak peak into POCO's plans to tap into India's emerging 5G market

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Sushant Talwar | sushant@digit.in

d What are your thoughts on 5G in India and the brand's vision on bringing 5G devices in the country?

Himanshu: India is gearing up for 5G and its introduction will bring in a technological revolution which will create wider and newer avenues for brands, thereby pushing them to explore innovative solutions to enhance their services and products. We at POCO, are focused on understanding the need gap and bring more 5G powered devices that would truly redefine users' experience offering best value for money products and reach the country's hinterlands. We have seen many 5G smartphone launches but at the cusp of 5G, we also saw compromises made in terms of other specifications. But for us, 5G and powerful specifications weigh equally, and thus, if you look at our recently launched 5G devices, we have ensured to deliver a powerful, efficient and a no-compromise smartphone experience. We believe in building a device that offers value for money and with our vision of innovation and affordability, POCO will bring power-packed 5G devices in future as well.

the fastest selling android premium smartphone in its segment.

We also forayed into the offline space, with the launch of our first-ever exclusive Branded Sales and Service Centre in Kolkata following a unique concept of 'Pink Service Centre' run by all women (including the backend engineers). Through this, along with the repair services and consultation, consumers will be able to get hands-on experience on all POCO devices. Also the entire POCO portfolio is available at the centre from X, F, M and C series. Being at the forefront of driving technology innovations, we are focused on bringing best in class products and services and the response is the testimony that we have taken steps in the right direction and have built a strong foundation.

d What is POCO's roadmap for the second half of 2022?

Himanshu: Abiding with our current approach and going forward as well, India will remain a priority market and consumers will witness a lot of synergies and integration with the global launches, upgrades and new features being rolled out on a device, among other things. We are also gearing up for the biggest festive season and looking forward to yet another successful Diwali, this year.

At POCO, we have always believed in the power of 'Everything you need and nothing you don't' while maintaining a lean product portfolio. And we will continue to maintain our product lineup across our available F, X, M, and C series and help consumers make conscious purchase decisions, and continue bringing innovation and the MAD factor in each device. We have an exciting M series smartphone - POCO M5 coming in September equipped with the segment's powerful MediaTek Helio G99 processor.

d What are the milestones achieved by the brand in H1 2022?

Himanshu: At POCO, we have had an exciting year so far with launches across price segments, right from budget to flagship products, we have ensured incorporating consumers' feedback in our decision making and the overall strategy. All the products launched in 2022 have had resounding success in the market and our consumers' overwhelming response is a testimony of the same.

POCO became the No.1 selling brand during the Flipkart Big Saving Days in July with POCO M4 Pro AMOLED being the highest selling model in the 10-15K budget segment. Continuing the momentum, POCO became the highest selling brand on Flipkart during the Independence Day Sale event and POCO F4 5G was

Standing true to our commitment of enhancing our after sales service, we aim to expand our offline presence across India and are evaluating the cities for launching more POCO branded offline sales and service centres. We are also working on strengthening the POCO community and ensuring more frequent engagements with our consumers and POCO fam, giving us an opportunity to take their feedback directly. Not only this, with the community, we will keep updating our community members on the latest developments and initiatives by the brand. **d**

Blaupunkt on staying relevant in the Indian market

Sukhesh Madaan, CEO, Blaupunkt Audio India gives us an insight into how Blaupunkt is working towards capturing the lucrative Indian audio market

Sukhesh Madaan,
CEO, Blaupunkt
Audio India

Dhriti Datta | dhriti@digit.in

The Indian audio market is a rapidly burgeoning one and brands across the globe are scurrying around to attempt to capture this lucrative market. Blaupunkt is an iconic German audio brand that attempts to do the same with its array of audio products. We spoke to Sukhesh Madaan, CEO, Blaupunkt Audio India to gain insight into the German brand's audio journey in India, and learn about their newest product and future plans.

d **Blaupunkt Audio is still one of the relatively lesser-known audio brands in India but is exceptionally popular in the global market. Can you discuss what is being done to stand out from the crowd in India specifically?**
Madaan: Blaupunkt is an Iconic German brand with over 124 years of technology development and innovation in the audio industry. It is known globally for its premium personal and home audio products. In India, the company has a rich history in the car audio market and has over the decades made a name for itself here. In India, Blaupunkt has tailor-made and fine-tuned its range to meet local desires and expectations. Richer bass, a larger number of features, more contemporary designs and a more durable build. These enhancements have been made after research and a vast amount of real-world testing. In addition to the actual

products, Blaupunkt has also taken care of the price points keeping in mind its customer bases. To satisfy all segments, Blaupunkt has ensured its price points across its range always offer better value for money.

d **TWS earphones have exploded in popularity over the past few years. However, is it paramount to be innovative in this segment to stay on top of the market. How is Blaupunkt Audio tackling innovation for TWS earbuds? Are there any segment-first features we will get to witness from Blaupunkt TWS?**
Madaan: Yes, the TWS market has really come to age this year. Blaupunkt is following a multi-pronged strategy to be on top of it
1. **Technology Evolution:** we are leading it from the front. We launched products with the latest tech i.e. with ENC & ANC functions which are the latest new trends in the market. In fact, our next launch is coming with 6 Mics to give you the utmost feel of ANC technology.
2. **Design Innovation:** After initial confusion and hiccups in consumers' minds, there is a clear preference setting up in consumer minds to have TWS with a stick. So all our new models are coming with them. On top, the market is really maturing to try different colours and so in our latest launches like BTW100 & BTW15 etc, we are launching various exciting colour options like

Alpine Green, Sierra Blue etc.
3. **Affordability:** As TWS tech is maturing there is a constant price correction in the market. Blaupunkt is leading it from the front while offering great quality with features and pricing. Our latest ENC TWS has been launched at a super aggressive price point of 1499/- we want the Blaupunkt range of products to reach out to a wider audience so they can use and appreciate the Technology and Quality of the products.

d **How does Blaupunkt plan to thrive in the cut-throat market competition, which is dominated by companies such as Skullcandy, Boat, JBL, and others?**
Madaan: The Indian market is crowded with new brands popping up every day. Right now, the market is dominated by Skullcandy, Boat, JBL, RealMe, Oppo and a few others. But consumers are always looking out for better products that offer better value for money. Blaupunkt has noticed that just being cheap is not what consumers want. Brand value, technology, durability and a lot of flash value are what help people decide on a purchase. And this is what it delivers. As for TWS Tech, this is the standard in the consumer's mind today. People know this tech is one generation ahead and have seen its benefits and advantages. Blaupunkt was one of the pioneers of this tech and has launched a wide range of products, earbuds, speakers, etc, that incorporate it. **d**

Noise launches Buds Prima 2
Featuring 50 hours of playtime, these budget friendly babies should last long enough.
https://dgit.in/sep22-07

Startup disappears from market
Bolt Mobility, a tech startup co-founded by Usain Bolt, is inoperational in at least 5 US cities.
https://dgit.in/sep22-08

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FEATURE

The UPI Journey

Where did it come from, and where's it headed?

Satvik Pandey | satvik@digit.in

Unified Payments Interface (UPI), one of the most popular payment platforms in the country, has seen a monumental rise in popularity since its introduction in the year 2016. UPI, as a platform, was meant to facilitate the adoption of online payments in India by providing consumers and retailers a universally accepted platform that would be accessible through different service providers. As of August 2, 2022, over six billion UPI transactions have been recorded, with projections of the UPI transactions crossing a billion transactions a day mark in the next five years.

Unified Payments Interface or UPI is a landmark concept that originated in India. The testament to its success is that it is being adopted not only in India but overseas as well. Earlier this year, it was announced that UPI services would start in France soon too. While the details of the service launch aren't crystal clear yet, efforts are actively being put in to ensure everything goes according to the law of the land while preserving the easy-to-use philosophy that lies at the core of UPI.

The EU debut of UPI drove up the number of countries where UPI works from five to six. Other nations that have adopted UPI are Bhutan, Nepal, Malaysia, Singapore, and United Arab Emirates.

Not only this, in December 2019, Google took note of the success of UPI and recommended the US also set up a real-time UPI-esque payments system. FedNow, which was the payments system developed after this recommendation, finds its roots in UPI.

There are other iterations of the payments interface. For example, there is UPI 123PAY, which utilised voice activation and UPI 2.0, which was launched in 2018, enabling consumers to link their overdraft accounts with UPI.

During the peak of the pandemic, UPI hit record usage numbers and became the quintessential payment method. As the restrictions lifted and people started stepping out and carrying out their day-to-day activities, the numbers rose even higher. The ripple effects of this can be seen in the transactions recorded in July this year. As per the data released by the National Payments Corporation of India (NPCI), in July, there were 6.28

billion UPI transactions recorded, amounting to over ₹10.62 trillion. These numbers showed a seven per cent increase over the numbers recorded a month earlier, in June.

However, the road to such levels of success isn't one without hurdles. As the number of adopters increased, the number of financial frauds also shot through the roof. Reports started flooding in about the increased rate of financial frauds occurring in the country, ranging from phishing-related scams to straight-up identity theft-related crimes.

There were privacy concerns, too, as UPI apps generally required location data before processing transactions. NPCI, taking note of these developments, issued incremental mandates for different platforms. The latest addition to the list is the one that requires all the UPI apps to require prior permission from the end users before recording their location data. This change is to be put into effect by all the platforms by December 1 latest. There have been multiple such mandates and consumer education initiatives put

into effect by service providers and government agencies.

While the road ahead looks promising, there are a lot of things yet to be seen. There are questions unanswered and hesitancy in the minds of the 'laggards' if we go by the terminology of the Diffusion of Innovation theory. These will need to be addressed before we move ahead and celebrate any other success or achievement of the platform. UPI has come a long way, but there's still a mountain to be scaled before it lands in its true and final form. **d**

EXPERT'S
TAKE

KARAN MEHTA
Founder and CTO, Ring

Q With the fast-paced overseas adoption of UPI, what do you think the future has in store for UPI?

A There will be two aspects of it. One is individual countries or individual economies. Someone like the European Union will adopt it, and someone like Japan adopt it. It will, of course change a lot of things within their own internal networks. The countries will actually see a lot more digital adoption, even in countries where they are otherwise prevalent. I mean, Western economies are always accepting cards, but there are some very, very big benefits to UPI. One is you don't need the card machine. You don't need an internet connection. You don't need electricity connection. All you need as a merchant, is a QR code and a mobile phone, which could even be a feature phone. Right? All of a sudden you see that, the process becomes much, much smoother for the merchant himself. (When accepting cards, the merchant has to) take the card from the customer, swipe the card, the customer enters a pin, a receipt is generated for the merchant and customer. Most of these steps are avoided. So, individual economies will see an increase in digital option.

The other thing that's going to happen is when a large number of countries are on the same network, you'll also start to have interoperability, which is very, very different. The only one current mode of payment for consumers that is interoperable are Visa, MasterCard cards. Those are the only modes of payment, which you can get in India and go to Europe and use it right now. And, unfortunately, you know, Visa and Mastercard are almost oligopolistic companies. You know, just being in that setup, there is very less incentive to be customer friendly. There is not the right choice for the customers. Something like UPI is going to make it very, very transparent and seamless to connect the payment networks of multiple countries. It will truly bring 'customer convenience'. You'll get better features as a customer. You'll get more convenience as a customer. Imagine paying, using a PhonePe app for a baguette in France. It will be very liberating. You don't have this worry that, oh, did I take enough Forex? Uh, did I take a Forex card? Is my credit card charging me too high of an exchange fee? All of those concerns will go away. **d**

SKOAR!*
LIVE TO GAME

10 YEARS

A DECADE OF CLICKING HEADS AND OPENING REDS IN CS:GO

EPIC CRICKET
Mobile gaming experiences are getting an upgrade!

Resurgence of SRPGs?

I am a huge SRPG fan. That's strategy role playing games for those of you who don't know. I've already established that I'm a big RPG fan so it's not really all that big of a surprise.

My love for SRPGs began when I first played Final Fantasy: Tactics Advance for the Gameboy Advance back in 2006. It was love at first sight. Not only was the story great, the gameplay, and the idea that you could customise characters to be whatever you wanted was amazing. The replayability was through the roof, since you could try different things every time you played so no two runs would be the same. Thanks to Final Fantasy: Tactics Advance, I began to explore the world of tactical RPGs, which led me to classics like Tactics Ogre, the original Final Fantasy Tactics for the PlayStation, and even the Fire Emblem games *pre Switch, I don't have a Switch :-(*

I have since played quite a few other tactics games; Advance Wars, Onimusha Tactics, Valkyria Chronicles to name a few. It would also explain why I enjoyed Dragon Age: Origins a lot more than its sequels. If you know, you know. The reason I'm talking about SRPGs is because it looks like there's been a resurgence of sorts this year and I'm all for it.

Taking the last few years and just 2022 into account, there have been a startling number of new SRPG releases and planned releases. There's a nice mix of titles from indies, and even from Square, who are remastering classics like Final Fantasy Tactics, and even releasing a completely new title later this year. Tactics Ogre is getting a remaster as well; Tactics Ogre Reborn. One of the games I've reviewed this month was also a recent SRPG release. I'm certainly excited for this new batch of SRPGs, but I'm also glad that the genre as a whole didn't die out. While for me personally it was SRPGs, maybe there's an old genre that's gone out of fashion that you enjoyed. So there's hope for that in the future too and maybe your favourite games will make a resurgence in the coming years. Probably. ✳

–Manish "Trigger-Happy" Rajesh
SKOAR! Overlord | feedback@skoar.in

"I'm certainly excited for this new batch of SRPGs, but I'm also glad that the genre as a whole didn't die out."

PS launcher in the works

Sony is once again the talk of the gaming town as, now there are rumours that Sony could release its own PlayStation launcher for the PC. Much like Steam, it could function as a place where all PS titles for PC will be available.

Indian Dota 2 Team wins bronze

Commonwealth Games 2022 were being held in Birmingham, England doing us proud was the Indian team winning the Dota 2 match for a bronze medal. Yes, this was the inaugural esports championship and our team left a lasting impression.

E-Gaming Federation comes in clutch

E-Gaming Federation (EGF) of India urged GoM to make a distinction in categorising 'games of skill' (or e-sports) from 'betting and gambling' both for levying GST rates as well as the basis of the valuation methodology.

Sony PlayStation VR2 headset coming soon

Sony has finally announced the PlayStation VR2 launch will take place in early 2022. The company has put out a tweet and an Instagram post for the same. That leaves only the price of the product behind the curtains. The company has been drip-feeding the product details including some of its design elements, specifications, and UX features for the last couple of months. Sony expects the PS VR2 should support around 20 titles including Half-Life: Alyx, a Horizon spin-off, and a VR version of No Man's Sky.

Google Play Games for PC now in 5 more countries!

Google has finally expanded its Play Games for PC feature under an open beta to users in South Korea, Hong Kong, Taiwan, Thailand and Australia. Earlier this year, the company announced that Google Play Games would be coming to PCs as a beta experience for a limited number of players. In the last few months, the company doubled its Google Play Games catalogue to more than 50 titles, which can be played on Windows PCs via a standalone application built by Google.

UP AND COMING

Gerda: A Flame in Winter

Gerda: A Flame in Winter is an upcoming action game revolving around the life of the central character of a girl named Gerda whose relatively quiet life is turned upside down when her small Danish village is occupied during World War II.
Release: September 1, 2022

Chenso Club

If you were looking for a game with an anime-like aesthetic and the storyline of an indie adventure game, then Chenso Club is a game that should already be waiting in your wishlist. Packed with missions and quests, this game will send you on an alien-fighting trip like no other.
Release: September 1, 2022

MythBusters: The Game – Crazy Experiments Simulator

An adaptation of the famous Dsicovery Show, the MythBusters, this game will send you on an endless trail of scientific (well sometimes not quite) myth busting, where you will "Be a MythBuster in front and behind the camera!"
Release: September 1, 2022

Did you know, you cannot see your own shadow in Counter-Strike: Global Offensive aka CS:GO?

SYMPHONY OF WAR

A fresh spin on the classic SRPG

By Manish "Trigger-Happy" Rajesh
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I've been a huge fan of SRPGs or tactics games since I was a kid. From way back when I first played Final Fantasy: Tactics Advance on the Gameboy Advance. That was enough to drive me to look for every other possible tactics game I could get my hands on, from the classic Tactics Ogre, to several Fire Emblem games, Advance Wars, the original Final Fantasy Tactics, Onimusha Tactics and more. Naturally, it didn't take much to convince me to give Symphony of War a go. A relatively new release, Symphony of War: The Nephilim Saga was ticking all the right boxes on the surface, so I had to give it a shot. Did it manage to scratch my SRPG itch? Read on to find out.

GAMEPLAY

One of the most fun things about SRPGs is being able to customise

your characters. Weighing the pros and cons of your build and how it will pan out with the rest of your team, it's all part of the strategising fun. Symphony of War takes this customisation and extends to an army of squads. Your focus is no longer on an individual character, but rather on a squadron of up to nine units.

This is Symphony of War's fresh spin on the classic SRPG format, and it works really well. When arranging your squad, you've got 15 positions to work with and a maximum of nine possible units. Throughout the game, you will be building your army of squads, creating new ones and adding troops to existing ones. The way you decide to build your squad determines the overall strategy for your army.

Since it's all about the squad, you'll now be on the hunt for promising rookies or special merce-

naries from the market. Then you're free to mess around with their stats. The game encourages you to experiment with different squad compositions. You're free to drop down a class tier or two and try a different class path for units as long as they meet the criteria to do so without any penalty.

SQUAD COMPOSITION

Symphony of War has various squad types as well, which are determined by the type of the majority of the units in a squad. If five out of the nine troops in a squad are heavy infantry, then it's an infantry squad. Similarly, you've got light infantry, cavalry, and flying squads as well. Infantry squads are nothing special, but they're probably the hardiest of the lot. Light infantry can ambush enemies in rough terrain; enemies you attack aren't able to counterattack. Cavalry units can not only move long distances, but can also charge. Flying squads can, well, fly. A five unit squad with three horse riders would effectively count as a cavalry unit.

WHAT MAKES A GOOD LEADER?

But of course, no squad is complete without a leader. The leader determines how strong a squad can be. Every unit you acquire can become a leader, but how good they are depends on their leadership stat. Every unit has a cost in order to be in a squad, so your leadership stat also determines how big your squad can be. Even equipping items to a squad has a cost. Mercenaries tend to cost more, while loyal units are cheaper, understandably. However, units tend to become loyal over time.

There are specialised leaders that you acquire as your progress through, that give their squad certain benefits. The main character for instance comes with the mentorship trait, which grants bonus leadership to squadmates. This makes the main character's squad a great place to create future squad leaders. There are other specialised traits as well; General Lysander for instance, gets a discount on all gunpowder units in his squad. While you get these characters through the course of the game, there are special named mercenaries that you might get the opportunity to hire which also come with special leadership traits.

THE COST OF WAR

However, all of your customisation and recruitment will need gold and resources. Even items (especially the powerful ones), called artefacts in the game, are pretty pricey, so you need to be careful with your spending. Keep an eye out for bazaars mid mission which have the best items and recruits, and be sure to always have gold on hand to spend at these bazaars. In addition to gold, we mentioned you need resources. In order to class up units you need certain resources, like gems for magic units, iron for infantry, horses for cavalry and so on. These resources become more specialised and rare (obsidian, sunstones etc) as you progress and unlock even more powerful classes.

FACTION LEVELS

As you progress through the story, you'll also unlock faction levels, which in turn will allow you to unlock new technologies for your army. These technologies can vary from small boosts like dealing more morale damage to enemies, to massive ones like allowing gunpowder units to shoot twice, or being able to train dragonriders. Naturally, the more powerful ones are more expensive and unlock later in the game.

Since we brought up morale, the game allows you to force enemies to surrender, if their morale is low enough. Successfully forcing a surrender will net you bonus gold and faction experience at the end of a level, so always try to force surrender whenever possible.

That about covers the gist of the gameplay elements in Symphony of War. There's a lot more depth to the game, but we don't have the real estate to explain all of it here. Besides, it's best experienced in-person. While it may all seem complicated, it's pretty easy to grasp. We didn't think we'd need to break down the controls or anything; it's fairly straightforward. Plus, the game does a good job of easing you into the game's core mechanics.
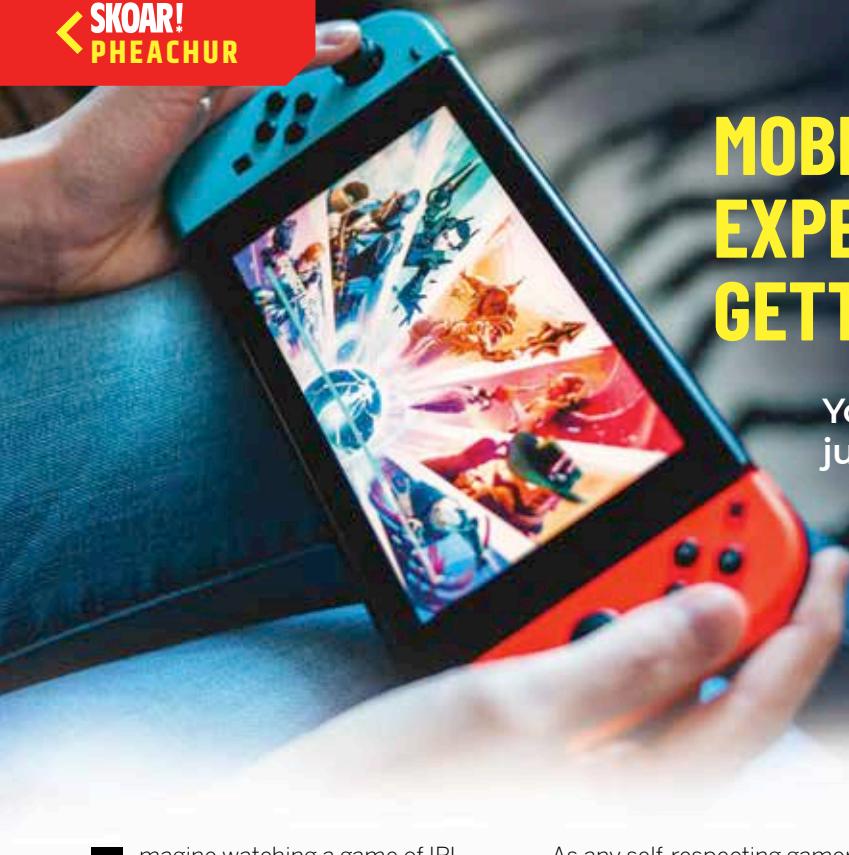
STORY

The story is probably the weakest aspect of Symphony of War. Not to say that it's horrible or anything, it's just as generic as they come. End of the world, yada yada yada, chosen one, yada yada yada, angelic powers yada yada yada. The name has Nephilim in it, if that didn't give it away.

You've got bits of conversation between missions, which take the story forward, and some optional conversations between the companions travelling with you. We say optional because you're free to skip them completely and can still finish the game no problem. It'll probably affect some of the text down the line but you won't miss anything in terms of gameplay. It's just an opportunity for the characters to showcase some personality. You can form bonds between characters and even pursue romances here, which will provide a small buff while on the field. It's pretty negligible though.

VERDICT

So yes, Symphony of War: The Nephilim Saga did indeed scratch my SRPG itch. It certainly has its flaws, but for a fresh take on a rather stagnant genre, we have no complaints overall. The game is actively getting updates with balance patches for underused and overpowered classes, the potential for replayability is pretty solid. Certainly give this a try if you're a fan of SRPGs. *

MOBILE GAMING EXPERIENCES ARE GETTING AN UPGRADE

Your mobile gaming experience just got better!

By Jayesh "Big Daddy" Shinde

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Imagine watching a game of IPL T20 cricket on a big screen television and compare it with a cricket game you play on your smartphone: Which one offers more fun and entertainment in terms of vibe? Short of physically witnessing a live cricket game inside the stadium, watching it on the tele is significantly better than any cricket game you can play anywhere. Until now.

Epic Cricket is a popular smartphone and tablet-based cricket simulation game developed by Moong Labs, which recently worked with Dolby Laboratories to incorporate Dolby Atmos virtual surround sound effect to enhance the game's user experience. That's right, they're trying to bring some of that vibe and feel of a live cricket match into a virtual game on your smartphone.

Importance of audio in immersive gaming

According to Moong Labs, "complex algorithms and techniques" are deployed to impact Epic Cricket gamers' visual and auditory senses – a distinct loud roar of the crowd from the direction of the stands where the ball travels, wicketkeeper chatting behind the stumps, among other things, definitely aim to get you more involved into the game, no doubt.

As any self-respecting gamer will tell you, great gaming experiences are powered by great immersive experiences. Without immersing yourself into a game, you don't really feel you're 'in the game', do you? The eyes and ears play a big role for that to happen, whether you're playing Call of Duty or DOTA 2 or any of your favourite games out there.

Samit Babbar, Head of Product, Moong Labs said, "Gamers today want immersive experiences from their games and Dolby Atmos allows us to bring a whole new level of immersive gameplay." It's an attempt to take gamers right into the middle of the action with spatial sound as experienced by cricketers in a real match, he added further, as gamers spend more time playing sports-based games on their smartphones.

Dolby Laboratories' Ashim Mathur agreed with Moong Labs' Samit Babbar. "From a technology standpoint, Dolby Atmos adapts automatically to mobile devices and tablets to give you a spatial sound experience," said Ashim Mathur, Senior Regional Director, Japan & Emerging Markets, Dolby Laboratories.

He claimed Dolby Atmos allows creative professionals like game developers total control over the placement and movement of each

sound, helping them create a rich and layered spatial experience for gamers – even on mobile gaming devices, believe it or not. "With greater precision and detail than traditional surround sound mixing, creators can fine-tune the perfect mix," to deliver the exact soundscape for players of Epic Cricket, for instance, despite all the challenges thrown about by mobile form factors.

Here we'd like to point you to insights from Jayant Shah, Director Apps & Solutions Engineering, Emerging Markets at Dolby Laboratories who demystified how better Dolby Atmos audio experiences are now becoming available at increasingly lower price points for consumers in India.

"At a hardware level, we integrate with the chipset. The coding, the decoders, and all the magic is present inside the chipset. In terms of form factors, there's no restriction saying only the really high-end phones can support Dolby Atmos, so we don't limit the hardware. Obviously, sometimes, there's a detrimental aspect. For instance, you need at least two speakers. So, you know, there are some minimum specifications that are required. But beyond that, we don't restrict. To that end, there are some OEMs that come to us right at

the design stage in the beginning, which becomes easier because then we help them with the acoustic design. Price is not really the criteria. There are televisions doing Dolby Vision and Dolby Atmos as low as 15,000. And then, there's the really high-end stuff. I don't think price is really a defining thing anymore," according to Dolby's Jayant Shah.

Obviously, you can't ignore the fact that mobile devices are getting better with each passing year – they're packing better SoCs, with iteratively better GPUs, and more RAM, across smartphones and tablets in every price segment you can imagine. Madhav Sheth, CEO realme India, VP, realme and President, realme International Business Group, suggested that tablets are doing better in terms of offering a more immersive experience than smartphones purely thanks to their larger form factor – which is helping drive more nuanced gaming enhancements for the end user.

"Tablets with their larger screen are devices made for personal entertainment and to have an immersive experience. To improve it further we have added quad stereo speakers with Dolby Atmos for immersive sound which orient themselves based on how the user is holding the tablet. So, when you enjoy gaming on Pad X enabled with Dolby Atmos, it will automatically deliver the highest-quality audio, making your gaming experience always sound its best. The large and bright display also has thin bezels to make sure the experience is as non-intrusive and seamless as possible.

Add-on mobile peripherals for enhancing your gaming experience

Say what you want, we all know mobile gaming devices are limited compared to full-fledged console or PC gaming platforms. However, they do try to amp up their gaming experi-ence with the help of add-on periph-erals – joystick add-ons for your smartphone, TWS earbuds for less noise distractions, and whatnot. Do they really help?

Madhav Sheth of realme India said, "We already have TWS that can work well with our tablet in providing an amazing holistic experience." As do many other audio brands, no doubt, but there's one thing that consumers should keep in mind. "When it comes to the mobile gaming experience, add-on peripherals can be a good option for casual gamers but if you are a serious gamer and engage in online multiplayer then latency will matter as any delay in response time can result in you losing the battle," said Samit Babbar of Moong Labs.

What does this mean for the future of mobile gaming?

Ultimately, it's not about Epic Cricket getting Dolby Atmos virtual surround sound, but what it signifies in terms of the gaming ecosystem in India – what are developers creating, OEMs cater-ing to and ultimately Indian gamers demanding. Higher quality of experi-ences, as simple as that.

Samit Babbar of Moong Labs said, "Mobile gaming in India is going to continue its high growth trajectory in the coming years due to several fac-tors such as smartphone penetration, affordable internet and young demog-raphy that sees gaming not just as a source of entertainment but also as a potential career in esports."

"Today, people across age groups are interested in playing online games and it is becoming one of their favour-ite leisure activities" said realme India's Madhav Sheth. "The majority of gamers prefer mobile phones. The future of online gaming will continue to see more growth since the time spent on gaming will only increase. As per reports, pandemic resulted in people playing online games more frequently and with 5G becoming a reality very soon, gaming will become easier and will reduce any kind of lags in cloud gaming." ✱

10 YEARS

A DECADE OF CLICKING HEADS AND OPENING REDS

By Satvik "SA1NT" Pandey | feedback@skoar.in

IMAGING BY ANIL VK

A

ugust 21, 2012. Eight years after announcing Counter-Strike: Source, the successor to the original Counter-Strike 1.6, Valve released what was going to be a monument in the history of FPS games, Counter-Strike: Global Offensive. One of the most played games on Steam, CS:GO, as the fans like calling it, recently completed 10 years of its launch. So, we decided to pay our tribute to what is very accurately labelled as: Your favourite first-person shooter's favourite first-person shooter.
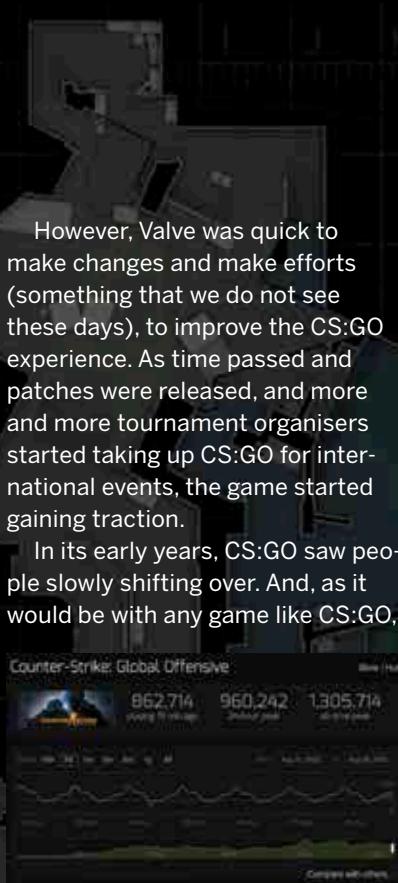
HUMBLE BEGINNINGS

Counter-Strike: Global Offensive was not an immensely popular game right after its launch. When CS:GO launched, the entire CS community was polarised. There were two camps, one that played the older, CS:S and 1.6 and the other who loved the new kid on the block. For about two years, a civil war raged within the Counter-Strike community.

It wasn't the people's fault too. At the time of its launch, CS:GO felt raw. The mechanics weren't polished and the gameplay and models inside the game felt... plasticky. Couple that with the human psyche that tends to resent drastic changes to the things that they love, and you have a recipe for disaster.

SOURCE: VALVE

However, Valve was quick to make changes and make efforts (something that we do not see these days), to improve the CS:GO experience. As time passed and patches were released, and more and more tournament organisers started taking up CS:GO for international events, the game started gaining traction.

In its early years, CS:GO saw people slowly shifting over. And, as it would be with any game like CS:GO,

SOURCE: STEAM CHARTS

it soon broke into the top spots of the popularity charts. As more and more people started playing the game, the stronger the community became. There were streams playing CS:GO live for hours at end, and tournaments with million-dollar prize pools. CS:GO had gone from being the David of the FPS world, to the Goliath that everyone looked up to with increased fondness.

OF CASES AND OPERATIONS

As the popularity of CS:GO grew, Valve saw an enticing business opportunity. Just a year after CS:GO's launch, the developers announced that the game would be getting SKINS as a part of the Arms Deal Update. These skins could be obtained via two methods – loot boxes and in-game drops. Not only this, if you had 10 skins of the same

quality, you could trade them up to a single item from the higher quality tier. The best thing about these skins were, they were instantly tradable, at least at the time of launch.

CS:GO was headed in the right direction. However, the addition of skins gave it a movement ability boost of a 100, and the game rocketed towards being immensely popular. As we told you earlier, streamers and creators took on CS:GO to stream and create content out of. Right? Well, the introduction of skins can be considered to be a great addition that accelerated that change.

SOURCE: VALVE

Not only the creators, the ones who wanted to make the most out of their money that they had invested in the game, also got onto the skins train. Soon there were countless markets for trading skins for loot box keys, and the worst of all, skins gambling sites. There were, and still there are people whose only source of income is skins trading. Even the pro players, whom we will talk about later in the article, indulged in skins, and to this day make it a point to bring their

A-game in skins whenever playing in a tournament.

A couple of months ago, we also did a cover story, where we interviewed, zipeL, a Danish skins collector and trader, who has made a name for himself, and quite a lot of money too, just by trading skins. During the interview, zipeL remarked, "Investing in skins is insanely viable. Historically, there is only a really short window of time where you could have bought a diversified amount of different skins and be down money today."

"Basically, anything with limited supply that's old and still have high demand should perform well over time," he added.

Skins quickly became one of the only reasons that people would even sign-up to play CS:GO. While this wasn't the worst thing for Valve, the sh** hit the ceiling when it came to surface that people had

Hey doggo, I have found(ed) a new site! It's called CS:GO Lotto

been gambling with skins (which was against Valve's TOS), and worse, defrauding people of their skins by indulging in unlawful acts.

To combat this, Valve added a 7-day trade cooldown on all the freshly obtained and traded skins in 2018 while also sending cease and desist notices to the owners of the gambling websites. Gambling bots with hundreds of thousands of dollars' worth of skins were banned. This move practically kill the gambling scene, while trading continued.

In the same year that skins were introduced, Valve also launched the very first CS:GO operation, by the

name of Operation Vanguard. As it was during that operation, and also continues till date, the players had to buy a pass that granted them access to a series of new game modes and objectives to complete.

SOURCE: VALVE

Upon the completion of those objectives, the players were awarded with XP bonuses, skins, and cases.

Over the years, the game has seen the release of 11 operations, with the latest one being Operation Riptide. While each operation has done more good than harm to the popularity of the game, one thing has been annoying the player base. It is the decreasing frequency of the operation releases. The gap between the release of two operations, from being just a few months in 2015-16, has gone up to a year to year and a half in the recent times. Valve, please fix.

PRO-PLAY

Where do we start with talking about the professional players of CS:GO. We have all tried to replicate their epic plays and smoke line-up in the game, only to learn that their level of confidence is something you only get with hard work. Or to better say, playing the game in excess of 20,000 hours.

The professional players and the international tournaments of Counter Strike: Global Offensive have been a facet of the game that no one can get past. If you are talking about CS:GO, then the pro scene CS scene has to be mentioned. At the start, things were a little slow though.

There was a powerhouse team, NiP, Ninjas in Pyjamas, who have to their name till this day, a record streak of winning 87 consecutive games of CS:GO at the highest level. No one came close. Until they met their Swedish rivals, Fnatic at the first major tournament. They served to the fans, a major upset at the very first Counter Strike: Global Offensive in 2013. And the CS:GO pro scene began. More rosters than ever started taking interest in the game, moving from Source or 1.6. Big sporting teams like FaZe clan, and Na'Vi also brought in the best rosters in the world, and the world saw the rise of CS:GO's very own pro-scene.

There have been legendary plays like Coldzera's jumping 4k on Mirage, and the infamous Olof boost, and that diffuse on Overpass. There have been redemption stories like that of Cloud9 at the E-League Boston 2018 Major, and the famous 2017 Kraków Major win for Gambit. Legends have like s1mple, Guardian, KennyS, Olofmeister, NiKo and the like, have come and gone. But the spirits have soared high for every tournament.

Since the first major to the one held in Antwerp this year, year-on-

year there have been records shattered. Not only the Majors, but there are also tournaments like IEM Cologne, which get as much hype

SOURCE: VALVE

as the hype has Valve-sponsored events. Each tournament since the very first one, has been a celebration of the spirit of the game, where the best of CS:GO's community meet and show the world the might of this 'dying' game.

THE COMMUNITY

The heart and soul of any game, the CS:GO community is practically what there is in CS:GO. Be it online or offline, the community has stayed string over the years. Heck, some members from the CS community had gotten featured in the game to, as creators of maps and stickers. Even when music kits were introduced in the game, Valve looked towards the community to source some music kits. The latest introduction in this category is the music kit titled, "Headed for the source" by a CS:GO YouTuber, 3kliksphilip.

While the community of CS:GO has grown exponentially in the last few years, with the game breaking the record for being the game with most concurrent active players in 2020, there have been multiple instances where Valve has turned a blind eye to the community. Fire-up Reddit and go to r/GlobalOffensive, and you will find countless posts with feedback for Valve. However, sometimes it seems that the voice isn't reaching Valve despite peaking-out on the decibel scale.

THE SECOND FIDDLE

Staying on the topic of Valve not listing to the community, let's talk about the apparent double standards that Valve holds for the game. Look at the changes and attention that DOTA 2 has received, compared to CS:GO. The game has Valve funded million-dollar tournaments and has also seen an engine overhaul. Then there is CS:GO. A decade old game, that has a legion of fans asking for an engine update for years now, and a better matchmaking system. But all that they get in return are visually updated chickens. Quite literally.

SOURCE: VALVE

It is CS:GO's 10-year anniversary, right? Look at what Valve served the players:

■ A sticker capsule with community-made stickers,

■ Five community-made maps,

■ Visually updated chickens, and custom birthday themed bomb-defusal, and zeus sounds, and

■ A 10-year commemorative in-game coin that was literally a cupcake, topped with a chicken-coin.

Just look at it. Out of the four announcements, half of them were made by the community. All that Valve developers had to do was reprogram the visuals and sound cues for a couple of items, give

chickens top hats, and create a coin, which by the way, people have said that they did a very bad job of, and we concur. By now, you might be thinking that this quickly turned into an open letter to Valve, but that is what the reality of the whole situation, unfortunately.

DIFFUSING

Like the 10-second timer in game, we are running out of space to say anything more at this point. We did not want to end this piece on a bitter note. However, whatever we wrote was from the perspective of a journalist, who is also a fan of the game. And, right now, this is what the reality is. CS:GO is a game that everyone, every year says that it has run its course, but it somehow ends up exceeding expectations. Expectations that may seem too easy to exceed, but actually are quite high. We have found a family in the CS:GO community, and a home in de_dust2.

You might have noticed that we did not write much about the actual game, because after a solid 10-year run, you do not need a review of the
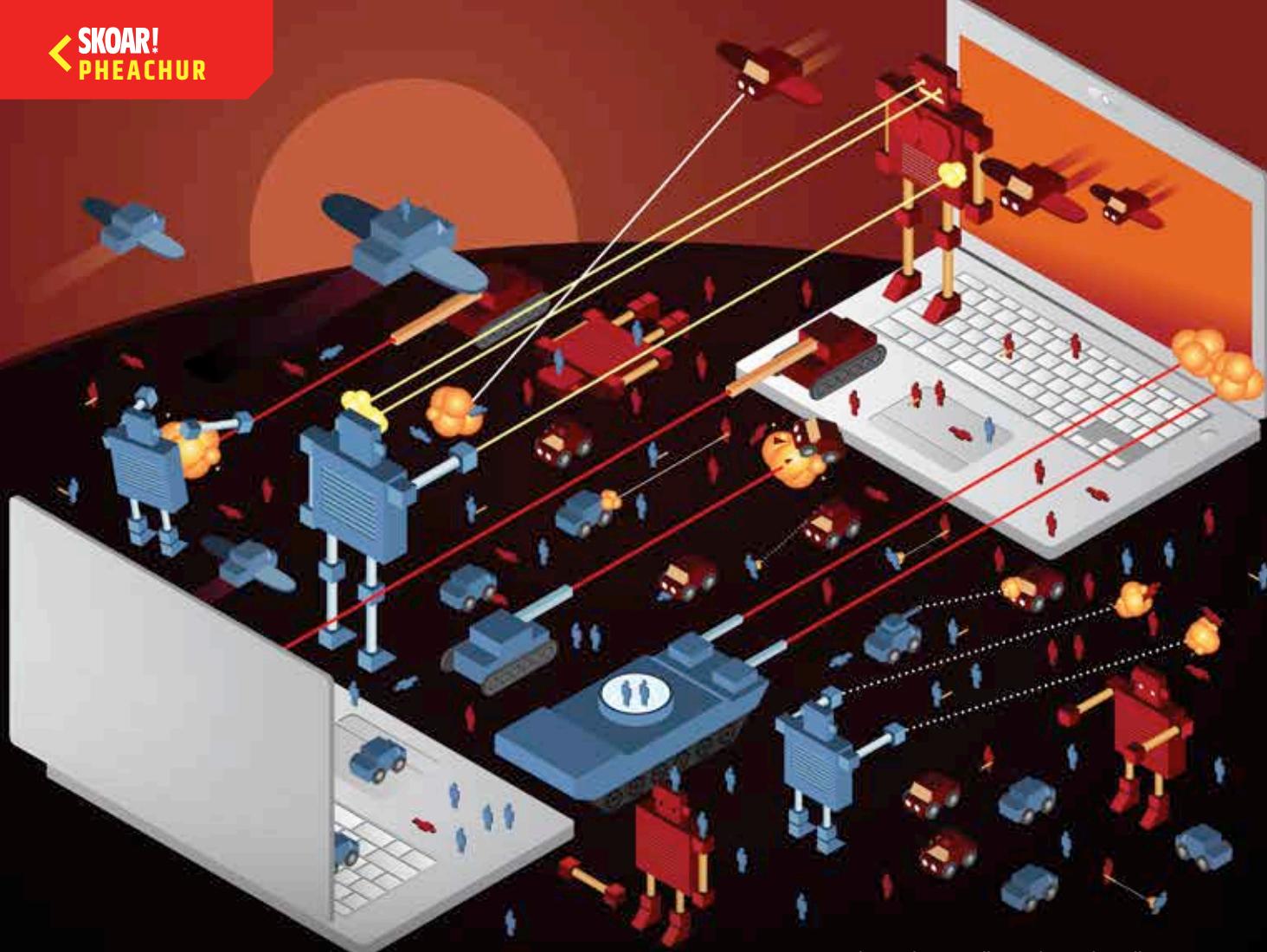
TheKasbah

SOURCE: VALVE

gameplay. The verdict is already out on that. All you need is a collection of memories, celebrating the highs and commenting on the lows. And that is what this article was supposed to be.

Here's to 10 more years of rushing B and asking for the big green... Happy belated birthday, CS:GO! ✳

SILENT HILLS TO AGENT, GAMES CREATED A BUZZ BUT NEVER RELEASED

They never saw the light of day

By D "Ninja Duck" S | feedback@skoar.in

There is no denying that the happiest moment in any gamer's life is when a stunning teaser or trailer of an upcoming game is unveiled. Titles like the Last of Us II, the Uncharted Series, Red Dead Redemption, Elden Ring, andHorizon Forbidden West created a lot of buzz and when these games were finally available to play, our happiness knew no bounds.

But hold that thought for a moment and imagine this. What if these masterpieces were announced, but never released? While we are thankful that we got to play these amazing titles, there are some games that unfortunately, never saw the light of day.

From the much-awaited Silent Hills [P.T.] that gave us nightmares when its playable teaser was released, to Rockstar Games' ambitious offering titled Agent, here are some games that were quite hyped, but never made it to the market.

1. Silent Hills (P.T.)

This is perhaps one of the greatest tragedies of the horror-gaming world and people are talking about this till date. The playable teaser, called P.T. was released back in August 2014. Eight years later, its memory is still fresh and the longing for the game hasn't ended. As people who have been fans of the Silent Hills series since Silent Hill: Shattered Memories came out, not releasing of this game was a major let-down for me. We still remember playing the teaser and getting those goosebumps though. If you watch the walkthroughs that are available on YouTube, you will get a feeling that the teaser is somewhat similar to Resident Evil 7's first location. It is not surprising at all that when Resident Evil 7 released, it was being compared to P.T. However, the developers had at the time denied the same and had said that the similarity between the two games was mere coincidence.

It was reported that the game was abandoned after a feud between Hideo Kojima and Konami. The game was announced in the year 2012 but in 2015, it was officially declared that it had been cancelled, much to the fran-

chise's fans' disappointment. However, if the game had been released, there is no doubt that it had the potential of becoming the best instalment of the Silent Hills Series.

2. Fable Legends

While we all loved playing the GTA games, GTA Online was on a whole different level as it allowed us to enjoy the GTA life with our friends. Fable Legends was an attempt to do something similar with the Fable franchise, way back in 2013. The popular franchise had action roleplaying games that had its first game released in 2004. Fable Legends was supposed to a co-op action role-playing game that gave its players a chance to explore the world with their buddies and get the best experience possible. The game had five major characters, four heroes and a villain. The game was designed in a way that player(s) could select the role they prefer and the unfilled spots would be filled by an AI. The best part of the game was perhaps that players could play it alone too, by filling up other characters with AI. As a result, the game would provide same experience to people playing in groups and to a player wanting to fly solo. Every quest, as is customary in RPG games, would present a set of challenges that the protagonists have to face.

So with such an intriguing gameplay and the backing of the immensely popular Fable franchise name, why was this game shelved after it was almost finished? The answer is something that we're still searching for. As per reports, however, Microsoft had spent a whopping $75 million on the game before deciding to cancel it altogether. Reports also suggest that the game had soaring high production costs.

3. Agent

For many of us, playing GTA Vice City on PC was the introduction to open world gaming, and we haven't looked back ever since. Over the years, Rockstar Games carved a niche for itself in the industry and earned some loyal followers who eagerly await its titles.

While we all await deets about GTA 6, did you know that there was a Rockstar Games' product that was scrapped off? Agent was announced for the PlayStation 3 in 2009 but the game never made it to play stores. It was reported to be set in the 1970s, at the time of the Cold War, with the protagonist being a Counter-Intelligence operative. It was being said that the game could be as famous as the GTA series but unfortunately, nothing of the sorts happened as players never got a chance to try this title.

After its announcement in 2009, the game was initially touted to release in 2010. However, until 2011, its status remained 'in development' and with the launch of the PS4 in 2013, it was being said that the game might release on the brand-new PlayStation. To all gamers' disappointment, Agent never released on the PS4. Today, the official website of the game takes us to Rockstar Games' website. The game is also not listed on the Rockstar games' page. While nothing is known about Agent's whereabouts, it is certainly sad to know that the world was deprived of yet another potential masterpiece like the GTA and the Red Dead series.

4. Deep Down

This one is for the people looking to challenge themselves while gaming. If you're one of those who loved the likes of the Souls game, Bloodborne, and the latest, Elden Ring, you must've heard about Deep Down. The game was announced by Capcom in 2013 and it was touted in the league of the Souls game with its setting in New York City. However, not much is known about the game, and we don't know if the players will ever get a chance to embark on this adventure. In an interview with Eurogamer in 2019, producer Yoshinori Ono had said that the game had 'not been completely given up on'. However, in 2020, Yoshinori Ono had quit Capcom and there was no word about Deep Down. The game's trademark was also abandoned by 2021. Will it arrive or will it completely bite the dust? Time shall tell.

5. LMNO

The moment Steven Spielber's name was attached with this one, it became a point of interest for many. The game was being developed by EA and was supposed to be about the player and his alien accomplice. The marketing of the game placed heavy emphasis on emotions, and it was being said that the game could make its players 'cry'. The game's tagline, for instance, was - "Can a computer game make you cry?"

Well, it did make us cry, but not in the way the developers had hoped. It made us cry because we never got a chance to try this intriguing game. As per reports, EA had cancelled the game because it was 'too ambitious' at the time and developing it wasn't possible.

6. inSane – Volition

Survival horror is one of the most fascinating genres of gaming and has a huge fanbase. So when a brand new upcoming game was announced in 2010, players were excited to get their hands on it. Guillermo del Toro, the man behind epic titles like Blade 2 and Mimic, had announced InSane, a survival horror game at the Spike Video Game Awards in 2010. He had reportedly said at the time that he wants to make such a game that makes the player 'question his own sense of morality and reality'. Del Toro had partenered with Volition and THQ for the title. However, the game was officially cancelled in 2012 and the intellectual property rights of the same were transferred to Del Toro. Since then, not much was revealed about the game including the reason for it being cancellation altogether.

Till date, we don't really know much about this possible horror masterpiece. It would, however, be interesting to have yet another survival horror experience. If given a chance, which one of these games would you like to play? Do let us know in comments. For more such pieces, keep watching this space! *

SIX GAMES
THAT SHOWCASE INCREDIBLE INDIA

Still feeling pangs of patriotism after the 75th Independence Day? Here are 6 games that showcase India in all of its glory!

By D "Ninja Duck" S | feedback@skoar.in

t isn't every day that you get to see a made-in-India game unveiling its trailer on Times Square. But that's exactly what happened on India's Independence Day this year, the world saw it happen and we couldn't be prouder.

Indus, an upcoming battle royale game developed by Pune-based Super Gaming, will be a free-to-play game releasing on mobile, PC and consoles. The game's trailer debuted at Times Square in NYC, made waves on social media, showing us all how India is making its presence felt on the global gaming map. In the same spirit, let's take a moment to reflect on how India's connection with gaming goes way back.

India, for a long time, has been a point of interest for many game developers. With its rich culture, history, folklore, and stunning locations, our country has been featured in various games like Assassin's Creed Chronicles, Uncharted: The Lost Legacy, Tomb Raider III and The Order:1886.

So, without any further delay, let's take a look at some of these games:

1. The Order: 1886
"I have always benefited from the underestimation of fools," says Rani in this 2015 PlayStation 4 game that is

known to have several historical characters. It is later revealed that Rani is actually Rani Lakshmi Bai of Jhansi, the epic warrior queen who fought for

India's independence. Even though the events of The Order: 1866 take place in London, the moment Rani Lakshmi Bai arrives on screen, she makes us feel at home. Rani Lakshmi Bai is a non-playable character in the game who meets as the story plays out. We see her in An Uneasy Alliance, Brothers in Arms and A Knight of Old missions. The central character's name in the game is Grayson.

2. Assassin's Creed Chronicles: India
The series of the famous Assassins Creed franchise sounded super exciting to all of us particularly due to the name of the second game, Assassin's Creed Chronicles: India. The three-part series had three games in total, the first being China and the third one being Russia.

The India version was set in the city of Amritsar, in the 19th century (1841 to be precise) when the British Empire was fighting with the Sikh Empire. The protagonist's name in the

game is Arbaaz Mir, who must protect his people, rescue his one true love, and steal something that's still much talked about, the famous Kohinoor diamond. From exquisite palaces to stunning locations, the game features India in its full glory. The weapons too are inspired from traditional Sikh and Mughal swords along with the concealed hand blade, a classic in all the Assassins Creed games.

3. Uncharted: The Lost Legacy

The Uncharted games are known for their stunning locations, intriguing plots and memorable characters. Even though Uncharted: The Lost

Legacy didn't have Nathan Drake in it, the game was a wonderful experience with two most-loved characters, Chloe and Nadine. The game is majorly set in Tamil Nadu and features ample mountains, jungles, ruins and temples. The graphics are breathtaking, and the gameplay is just like other Uncharted games- a blend of combat, puzzle solving and exploration.

Right from the first scene, the game features the stunning architecture of India's temples in the South. We then see our protagonist, Chloe, wearing a suit with a red dupatta over her head, shopping at a local market. As the game moves forward, we get to know that Chloe is actually looking for a (fictitious) relic- The Tusk of Ganesh.

4. Tomb Raider III – Adventures of Lara Croft

Tomb Raider brings back memories and is one of the most popular games of all time. In the Tomb Raider III, Lara travels around the world in search of an artefact. The first location that she must visit is India which is then followed by South Pacific, London, and Nevada.

In India, the player has to clear four levels that are named the Jungle, Temple Ruins, The River Ganges, and Caves of Kaliya. While there are several ancient temples one can see while playing the game, the most memorable moment has to be when the Shiva statues come to life in the Temple Ruins level as soon as Lara enters the location. As per reports, the developers chose India as one of the locations by accident. The game's producer, Mike Schmitt revealed that their team just took a globe and decided to see where it lands after a spin to finalise the location.

5. Hitman 2 and Hitman 2: Silent Assassin

The moment we took control of Agent 47 in Hitman 2, we knew this was going to be one hell of a ride! And, when the game took us to Mumbai, the excitement reached a whole new level. In the mission titled 'Chasing a Ghost', we are tasked with finding and killing a mafia guy who is in Mumbai. Note that we're talking about the 2018 game and not Hitman 2: Silent Assassin.

Okay, now we are talking about Hitman 2: Silent Assassin, the 2002 release! The game was released as a sequel to Hitman: Codename 47. A three-part mission in the game takes us to Punjab, where we, as Agent 47, must kill a cult leader named Deewana Ji. As the game says, he was the one behind the Sikh uprising of the 1980s that led to killing of many innocents. Except Agent 47, nobody has dared to venture in the territory ever since. The game has various small shops and houses and also features a huge gurudwara made of marble and gold domes. The developers certainly

did a great job back in 2002 to capture the smallest of landscape details. For instance, at the beginning of one of the missions, we see agent 47 exiting an auto-rickshaw. And let's not forget the most traditional part of the game, the turbans and kurtas worn by the characters.

Intrigued? Well, there is a reason why almost every player who loves third person shooting games has played, or heard of, The Hitman series.

6. Far Cry 4

The story of Far Cry 4 revolves around Ajay Ghale, who returns to his hometown to spread the ashes of his deceased mother. However, before he could get to his destination, he is kidnapped and taken to a strange place for, well, dinner. Classic Far Cry stuff, right?

Coming to the depiction of India, to begin with, the first name of the protagonist is a popular Indian name (you might actually know someone having this first name). The game is set in the fictional city of Kyrat, which is inspired from Nepal and Northern India. For those who have played the game, it is nearly impossible to forget the thrill of spotting and hopping on a Tuk Tuk. What's even more interesting is how a lot of Hindi can be heard in the background while playing the game. Yet another unforgettable aspect of the game is the super aesthetic map that captures India's beauty perfectly. The fact that it is an open world game makes the experience even more wholesome as you get to actually explore this fictitious place.

That is all from our side, folks! How many games from the ones mentioned above have you played? Do let us know by writing to us at the usual address - **editor@skoar.in** ✳

Mobile gaming will dominate India post 5G

How 5G will transform mobile gaming in India, according to Gaming Experts

By Siddharth Chauhan | siddharth@skoar.in

At the second edition of the India Gaming Conclave 2022 (IGC), industry leaders got together to talk about the drivers of the gaming revolution in India and what lies ahead. India is currently the hotbed of the online gaming industry with over 420 million active gamers and with technological innovations like 5G and cloud gaming on the horizon, it's set on a course that will revolutionize the gaming ecosystem.

"We have all the right ingredients," said Shrey Mishra, Co-Founder, XR Central during the inaugural session of the IGC 2022. "I think we're lucky that we are in the Indian ecosystem which really pushes us to innovate. We are a very different market. We're not like the US where people had the time to transition from Pong to Atari to PCs. We jumped straight to the mobile phones. And that's what we've seen in the last five years."

In the past five years, the online gaming market in India got a significant boost with the move from 3G to 4G, the democratization of mobile phones with affordable internet connectivity and the rise in popularity of games like Valorant,

PUBG Mobile and Free Fire, to name a few. With 5G services set to go live soon in India, the Indian gaming community is waiting with bated breath for it to spearhead the next-generation technologies like cloud gaming, XR experiences and more.

Giving an alternative point of view, Nitin Goel, Country Manager, Gameloft said, "It's not that gaming is a recent phenomenon, it has existed for ages for us, it's just that the enablers were not present at that point in time for us to have a massive reach of the game. And that's something which is very much available today to us. And that makes us more excited about the gaming opportunities in the market."

While the Indian gaming ecosystem may be poised to be a multi-billion dollar industry, it's not without its fair share of challenges. There isn't a regulatory framework by the Indian government for companies to follow which is something being advocated by the whole esports ecosystem since it finds itself being identified in the same vein as fantasy and casino sports. With 5G, the challenge is to use it in a meaningful way that benefits the gaming culture and not just faster speeds.

One of the other hot topics of discussion during the conclave was cloud gaming and how 5G will act as an enabler for gamers to play on the go and without the need for high-end phones or PCs. Since the game is stored on a remote server, it all boils down to how fast and reliable is your internet connection.

Talking about cloud gaming Goel said, "It's transformative. It's disruptive. The way we have seen things happening in 2008-2009 when Google and Apple came into the space, it's gonna have a similar kind of impact on how you have the experience of consuming PC gaming."

For facilitating these innovations, over 2 billion dollars have been invested in gaming companies in the past few years alone which have opened doors for increased research and development and also attract local talent. In all this, a silver lining is the debut of Indian esports athletes at the Asian Games 2022 which marks a significant development in the gaming industry. India is being represented by 18 members who will be fighting for the medal in titles like FIFA 22, DOTA 2, League of Legends, Street Fighter V and Hearthstone.

The Indian gaming ecosystem has shown multi-fold growth and the pandemic alone birthed over 40% of serious gamers. There's a lot more acceptance around gaming as a viable career choice than ever before and with everything at its disposal, it's time the Indian gaming industry solidifies its roots in the global markets but it shouldn't be left without regulations. ✳

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*Source: 2003-2021 OMDIA data: NAND suppliers' revenue market share. Image simulated, for representational purposes only.

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