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\*Source: 2003-2021 OMDIA data:  
NAND suppliers' revenue market share.  
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Cheil-12614/22



# Super-Subscriptions

**ELON MUSK'S TWITTER ACQUISITION HAS RUFFLED A LOT OF FEATHERS THROUGH THE COMPANY.** He has gotten rid of the entire Twitter board and all the C-suite execs and taken over as the sole decision maker to make sweeping changes. New features are being discussed and existing features are being revamped. One of the things that's being proposed is charging Twitter verified users an \$8/month fee to keep their blue ticks and get access to new features before everyone else. It's a super-user subscription that many such platforms have. As a fellow blue-tick Twitter account holder, I honestly don't see myself paying for the service because I don't use the platform much. If I had been an ardent user, then I might have considered paying since it does have a lot of useful and convenient features and quality-of-life improvements. With approximately 460,000 verified blue-tick users, Twitter stands to make 3.6 million dollars per month. People consider that to be a significant amount for Twitter, unfortunately, for a company that bleeds 4 million dollars every day, it's nothing but a drop in the ocean. Subscriptions have always been marketed as a win-win concept for the seller as well as the consumer. Consumers get to earmark a small amount on a monthly basis which is much easier to spend than a lump sum annual cost. For sellers, they're getting a guaranteed revenue stream which trickles in every month and at the end of the year, and they make a lot more than a subsidised yearly cost. Take for example the Disney+Hotstar OTT service costs of INR 299/month which translates to INR 3,588/year. The annual subscription cost is INR 1,499/year – less than half of what the monthly subscription would have run up at the end of the year.

While Netflix (200 million) or Spotify (144 million) have the most subscriptions in the world, respectively, both services do not offer annual plans in their biggest markets. Spotify does have annual plans in emerging markets such as India, but once the subscriber base is large enough, expect that to slowly disappear as well. For the average consumer, subscriptions are actually very expensive. The lack of ownership for something you pay for is a big negative straight up. And then there's the hit that your wallet takes. In a recent survey by C+R Research, the average consumer spends \$219 per month on subscription services. That might seem like a huge amount for Americans because they only use a portion of what

they're paying for. About \$133 per month goes towards forgotten subscriptions. That's quite the amount. We haven't had a similar research here in India which is just getting started with subscriptions. Right now, we're paying about INR 416 per month on average. What part of that is for unused subscriptions, might be much less than the Americans considering how the average Indian is more diligent at spotting these spends.

Over time, subscription costs tend to rise due to a multitude of factors but rarely, you might see massive blips. The fallout between Adobe and Pantone has resulted in creative professionals having to spend an additional \$14.99 per month over and above the \$84.99 that they spend every month. One can understand if the additional subscription were for a minor feature that only impacts a few. Unfortunately, in the case of Adobe-Pantone, it affects practically every creative professional. It's because the fallout is over something very basic – colour palettes.

Pantone makes colour swatches which are standardised across design software and the printing hardware that bring the designs to life. Without the additional Pantone subscription, Adobe will replace all Pantone colours with the colour black across all documents that you open. And it doesn't matter when the document was actually created. Essentially, the \$14.99 is a subscription on top of an existing subscription. I didn't find any standard term for it so I'm going with super-subscription to describe this hostage situation. Apparently, Pantone is responsible for this black-replacement move because they wanted to charge the customers directly. And if you're wondering how much Pantone stands to make, then a line straight from the description page of the Pantone Connect plugin that's on Adobe Exchange will make things clear: "Ten million designers the world over rely on Pantone for their colour-critical decisions." Perhaps not all of these 10 million designers are using Adobe software, but let's say there are 10 million Adobe users who rely on Pantone colours. At \$14.99 a pop, that's a cool 1.8 billion dollars every year. Adobe has conveniently passed on the costs of a failed negotiation onto the customers and it's a downright scummy thing to do, but it might be a simple negotiation tactic to elicit a massive outcry. Who knows. All I hope is that these super-subscriptions don't catch on. **d**



**"For the average consumer, subscriptions are actually very expensive. The lack of ownership for something you pay for is a big negative straight up."**



Let me know your thoughts on this column at:  
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# HAVE FUN. SERIOUSLY!

There are only a few moments in life that enrich your outlook on everything and riding a motorcycle would top the list. Biking is not just an experience but a way of life, and those who have ridden through life's journeys aboard two-wheels will swear by their experiences. KTM Pro-XP aims at delivering an unparalleled riding experience, not just for the ardent and die-hard bikers, but also for those who seek escape from the mundane and to add a dash of excitement into their lives.

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# e-Rupee to set you free

**UPI HAS UNLOCKED AN UNPRECEDENTED WAVE OF FINANCIAL ACTIVITY ALL THROUGHOUT THE COUNTRY,** ensuring everyone from the roadside vegetable vendor to premium supermarkets, from auto-rickshaw wallahs to all major airlines have embraced the highly convenient mode of transferring money.

So when I heard news of India starting a trial of its official digital currency – the e-Rupee – I was curious to know how it will differ from all the “digital money” we’ve been sending and receiving from our UPI apps for the past few years. More importantly, what new areas of financial inclusion will it help enable, ensuring the poorest of poor Indians benefit from the transformative power of technology.

The Reserve Bank Of India (RBI), which is the ultimate guarantor of currency payments in the country, has started a pilot project of digital currency e-Rupee between itself and all other banks operating in India. Also known as the Central Bank Digital Currency (CBDC), the digital rupee (e-Rupee) carries the same value as paper money or coins in your wallet, it’s just a digital version of the traditional money we’ve been using all this while with all the transactional benefits of all other forms of digital money transactions we’ve been undertaking through UPI or net banking.

Details are still hazy at the time of writing this, but as I understand one of the main differences between the RBI issued e-Rupee and traditional cash or digital money we’ve been using to settle trades till now is the absence of a middle-man. For example, where do you go to claim all the money that belongs to you? The banks where you have an account with all your money in it, of course. Whether it’s a cheque deposit or stocks liquidation, making e-commerce payments or your employer’s monthly salary credit, all forms of money start and end at one or the other bank. All these existing forms of accessing and using money – whether in cash or digital format – isn’t going to disappear, but with the introduction of e-Rupee some forms of money-related matters will be settled directly with the RBI instead.

When you add or remove money from your bank account, whether through UPI or by another way, you’re adding or removing money from your account with that bank – not directly through the RBI. But with the digital rupee

transactions, retail use (which means use of digital rupee by common people like you and me) of the e-Rupee will appear directly in RBI’s balance sheet.

Printing money is costly, carrying it everywhere in your pocket comes at the risk of loss, and its illegal or counterfeit use is detrimental to the economy – all these issues can be fixed with the help of a digital e-Rupee coming along.

But one of the most interesting features of the CBDC or digital rupee is that people without a bank account will still be able to transact with it – how exactly this will happen remains to be seen. I don’t think banks will be too happy to be cut-off from the financial chain entirely, nor can the RBI afford to fully replace all national and private banks operating in the country, but it’s still an interesting development.

Just like UPI apps act as an aggregator of all retail banking transactions in India, maybe for the digital e-Rupee there’ll be specialized apps for transacting with them at the RBI level. However, I’m certain the e-Rupee will be aimed at filling gaps in the banking sector – not to bypass it completely.

Imagine government agencies taking a token from a service provider by paying them in advance, and handing the token to people who are on their list of beneficiaries – people who exist but don’t necessarily have a bank account. These tokens would be delivered as an SMS or a QR code to the beneficiaries. These tokens can be redeemed for providing healthcare services in rural areas, for example, slowly expanding into other avenues like education, where students would be handed education tickets for school fees and so on. All of this is for the upliftment of the poor who have access to a phone and cheap internet connection, but don’t necessarily have the wherewithal to open and maintain a bank account.

How do you think we will all use e-Rupee in the near future? Let me know... **d**



**“One of the main differences between the RBI issued e-Rupee and traditional cash or digital money we’ve been using to settle trades till now is the absence of a middle-man.”**



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



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# AI vs Humans: Fight!

## NO THIS ISN'T AN OPINION PIECE ABOUT HOW HUMANS CAN KEEP THEIR JOBS WITH AI LOOMING.

In an issue when you have Calum Chace already opining about that, all of us just shut up and listen. Page 56 for those who want to wait no more to read his article.

What I'm going to focus on is the areas of differences between humans and algorithms, or AI/ML. I don't think we're headed to either a Star Trek like society where things are all free, manufactured from thin air and no one wants for anything. Neither do I believe we're headed for an AI-caused holocaust that will wipe out the majority of humanity. Both of those extremes seem to ignore the fact that we have this thing called money that isn't going anywhere soon.

I don't think I'm informed enough to be siding with either the AI Capitalists or AI Communists (and everyone in between), who all seem to think they have the right idea for how future societies should be designed. However, my own interest in the subject has caused me to delve deeper into the differences between artificial and human intelligence.

The simplest example I can think of is to look at birds. Even the best human ornithologist will lose to an AI in a competition to identify bird species through pictures. The human ornithologist will have studied for years, or even decades, and still they will have to search their slow, tissue and blood filled brains, and struggle to identify a few of the species, for sure. An AI will use its superfast RAM and learnings from thousands of ornithologists and their images to identify bird species with probably more accuracy and definitely more speed than any human ornithologist.

Out in the wild, a human ornithologist is in their element – they can identify birds just by looking at nests, or hearing a distant bird call above the din of the forest, or by finding a single feather, even by looking at bird droppings! And let's not forget, you can teach a human toddler what all birds are by showing it a couple of real birds. You don't need to show her/him every bird species on the planet to know it's a bird. You don't need to make sure the bird is sitting in front of a background that is contrasting, a human just knows a bird when it comes across one, from very little information, instinctively.

And yes, I get it, detractors will claim it's only a matter of time before AI/ML can do all

of those things. And to that I have to say, no... not yet at least. It's quite possible that AI will never think like a human. Humans excel in the unpredictable environments of the real world, while AI excels in the predictive environment of the virtual. And that's ok!

And yes, there will be a hundred headlines from the past and future (even from us) that will scream about more human AI being developed, but those are usually orders of magnitude away from building an 'artificial human intelligence'.

There are many who don't think we should even be attempting this, because it's totally futile. Can you imagine having to send your algorithm to virtual therapy where it lies on a sofa of code and spills its heart out to an AI therapist about how it feels unloved by its human masters? As vegans love to point out, given how we treat animals, a sentient race of AIs are doomed to be slaves.

There's a joke about a specialist plumber who was called after a homeowner could not figure out how to unblock his drainage pipes, and had called several local plumbers who had also failed. Plumber came in, inspected the house for 2 minutes, tapped on a pipe with his hammer, and everything just immediately flushed out of the system. He asked for Rs 5000. The owner was livid. "Rs 5000 for a 2 minute job? I want a breakup of the charges." "Sure," said the plumber. "Rs 5 to tap with the hammer. Rs 4995 for knowing where to tap."

That's human intelligence in a nutshell. The ability to know instinctively what to do, where to look, how to troubleshoot, and although it's clichéd, to think out of the box.

Yes AI will take away a lot of software-enabled jobs, and immediately replace a lot of mundane and repetitive jobs. Humans will either be forced into jobs that are more outdoorsy and labour driven, or indoorsy where a very high level of human thinking is needed.

I don't think we need to worry too much though, because unless a new species of sentient robots is born who start earning salaries and paying tax, there is a massive incentive for governments of the world to keep people employed, occupied and relatively happy.

If they're stupid enough to not do that, history has enough lessons to teach them about what happens when you pi\*\* off an entire country of humans... 



**"Even the best human ornithologist will lose to an AI in a competition to identify bird species through pictures."**



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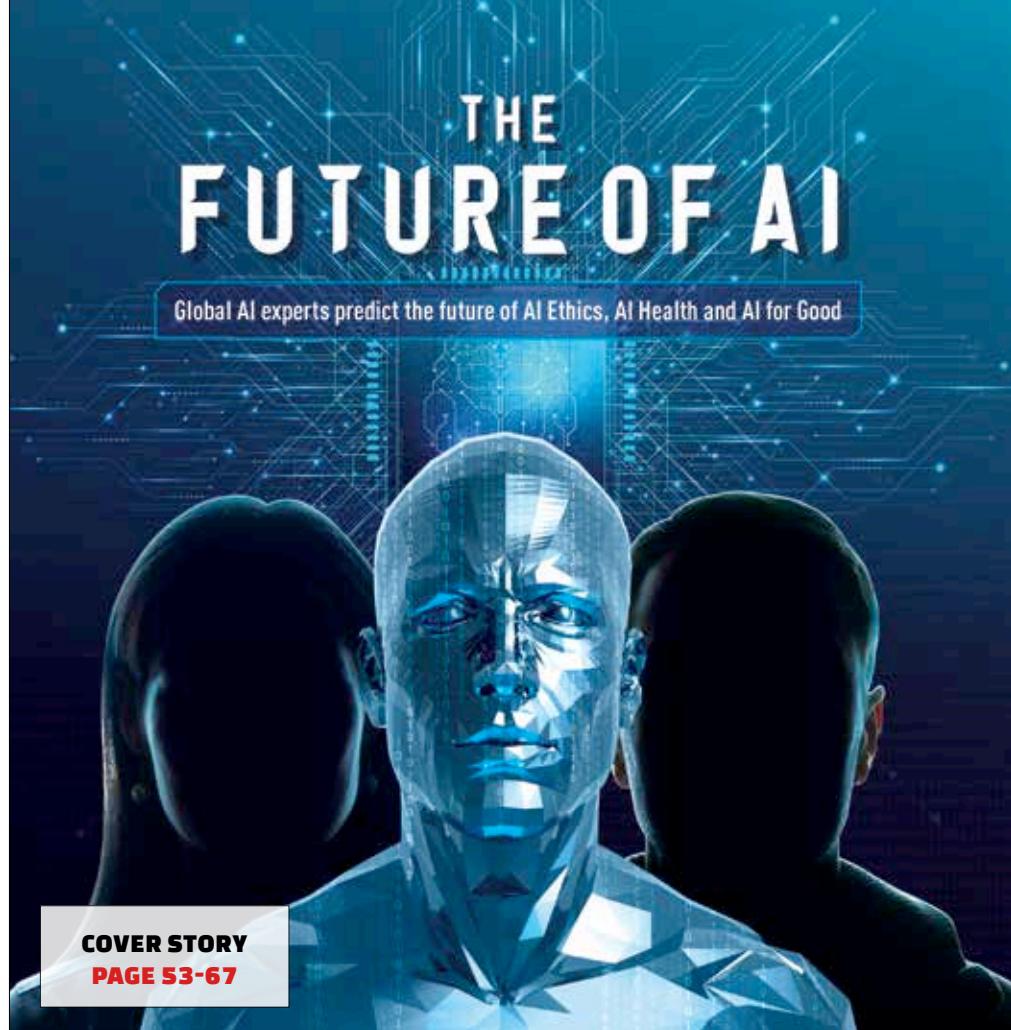
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TP-Link India wishes you and your family a Happy and Prosperous Diwali Season.

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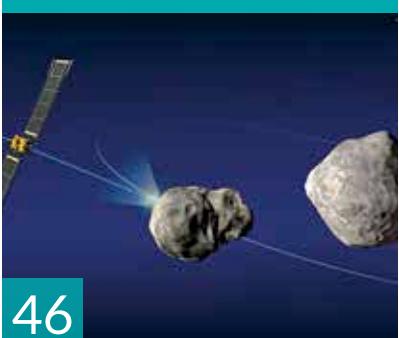
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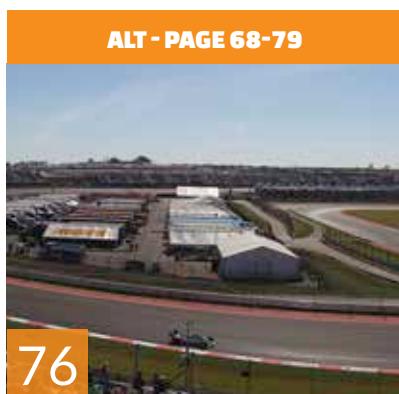
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**DALL-E everywhere**

It was recently announced that apps can now integrate DALL-E API to let users create AI-generated art. <https://dgit.in/nov22-46>

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**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.

**A**nother month of October gone, and another Zero1 peeks from beyond the horizon. As the month draws to a close, we realise that time indeed flies when you're having fun.

It also seems to fly when you're caught in a whirling maelstrom of work, flu season and unsurmountable to-do lists.

But I digress. Where was I?

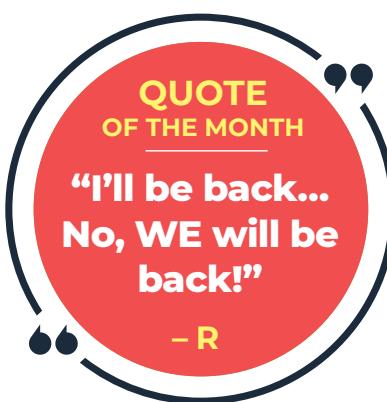
Oh yes, October's ended! This month was fairly eventful. Satvik put out last month's magazine issue, and immediately realised that he had about a fortnight to bring out the next one (before the upcoming festive season). This did lead to a few hours of existential dread and deep, dark questions about life choices and ennui. But the powers that be waved it all aside by giving him

the Apple Watch Series 8 to review. The boy's now as happy as a clam. (Smile and wave, boys. Smile and wave.)

The month began with some tragic news. The much-adored Aorus F048U was taken back by the brand. Ali spent a day cycling through denial, anger,

bargaining, anger, denial, bargaining, denial, acceptance, anger, denial, bargaining and acceptance. Then Dhriti clonked him on the head with an extremely large JBL Boombox (the Boombox is fine. Note to self: update review). Ali now spends his days believing he is an ex-con from Arthur Road jail and Manish is his saviour. There are worse fates.

Skoar! has been invited to participate as part of The Game Awards' virtual jury. As a result, we have been asked to spend more time gaming, to our understandable dismay 😊 (61 games, for Bahamut's sake! ~Prakrit)

The Legendary Ankesh Pawan Pandey (patent pending) has joined the Digit ranks. Expect to see more of the bro on videos coming out on our socials. 

**QUOTE OF THE MONTH**

**"I'll be back... No, WE will be back!"**

**- R**

DOES THIS SECTION EVEN NEED AN INTRODUCTION? FROM COMPUTERS TO MOBILES, AND HEADPHONES TO GPUs, IT'S ALL HERE...

**THIS MONTH IN TECH:**  
Level up your AI virtual assistant games using our tips and tricks and know how you can easily publish Google docs, sheets, and slides easily online. Also, take a look the insides of the Apple Watch Ultra and read our five-month usage experience of the Samsung Galaxy Watch 5.



## Starlink debuts in Japan

Elon Musk-run Starlink on October 11, entered Japan, making it the first Asian country to get SpaceX's affordable satellite internet service.  
<https://dgit.in/StarryJapan>

### WHAT'S NEW

## EU makes USB-C charger mandatory

**6** 02 lawmakers voted in favor of introducing a USB-C charging port for all the devices, and 13 voted against the decision. This decision of the Members of Parliament of the European Union will compel the companies like Apple to introduce a common charging port. In Strasbourg, during the final debate, the lead negotiator in the European Parliament, Alex Agius Saliba, held up a bundle of power adapters and stated, "We are replacing this pile of chargers with just this," holding up a single USB-C cable." All the phone, tablet, and camera companies have until the fall of 2024 to introduce these norms. After that, the Laptop companies will have longer to make the shift. Bloomberg reported that Apple is

testing the USB-C charger for its iPhone models to replace its lightning cable. The EU's decision has not been pleasant for Apple. The final signature of the EU member states is still pending and will be



written in the law by the beginning of 2023. The deal was agreed upon in June between the commission

and the European Union's 27 countries. The single charger policy will affect Apple more than its rivals but will be an ease for the users who have regularly complained about switching between adapters for their phones. <https://dgit.in/USBC>

## That's some ride!

The Apple iPhone 14's Crash Detection feature is generating issues for a theme park close to Cincinnati, as repeated false positives from iPhones on rides result in numerous calls to emergency services. According to AppleInsider, the feature uses onboard sensors and mountains of crash data to detect whether or not it is involved in a car accident. Despite the training of the system, it seems that rollercoasters could be its weakness.



The Warren County Communications Center has received multiple iPhone crash-detection calls, all since the iPhone 14 went on sale in September.

According to the sources, a number of them were caused by passengers on rollercoasters

at the King Island amusement park near Cincinnati, the report said. Multiple recordings of iPhone-based detection calls were provided to the Wall Street Journal by the center, prompted by the devices misinterpreting ride movements and noise as collisions. The theme park isn't the only one with the problem, as alerts were raised a few times at Six Flags Great America near Chicago.

<https://dgit.in/ridingalong>



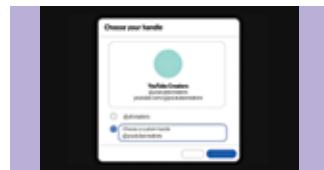
### Dhoni launches Droni

The former Indian Cricket Team captain, Mahendra Singh Dhoni, recently launched a drone named Droni. The drone is being made in India, by Garuda aerospace, with the intent to create a better homegrown video surveillance system.  
<https://dgit.in/Dhroni>



### Earlier than expected

Apple could adopt USB-C port on AirPods and Mac accessories sooner than you think. According to Bloomberg's Mark Gurman, the company might introduce USB-C by 2024. This would be a welcome change for the users of Apple's devices that have been stuck with lightning ports.  
<https://dgit.in/AppleC>



### Unique ID for YouTube

Google has introduced a new truly unique ID for creators. Called YouTube Handle, this new feature is being called "a new for people to easily find and engage with creators and each other on YouTube". This feature would also help in immediate and easy creator identification.  
<https://dgit.in/MyYT>

## SECURITY WATCH

## Intel confirms the leak of its Alder Lake BIOS' source code

**C**hip-maker Intel has reportedly confirmed that its 'Alder Lake BIOS' source code has been leaked by a third-party on anonymous image-board website 4chan and Microsoft-owned open source developer platform Github, in a 6GB file containing tools



and code for building and optimising 'BIOS/UEFI' images. The working of the 'BIOS/UEFI' code of the computer is to initialise the hardware before the operating system has loaded, reports Tom's Hardware website. Intel said it is reaching out to both customers and the security research community to keep them informed of this situation. Meanwhile, Intel was yet to confirm who leaked the code. Also, Intel said there shouldn't be any security related issues as it doesn't "rely on obfuscation of information as a security measure".

## MOBILE WATCH

## Vivo X90 Pro+

**I**t has not even been a year since the Vivo X80 series launched in India and now we are expecting the launch of the X90 series. Well, a render of the latter has appeared online, thanks to Ben Geskin. We have also shared the rumored specifications of the device for your understanding. In the renders it appears that the camera lenses have been placed in a circular ring which itself is within a rectangular enclosure. One of them is clearly a periscope lens for extended zoom. The main camera could be equipped with a 1-inch sensor. The other sensors in the group could consist of an ultrawide shooter and a portrait module. The Vivo and Zeiss partnership is also apparent with the logos on the back of the camera. Moving to the innards, we could get a Snapdragon 8 Gen 2 SoC, 12GB of RAM, a 5000mAh battery with 100W fast charging speeds, and a 120Hz AMOLED display. Moving to the innards, we could get Qualcomm Snapdragon 8 Gen 2 SoC, 12GB of RAM, a 5000mAh battery with 100W fast charging speeds, and a 120Hz AMOLED display.



## SG WATCH

## Samsung and Apple reveal their 5G update timelines

**T**he Indian government has greenlit the 5G launch in the country and asked leading brands like Samsung and Apple to expedite 5G software support in their phones. Following this, brands have projected the timeline for this. Mean-

while, Reliance Jio and Airtel have launched their 5G services in select cities in India. So, let's see which of the phones from both of these smartphone giants support 5G. "We are working closely with our operator partners and are committed to rolling out OTA updates across all our 5G devices by the middle of November 2022, enabling Indian consumers to experience 5G seamlessly. Samsung has pioneered 5G technology development since 2009 and took the leading role in standardising 5G technology globally," a Samsung India spokesperson told IANS.

When it came to Apple, they announced that they'll join the 5G party a month after Samsung. "We are working with our carrier partners in India to bring the best 5G experience to iPhone users as soon as network validation and testing for quality and performance are completed. 5G will be enabled via a software update and will start rolling out to iPhone users in December," Apple also told IANS.



## APP WATCH

### Truth Social



Truth Social is an app that reflects Donald Trump's idea of what an idea social media app should be. The UI is similar to Twitter, and who knows, it might become the next big thing!



### Steam



Yes, you read it right. The trusty old Steam app (well, not all that trusty, but...) has finally received a much needed overhaul and is now available for users to download from the app stores of their choice.



### Spark Mail



Spark Mail is a formerly free email client, that saw a major overhaul recently, with the dated UI seeing a major update, with support for iOS, macOS, Android, and Windows cross-platform support added.





# levelUp

A COLLECTION OF PRO TIPS FOR EVERYTHING. Without being limited to a particular topic, these tips are from popular software, to coding, to browsers, search, storage rules, password rules, mobile device hacks, bios cracking, tweaks explained and everything tech under the sun.



## Level Up Your AI Assistant-Game with These Tricks!

Get the AI to do more of everything

Kajoli Anand Puri |  
feedback@digit.in

**SINCE THEIR INCEPTION, AI ASSISTANTS HAVE GONE FROM BEING THE BUTT OF EVERY SITCOM JOKE** (remember all those Siri jokes?) to powerful tools that can help you address almost every need. There is, of course, one caveat - you need to 'train' your assistant to be able to optimise your experience.

Whether you're installing every nook and cranny of your home with smart devices, or have a smartphone that's compatible with AI Assistants, these handy tips and tricks can help you level up your experience.

### 6 TIPS THAT MAKE SIRI EVEN BETTER!



#### 1. CUSTOMISE THE LANGUAGE

Siri offers plenty of customisation features that improve customer experience. For starters,

you can select the appropriate language (English, Indian) and accent (Indian) to ensure the AI Assistant understands you. The latter is particularly handy for those setting up Siri for older family members who may not be accustomed to American or British accents. To select the desired language, tap Settings, select Siri & Search and then tap Language. To select the accent, tap Settings, select Siri & Search and then tap Siri Voice. You can also choose between male and female voice options.



#### 2. IMPROVE NAME PRONUNCIATIONS

With Siri being a global product, the brand has integrated a simple feature that helps it pronounce names correctly. If Siri mispronounces a name, say "Hey Siri, learn to pronounce (name)". Siri will then request confirmation on whether you're speaking about a specific contact. Once you've complied, Siri will offer different pronunciation options. Select the voice clip that sounds



the most accurate. In case this doesn't work, you can open your Contacts tab, select the desired contact, and then tap the Add Field option. Select Pronunciation



from the drop-down menu, and enter the phonetic spelling of the name for Siri to use.



### 3. SET A ROUTINE

Have trouble sticking to a schedule or being productive? Siri can help you out. Use Siri's Reminder fea-

based on your daily routine. For instance, you can say "Hey Siri, dim the lights in the bedroom at 8:00pm" if that's when you mentally switch to relaxation mode.



### 4. CUSTOMISE RESPONSES

The last thing you need in the middle of a meeting is to have Siri read out your girlfriend's thirst texts. Fortunately, you can customise Siri's responses to suit how involved you want the AI Assistant to be in your life.



tures to create a schedule that aligns with your goals. For instance, you can say "Hey Siri, remind me to work out at 8:00 am", and the AI Assistant will prompt you to do the same.

If you happen to have the Home Pod, you can use Siri to control your home

To change this setting, head to Settings, select Siri & Search, and then tap Siri Responses. If you want Siri to be on at all times, select Always. If you want Siri to be quiet when your phone is on silent, select When Silent Mode is Off, and if you only want Siri to respond when

asked something directly, select Only with "Hey Siri".



### 5. SHARE CONTENT

Here's a particularly handy tip for those who love exploring and sharing content on the internet. If a specific content piece is open on your home screen, all you need to say is "Hey



Siri, share this with (name)" and the AI Assistant will do it for you. This applies to photographs, news items, web pages, and anything you may typically share via chat.



### 6. USE IT TO RUN APPS

Finally, a great way to make sure you're crossing a bunch of tasks off your list throughout the day is

by integrating Siri with all your Apps. Siri is compatible with Apple Apps, as well as third-party ones. To identify whether a desired app works with Siri, head to Settings and select Siri & Search. You'll see every compatible app.

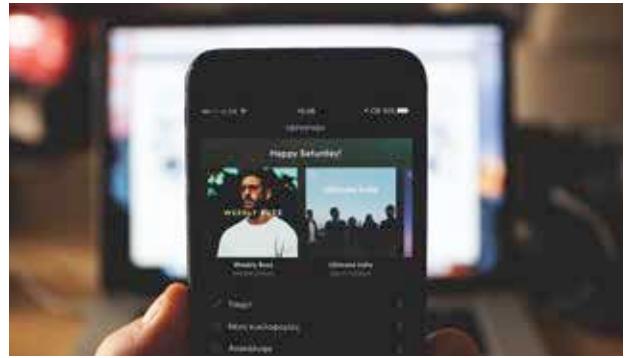
Want to share posts on Instagram? Let Siri do it. Want to play a specific movie on Disney+ Hotstar? Ask Siri to turn it on. Want a new outfit? Ask Siri to find it on e-commerce apps. Pretty neat, right?

## 6 TIPS THAT'LL CHANGE YOUR RELATIONSHIP WITH AMAZON ALEXA



### 1. SET DIFFERENT VOICE PROFILES

Amazon Alexa is designed for Smart Homes, so it



 REPUBLIC OF GAMERS

ROG CLAYMORE II

**VERSATILITY EVOLVED**

100% Gaming Mode

80% TKL Mode

100% Standard Mode



makes perfect sense that this AI Assistant would be able to cater to the needs of different family members. However, to make that



happen, you need to set up voice profiles for everyone. To create them, head to Settings, select Your Profile and Family, select Your Profile, and then tap Add Your Voice. You can use any compatible Echo device to set these up.

## 2. DELETE ALL YOUR INFORMATION

Not too keen on having AI Assistants know everything about you? You ask



Amazon Alexa to delete all its recorded data about you every now and then to wipe the slate clean. For instance, you can say "Delete what I just said" or 'Delete all my history' - whichever suits you.

## 3. ADD NON-SUPPORTED DEVICES

One of the major pros of using Amazon Alexa is that it works with non-supported (that is, third-party branded)



devices too, as long as they are compatible with AI Assistants. This tip helps you use Amazon Alexa to turn on that BoAt soundbar you got during the festive splurge, without having to lift a finger.

## 4. GROOVE TO SPOTIFY

With Amazon Alexa being a part of the Amazon Prime



family, it's likely that you'll encounter Prime Music when you request a song. However, you can always change the app to Spotify if you have an account. Head to Settings, select Music and Podcasts, and then select the Spotify app. You can link your account to access your preferred playlists and podcasts.

## 5. STACK MULTIPLE COMMANDS

Got a lot on your mind? Amazon Alexa can keep up. All you need to do is enable the Follow-up mode.

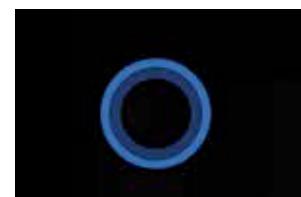


This mode lets Alexa keep her ears open for multiple commands, and respond accordingly. For instance, you might say "Alexa, play Carry On by FUN on Spotify" and then follow that up with "Alexa, will it rain today?" - the song will play, and Alexa will give you a weather update.

To enable this mode, you must open the Alexa app.

- your Amazon device will emit a short sound to signal its listening, and will carry out any command issued without any verbal responses. To enable this open the Alexa app and head to Settings. Select Voice Responses, and then tap Turn Brief Mode On/Off.

## 5 SIMPLE TIPS THAT ENHANCE CORTANA!



### 1. SAY WHAT YOU MEAN

One of the biggest highlights of Cortana is that it understands natural language phrases, which means you don't have to be specific in a



Head to Devices, select Echo & Alexa and then select the device you'd like this feature to be enabled on. Then, select Settings Cog and tap Follow-up Mode.

### 6. USE BRIEF MODE



Don't want Alexa to keep talking? Enable brief mode

specific way to issue commands. For instance, you can say "Send an e-mail to Sujay" and Cortana will search through your contacts and create an email draft. This doesn't just work for MS Outlook - you can link your Gmail too.

### 2. ASK HER TO LISTEN

Remember Shazam? Well, if you have Cortana, you don't need the app as this



AI Assistant has Shazam-like capabilities. To use this feature, all you need to do is open Cortana and click the music icon on the live tile. Cortana will then listen to the notes you're humming (or the song playing in the background) to identify it for you.

### 3. CONTROL YOUR PC

As a part of Windows 10, Cortana can be used to execute specific controls on your PC. Cortana's search bar can be used to access different functions or documents on your PC. For instance, queries like "photos: cat" and "documents: marketing" do exactly what they sound like they'll do. You can even



use Cortana to answer tech-support related queries. For instance, you can ask "How to I add a new Bluetooth device?" and Cortana will display the steps you must follow.

### 4. TRACK YOUR PACKAGES

With Cortana, you can bid the hassles of logging into individual e-commerce portals to track packages adieu. Press Windows + S to open Cortana and then type in your tracking number. Cortana will verify



the information and let you know where the package has reached. Similarly, you can open Cortana, select Notebook, and then select Packages. You can add the package information and then track it.

### 5. SEND PERSONAL REMINDERS

Here's a handy one if you have a Windows smartphone. You can set person-



specific reminders via Cortana so that the next time you call or text them, Cortana will pipe up and remind you of the same. For instance, you can say "Cortana, the next time I speak to Vibha, remind me to ask about her shoes."

### 6 WAYS YOU CAN PERSONALISE GOOGLE ASSISTANT!



### 1. SET RANDOM REMINDERS

While reminders for routine-based information are old-hat, Google Assistant takes it a step further by letting users set reminders for



random facts. For instance, you may say "Remember that Anju's husband likes Thai food". The next time you're hosting these friends, you can then ask Google Assistant "What did I tell you about Anju's husband?".

### 2. FIND YOUR PHONE

Always misplacing your smartphone? If you have more than one Google Assistant-enabled device in your home, you can always use it to find your phone. Just say "Hey Google, find



my phone!" The device will make your phone ring, helping you locate it between those pesky sofa sets... again.

### 3. CALL A CAB

If you have a ride-share app on your phone, and have linked it with



Google Assistant, you can use the voice assistant to call you a cab (no, it won't say "you're a cab"). It will use Google Maps and the cab app to select your location and request a cab.

### 4. TAKE SELFIES

If you're trying to capture a precious moment without wasting time, then use Google Assistant to instantly capture a selfie



or photograph without opening the camera app. All you need to do is tell it to take your picture!

### 5. DELETE YOUR DATA

Not a big fan of tech companies storing your data? Use Google Assistant to regularly delete your



browser history, as well as any data it may have stored about you. Now this may lead to reminders being deleted, so use it carefully!

### 6. CHANGE PHONE SETTINGS

Google Assistant also lets you change the settings on your phone by using your voice. You can easily get commands like "Hey Google, turn on flight mode" executed when you're rushing into a meeting, or engrossed in work and don't want to look at your phone. **d**



# reviews

THE LATEST PRODUCTS  
REVIEWED FOR YOU

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	<b>Extremely poor product.</b> Keep away!
31	to	50	<b>Strictly OK.</b> Not recommended
51	to	70	<b>Decent product.</b> Go for it, but there may be better products out there.
71	to	90	<b>Very good product.</b> Highly recommended.
91	to	100	<b>Ground-breaking product.</b> We've never seen anything like it before. A definite must buy!

INSIDE



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Apple  
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Buds Pro



21

Realme Buds  
Air 3S

PLUS

23 IdeaPad Gaming 3i

24 Dell Latitude 7430

26 LG C2 OLED

**No more jobs at Twitter**

The company reportedly laid off 3,738 people out of its total workforce of 7,500.  
<https://dgit.in/nov22-29>

**Insta NFTs**

Instagram will soon allow users to mint and sell NFTs. The concept is being tested by the developers. <https://dgit.in/nov22-30>

**REVIEWS**

# Intel Core i9-13900K

## It's neck and neck again

**I**ntel 13th Gen Raptor Lake desktop processors have their work cut out for themselves. The 13th Gen processors have to outdo the AMD Zen 4 Raphael processors and that's no easy task. 13th Gen Intel processors feature the same hybrid microarchitecture that the 12th Gen processors have but with a lot more E-Cores than before. So, were they able to do so? Let's find out in this review.

**SPECIFICATIONS**

Just like the previous gen, even the 13th Gen launch lineup have six processors at launch. There are two SKUs under each performance tier – Core i9, Core i7 and Core i5. The Core i3 processors might launch later or may not. The 12th Gen Core i3 processors launched after a significant amount of time after the initial launch period. This is quite common even with AMD's budget tiers. The six processors launched are the K and KF processors. The integrated GPU is the same Intel UHD 770 graphics but the clock speeds have been bumped up by 100 MHz. So there will be a little bit of extra gaming performance for folks relying on the iGPU. The bulk of the change with the 13th Gen Intel Raptor Lake processors is the doubling of the E-Cores. The 13th Gen processors are being shipped with 16 E-Cores. The total thread count of the flagship Intel Core i9-13900K becomes 32 considering that all the P-Cores have hyperthreading whereas the E-Cores don't.

**PERFORMANCE**

The Core i9-12900K has a max turbo power of 241 watts and motherboard manufacturers tend to ignore such limits to boost performance. As always, we begin with Cinebench R23 to see how the processor fares in single threaded and multithreaded performance. In the single-threaded benchmark, the Intel Core i9-13900K scores 2264 which is a decent gain over



the newly released AMD Ryzen 9 7950X which scores 1997. The Intel Core i9-12900K had scored 1971. However, in the multi-threaded run we see the AMD processor retains the lead with just 40 points. V-Ray is a 3D modelling software by Chaos that can focus on just the CPU and the GPU separately. Yet again, the Intel Core i9-13900K certainly beats the 12900K but the AMD Ryzen 9 7950X continues to lead with a score of 29280. The 13900K scored 25332 and the 12900K had scored 17649. Blender has standard benchmarking scenes and we use multiple iterations of the Classroom, Monster and Junkshop scenes for our tests. Here, the AMD Ryzen 9 7950X takes the lead yet again. The Intel Core i9-13900K does outperform the Intel Core i9-12900K by a significant margin.

7-Zip is an open-source archiving software with really good and frequently updated algorithms that perform compression and decompression. It also scales well with higher core-counts so there's an added advantage with 7-Zip over other archiving software. It shows the Intel Core i9-13900K gaining a significant lead over the 12900K but is yet again bested by the Ryzen 9 7950X.

Mozilla Kraken is a browser-based JavaScript benchmark that executes several real-world scenarios that everyone comes across while normally browsing the Internet. Intel usually excels at Mozilla Kraken and even Octane Javascript benchmark. Intel continues to maintain its lead across both benchmarks over the AMD processor. Office productivity hinges upon some popular office applications along with browsing. Microsoft's Office suite is the most popular of them all and the benchmark by UL is focused purely on that. Here, the Intel Core i9-13900K is a clear winner beating its predecessor and the Zen 4 flagship with a decent margin. Gaming is where

Intel has traditionally held the top spot. In our benchmarks we see the 13900K and the 7950X be neck and neck.



DESIGN.....	82
PERFORMANCE.....	88
VALUE FOR MONEY....	75
FEATURES.....	82

**VERDICT**

The Intel Core i9-13900K has done something very significant in outperforming the 12th Gen 12900K by a significant margin within just one generation. However, across a lot of benchmarks, the AMD Ryzen 9 7950X maintains a lead over the 13900K. In a lot of benchmarks, the difference isn't much. So for enthusiasts, there are now two very competitive high-end desktop processors to choose from. That's a good place to be in.

—Mithun Mohandas

**SPECIFICATIONS**

TOTAL CORES: 24 | # OF PERFORMANCE-CORES: 8 | # OF EFFICIENT-CORES: 16 | TOTAL THREADS: 32 | MAX TURBO FREQUENCY: 5.80 GHz | CACHE: 36 MB Intel® Smart Cache | TOTAL L2 CACHE: 32 MB | PROCESSOR BASE POWER: 125 W | MAXIMUM TURBO POWER: 253 W | MAX MEMORY SIZE (DEPENDENT ON MEMORY TYPE): 128 GB | MEMORY TYPES: Up to DDR5 5600 MT/s, Up to DDR4 3200 MT/s | MAX # OF MEMORY CHANNELS: 2 | PROCESSOR GRAPHICS: Intel® UHD Graphics 770 | GRAPHICS BASE FREQUENCY: 300 MHz | GRAPHICS MAX DYNAMIC FREQUENCY: 1.65 GHz | GRAPHICS OUTPUT: eDP 1.4b, DP 1.4a, HDMI 2.1 | EXECUTION UNITS: 32 | MAX RESOLUTION (HDMI): 4096 x 2160 @ 60Hz | MAX RESOLUTION (DP): 7680 x 4320 @ 60Hz | SOCKETS SUPPORTED: LGA1700 | MAX CPU CONFIGURATION: 1

**CONTACT**

PHONE: NA | EMAIL: WebForm | WEBSITE: [www.intel.in/](http://www.intel.in/)

**Editing is free!**

Twitter is planning to soon make the edit feature available to everyone.  
<https://dgit.in/nov22-31>

**Is it 10 or 11?**

Launched in China earlier, iQOO 11 may debut in India as iQOO 10.  
<https://dgit.in/nov22-32>

# iPhone 14

## A mixed bag

In what is arguably the cheekiest move in its recent history, Apple has substantially widened the gap between its Pro and non-Pro iPhone models this year. With the iPhone 14, the company has finally moved away from its long-held strategy of equipping its latest iPhones with the company's greatest chipsets. But, does that mean the iPhone 14 is essentially the same phone as the iPhone 13 Pro, or worse even the iPhone 13? Well, the answer is not quite simple. Read our review to find out if the iPhone 14.

**DESIGN**

Apple's design team in all its wisdom has decided to keep the design of the iPhone 14 pretty much consistent with what we saw with the iPhone 13 last year -- except for new colourways. The iPhone 13, sorry, we meant iPhone 14, comes with a flat aluminum frame and ceramic shield glass, durable enough to resist most drops and scratches. It is one of the most premium-looking phones you can get your hands on at the moment, which when gazed at from the front, or the back, looks like an absolute thing of beauty -- only if you've not been exposed to the iPhone 13 already. Holding it in your hand, the phone feels quite ergonomic, however, its flat edges and frame, don't make it the best phone in the business if you plan on holding it for prolonged periods while gaming or watching movies. Additionally, the phone is also IP68 rated, making it resistant to dust and water to a certain extent.

**DISPLAY**

With the iPhone 14, Apple is using the same 6.1-inch display that it used last year. This is an OLED panel, which can cover the DCI-P3 wide color gamut, and also comes with support for HDR10+ and Dolby Vision. This panel offers life-like colours, and is great for



watching videos and movies. It gets plenty bright and the fact that it's vibrant also ensures that it is great for consuming content on social media platforms such as Instagram. Sadly, the iPhone 14 still has a wide notch for housing the selfie camera along with 3D biometric sensors for the phone's facial recognition tech.

**PERFORMANCE AND BATTERY**

Despite housing a generation-old chip, the iPhone 14 generally offers pretty good performance overall. This is because of the A15 Bionic SoC found inside. We ran Call of Duty Mobile and Asphalt 9 Legends on the phone only to realise both games ran flawlessly on the phone. The same was the case for other GPU benchmarks such as GFXBench and 3D Mark WildLife. It was here that the iPhone 14 did take a slight lead over the scores we've previously seen on the iPhone 13. The reason, obviously, is the extra GPU core. In AntuTu and Geekbench the results were again good. When compared to the iPhone 14 Pro Max, the results were about 20 per cent lower than the new iPhone powered by the A16 Bionic SoC. Coming to the

battery, the iPhone 14 proved to give us slightly better battery life compared to the iPhone 13.

**CAMERAS**

In the camera setup, we have a 12MP primary wide-angle lens that's sat next to a 12MP ultra-wide lens aided by Apple's introduction of the new Photonic Engine, which Apple claims further improves low-light performance and colour reproduction on photos. In well-lit conditions, the pictures were sharp and packing plenty of details. The autofocus was on point, and the resultant pictures offered good dynamic range and close-to-life colour tones. But, in low-light conditions, the iPhone 14 captured

more detail and the Photonic Engine

processed images also have less noise in them. In our time with the TrueDepth camera, we found this camera to click some really good selfies with accurate skin tones and plenty of details.

**VERDICT**

At Rs 79,990, and some bank discounts are thrown into the mix, the iPhone 14 is definitely worth checking out. While the upgrades on offer aren't substantial enough to recommend the phone if you are coming from an iPhone 13, they are good enough if you are coming from a slightly older iPhone, or from a high-end Android device. In that case, the iPhone 14 could really be a good buy for you.

**-Sushant Talwar**

**SPECIFICATIONS**

**DISPLAY:** 6.1 inch Super Retina XDR | **CAMERAS:** 12MP Main & Ultra Wide with Autofocus on TrueDepth front camera | **VIDEO:** 4K@24/25/30/60fps, 1080p@25/30/60/120/240fps, HDR, Dolby Vision HDR (up to 60fps), Cinematic mode (4K@30fps), stereo sound rec. | **CHIPSET:** A15 Bionic chip with 5-core GPU | **5G CONNECTIVITY:** Yes | **OS:** iOS 16, upgradable to iOS 16.1 | **CPU:** Hexa-core (2x3.23 GHz Avalanche + 4x1.82 GHz Blizzard) | **GPU:** Apple GPU (5-core graphics) | **USB:** Lightning, USB 2.0 | **BATTERY:** Li-Ion 3279 mAh, non-removable (12.68 Wh) | **COLORS:** Midnight, Purple, Starlight, Blue, Red

**CONTACT**

**PHONE:** NA | **EMAIL:** Web form | **WEBSITE:** [www.apple.com/in/](http://www.apple.com/in/)



**Things change if you log out**  
Elon Musk has made changes Twitter's homepage for the logged-out users.  
<https://dgit.in/nov22-33>



**My country, my rules**  
IT Amendment Rules 2022 have tightened the reins on social media companies.  
<https://dgit.in/nov22-34>

# Realme Buds Air 3S

Adequate for the price

**R**ealme has stepped into the Indian market and has made its mark by making quality products across categories. However, Realme is not the only brand that is active in that space and brands like Oppo, Xiaomi, and One Plus too are trying their best to make their mark when it comes to budget True Wireless Earbuds. So when the Realme Buds Air 3S, a pair of budget TWS earbuds which are retailing in the market at the time of writing for ₹1,999 (launch price - ₹2,499), we put them through their paces to find out where they stand in this overly crowded headphone price segment.

## BUILD

Realme Buds Air 3S are a treat to look at. Our black coloured review unit looked gorgeous when we first pulled it out of its box. The lid of the case was translucent giving a nice peek into the charging case, which had a grey coloured housing to hold the headphones in place. The housing had a matte finish, with the Realme logo subtly placed below the charging indicator LED, and the company's slogan - Dare To Leap, printed on a slightly raised bump on the top half of the case.

The hinge did not have a metal support bracket, a feature which is always appreciated, and is a regular feature on some of the TWS cases that score some of the highest points in the build quality department. The earbuds themselves were pretty to look at, and easy to wear for extended periods of time. The short stem had a glossy black tinted finish which added a subtle bling to the otherwise relatively muted design. They sport a small wing that adds to the grip of the earbuds inside the earlobe, and the three different sizes of tips generally cover all the different bases. To one gripe that we had with these TWS earbuds was the glossy finish of the plastics. While it looks awesome during the early



stages of use, when the earbuds have been taken out of the box, the finish just deteriorates very quickly.

## FEATURES

When talking about features, the buds are not packed with features like some of its competitors in the market.

You get great touch-sensitive controls on the stem, both visual and audio indicators of the battery level of the device, and a good collection of customisation options in the app. The controls can also be customised to a certain extent, but there is not much flexibility here. There is Dolby Atmos support too, meaning that high quality audio files will be reproduced well by the 11mm liquid silicone triple titanium bass drivers that it comes packed with. We liked that the instant pairing which worked like a charm with Android devices. But, when it was the turn of the iOS devices, it had its share of hiccups. While the AI noise cancellation worked well in most environments, in challenging environments, all the hype came crashing on the floor.

## PERFORMANCE

Performance is one section where most budget TWs earbuds tend to fall apart

and show their true colours. With these earbuds, the bass was boosted. This is something that we expected. But, as we moved to the mids, their sound signature, to our surprise, very close to the flat response of the pink noise that we use as a standard in our tests. The highs in some sections were overemphasised, before falling down, and then rising again. But then again, in the sub 3k price bracket, there are hardly any earbuds that would give us that sound signature.

## BATTERY

During the battery tests, the Realme Buds Air 3S fared decently well. The buds during our test lasted for about 6 hours and 50 minutes. During the test, the volume level was set to

50 per cent and the lack of ANC meant that they fell just shy of the claimed 7 hour mark. For charging, these earbuds sport a USB C port which supports fast charging.

## VERDICT

After thoroughly testing the Realme Buds Air 3S and comparing them with their rivals, we can safely say that they are a decent overall package. They sport a decent build quality and pack features that you can rely on. The only downside, which may be a deal breaker for many, is the bass heavy sound signature that you get out of the box. If you want to look for other options in the price range, then offerings from OnePlus and Oppo, like the Nord Buds and the Enco Buds2 are the way to go.

-Satvik Pandey

## SPECIFICATIONS

COLOURS: Bass Black/Bass White | NOISE REDUCTION: 4-mic design AI ANC noise reduction | BATTERY LIFE: Case+Buds: 30 hours, Buds alone: 7 hours playback, 4 hours calling | SOUND DRIVER: 11mm liquid silicone triple titanium bass driver | BLUETOOTH VERSION: 5.3 | CHARGING TIME: Case+Buds: 120 minutes, Buds alone: 60 minutes | WIRELESS RANGE: 10m | WATER RESISTANCE RATING: IPX5 (earbuds only) | AUDIO CODECS: AAC, SBC

## CONTACT

PHONE: N/A | MAIL: [service@realme.com](mailto:service@realme.com) | WEBSITE: <https://www.realme.com/in/>



### YT content shown three ways

YouTube is set to split video content into 3 separate tabs separating shorts, lives, and long-form videos. <https://dgit.in/nov22-35>



### Photos within groups

WhatsApp is planning to introduce profile photos within groups. <https://dgit.in/nov22-36>

# Alienware X14

## Sleek, Stylish, Powerful

**T**he Alienware X14 is Dell's self-proclaimed "world's thinnest 14-inch gaming laptop", and at a glance, this is certainly a very compact device. Don't let that fool you though, because it comes packed with great hardware. Of course, all of this does not come cheap. Is the Alienware X14 worth the price? Read our review to find out.

### BUILD AND DESIGN

The Alienware X14 is a sight to behold. The laptop's outer body is composed of magnesium alloy. The internal body makes use of aluminium and stainless steel. The vents and surfaces inside the laptop, such as the bezels and keyboard, use plastic. The X14 comes with a new, patent pending hinge system which moves back and forth along a track which results in a more stable experience while using the lid. Additionally, the lid doesn't sit completely flat when closed, and is at a slight angle to make opening the laptop easier. With such a small form factor, things are squished on the keyboard to ensure everything you need is present. However, the keys themselves are pleasant to type on, have tactile feedback, and decent travel as far as laptop keyboards are concerned. The RGB backlight is not per-key, so no custom lighting layouts. The rear section is where you will find all the laptop's IO ports. The "world's thinnest 14-inch gaming laptop" is only 1.4cm thick and at 1.8kg fairly light as well. There are two variants of the X14, the one we received has a 3050Ti, but there's a variant with an RTX 3060, more RAM, and storage capacity as well.

### IO PORTS

Speaking of IO ports, you've got plenty of options. A USB 3.2 Gen 1 port, a USB 3.2 Gen 2 Type-C port, and two Thunderbolt 4 ports. You've also got an



audio combo jack, an HDMI 2.1 port and a MicroSD slot as well. An adapter is also provided along with it in the box.

### DISPLAY

A 14-inch display might be on the smaller side for a lot of people. However, during our time with the laptop, we didn't at any point think that the size was hindering our enjoyment. The 1080p display is crisp, with vivid colours, which our benchmarks can attest to. It's also bright, reaching close to 400nits at peak brightness. The 144Hz refresh rate is also nice, especially for gaming.

### PERFORMANCE

The X14 comes packed with the latest 12th gen Intel Core i7-12700H processor. The 14 cores and 20 threads should have no trouble meeting any and all of your multitasking needs, as can be seen on our Cinebench R20, R23 and PCMark10 benchmark results. We tested the 16GB LPDDR5 memory several times on AIDA64; however we did come across an anomaly where the L1 read and write speeds were always far too low to be right. However, the memory read and write speed speaks for itself. The X14 also has fast NVMe storage. We were getting close to 6500 MB/s read speeds and 4000 MB/s write speeds in our tests, which are

close to as advertised and fantastic. On paper, the Alienware X14 has great specs. For the most part, this reflects on 3DMark performance benchmark results as well. However, when compared to the similarly specced Lenovo IdeaPad Gaming 3i, the X14 just barely falls short in some benchmarks. The same continues with real-world gaming benchmarks as well, with the X14 at par or slightly behind the 3i. This may well have to do with its compact nature.

### NOISE AND HEAT

The X14 has two fans, each independently controlled to cool the CPU and GPU.

While this keeps the temps somewhat in check, you could be forgiven for thinking the X14 was about to take off from a runway. It does actually get that loud. But the tradeoff is worth it in our opinion, better to be loud than hot. At least in the case of a gaming laptop.



FEATURES & SPECS.....	81
PERFORMANCE.....	83
VALUE FOR MONEY...57	
DESIGN.....	89

### VERDICT

All things said and done, the Alienware X14 is an impressive machine. It's compact, looks extremely stylish, and comes with some crazy specs. However, it could have done more in the specs department for the price, since you can get similar and in some cases even better gaming performance on cheaper laptops, such as the Lenovo Gaming 3i we compared the X14 against in this review. That being said, we totally wouldn't fault you for going for this just for its looks if you have the moolah for it.

**-Manish Rajesh**

### SPECIFICATIONS

DISPLAY RESOLUTION: 1920 x 1080, 144Hz | PROCESSOR: 12th Gen Intel Core i7-12700H | GRAPHICS: Nvidia RTX 3050 Ti | MEMORY: 16GB LPDDR5, 5200 MHz | OS: Windows 11 Home | STORAGE: 512GB NVMe SSD | PORTS: 1x USB 3.2 Gen 1 port, 1x USB 3.2 Gen 2 Type-C with PD and DisplayPort, 2x Thunderbolt 4 port with PD and DisplayPort, 1x headset combo port, 1x HDMI 2.1 port, 1x MicroSD Port | CONNECTIVITY: Intel AX211, Wi-Fi 6E, Bluetooth 5.2 | BATTERY: 80 wHr | DIMENSIONS: 321.5mm x 262.77mm x 14.5mm (WxDxH) | WEIGHT: 1.8kg

### CONTACT

PHONE: +91 9108 883 355 | EMAIL: Webform | WEBSITE: <https://www.dell.com/en-in>

**Cricket commentary on Alexa**

Amazon's Assistant, Alexa will now give you live cricket scores, commentary, and more from now on. <https://dgit.in/nov22-37>

**iCloud on the web**

Apple has released the beta iCloud web client, making it more customizable for users. <https://dgit.in/nov22-38>

# Lenovo IdeaPad Gaming 3i

## Bang For Your Buck

**C**ompetition in the budget gaming laptop market is fierce. The IdeaPad Gaming laptops are Lenovo's budget alternative to their more premium Legion lineup of gaming laptops, and as such, sacrifices have been made to reduce costs. However, what we have on offer here with the Lenovo IdeaPad Gaming 3i still makes it quite an enticing option for anyone in the market looking for a gaming laptop under the Rs 1 lakh budget.

### BUILD AND DESIGN

While the overall aesthetic of the IdeaPad Gaming 3i remains the same as its predecessors, there are some pretty major changes. For starters, they've extended the back. This has allowed them to not only have two vents on the back, but also move most of the IO ports. The new hinge however feels pretty flimsy. The laptop body is made entirely out of plastic as opposed to metal like the Legion laptops. But then again, that is to be expected from the budget segment. The Ideapad Gaming laptops come with nice full-sized keyboards, with the arrow keys slightly separated from the rest of the keyboard. Overall with the backlight added, probably one of the best keyboards you can get in the budget gaming laptop segment. The trackpad is also not very large and slightly off-centre, so it doesn't get in the way while typing. Under the laptop, you've got the ventilation grill and the two speaker cutouts on either side.

### I/O

Next we come to the ports. You've got a gen 1 USB Type-A 3.2 port on either side of the laptop. On the left, you've got a combo audio jack. The rest of the



I/O has been moved to the back, where there's an HDMI 2.0 port, an ethernet port, a Thunderbolt 4 port and power.

### DISPLAY

For the display, the unit we received came with a 15.6-inch FHD 120 Hz IPS panel. 120Hz is nice, but there is a FHD 165Hz option and a 16-inch WQHD 165Hz display option as well. During our display benchmarks, we got an average brightness of 337 nits, which is not bad. As for sRGB, the display scored pretty high with 98.9 per cent sRGB coverage. Even the DCI-P3 coverage was 75.4 per cent which is pretty good as far as a budget gaming laptop is concerned.

### PERFORMANCE

The unit we received came with the Intel Core i7-12700H and NVIDIA RTX 3050Ti combo. It actually scored slightly higher than the Alienware X14 which comes with the exact same configuration as far as the processor and GPU are considered, in just about every processor and gaming benchmark, save a few. Considering the price difference, the Gaming 3i is essentially selling itself right now. In 3DMark, the X14 scores better in both TimeSpy benchmarks, while the 3i scores higher in all FireStrike benchmarks. The overall scores are still very close. The laptop scores higher in

just about all of our gaming benchmark results, save Valorant. Even if by a few FPS, it's outperforming a laptop that's almost twice its price. Impressive.

### MEMORY AND STORAGE

The laptop we received came with 16 GB of DDR4 3200MHz RAM. We tested the RAM using AIDA64, the results are pretty good. Coming to the storage, the laptop came with a Gen 4 1TB PCIe NVMe TLC M.2 2242 SSD. The read and write speeds are decent and close to advertised speeds.



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PERFORMANCE.....	83
VALUE FOR MONEY ...	73
DESIGN .....	73

### HEAT AND NOISE

For most of our testing the laptop ran pretty cool. So their cooling solution works. Surface level temps never crossed 45 degrees, and the palm area stayed cool for the most part.

Like with most gaming laptops it will get loud as you do more intensive stuff.

### VERDICT

Lenovo has certainly taken a step up with the new IdeaPad Gaming 3i. As far as value for money is concerned, you're definitely getting bang for your buck here. While it's a great pick in the sub 1 lakh budget gaming laptop category, you also have the likes of the Acer Nitro 5 which comes very close in terms of performance and in some cases performs better. All that said, this is still a solid pick if you're in the market for an entry level gaming laptop that can handle most modern AAA games.

—Manish Rajesh

### SPECIFICATIONS

DISPLAY: 39.62cms (15.6) FHD (1920 x 1080), IPS, Anti-Glare, Non-Touch, 45% NTSC, 250 Nits, 120Hz | PROCESSOR: 12th Generation Intel® Core™ i7-12700H Processor | GRAPHICS: Nvidia RTX 3050 Ti | MEMORY: 16GB LPDDR5, 5200 MHz | STORAGE: 1TB NVMe SSD | PORTS: 2xUSB 3.2 Gen 1, HDMI 2.0, Ethernet (RJ-45), Headphone / microphone combo jack (3.5mm) | CONNECTIVITY: 11AX (2x2) & Bluetooth® 5.1 | BATTERY: 60 whr | DIMENSIONS: 359.6 x 266.4 x 21.8 mm | WEIGHT: 2.3kg

### CONTACT

PHONE: 1800-419-7555 | EMAIL: NA | WEBSITE: [www.lenovo.com/in/en](http://www.lenovo.com/in/en)

**No more fake applications**

LinkedIn's new features to help users detect fake profiles and report suspicious conversations. <https://digit.in/nov22-39>

**New Meta VR next year**

Meta has announced plans to launch another consumer-grade VR headset next year. <https://digit.in/nov22-40>



# Dell Latitude 7430

## For the travelling businessman

**W**hen considering a business laptop, there are a few factors that need to be taken into consideration. For starters, they generally tend to be light and compact, for those on the move. A decent battery life is a given. They need to have decent specifications as well, with ample multi-tasking capabilities. Even aesthetics can play an important role. With all that said, the laptop we're reviewing is the Dell Latitude 7430, which has been specifically designed for C-suite executives.

**SPECS**

Coming to the specs on the New Dell Latitude 7430, you've got a range of processor options, from the Intel Core i5-1235U to the Intel Core i7-1270P. The unit we received came with the Intel Core i5-1235U processor, which is the weakest and the cheapest variant. You've got a 14-inch multi-touch display, with Intel Iris Xe Graphics G7. RAM is customisable up to 32GB starting at 8GB; the unit we received came with 16GB.

**BUILD AND DESIGN**

There are also two options when it comes to build, one with an aluminium body, and one using carbon. The carbon body which we received is 70 grams lighter than the aluminium variant, but is also slightly thicker. We saw little to no flex when opening the lid, or even from the base. We were also pleasantly surprised by the keyboard which naturally has no numpad. The spacing between the keys and the overall typing experience is decent. The laptop features a touchpad with a glass surface. Decent size, but maybe a bit on the larger side. At the bottom you've got two cutouts for the speakers, and a single ventilation grill for the fan.

**PORTS**

The model we received came with



a uSIM card slot, two type-C Thunderbolt 4 ports with Power Delivery and DisplayPort, a USB 3.2 Gen 1 port with Power share, a universal audio jack, and an HDMI 2.0 port. No complaints here.

**DISPLAY**

The Dell Latitude 7430 comes with a pretty decent 14-inch FHD IPS screen. It has good viewing angles, good sRGB coverage, but the DCI-P3 coverage indicates that you wouldn't want to use this laptop for work that involves video or media editing. The laptop comes with an advertised brightness of 300 nits, and we got around 272nits during our testing which is pretty close. You should have no trouble consuming media though.

**PERFORMANCE**

Considering the Dell Latitude 7430 is a business laptop featuring a 12th Gen Intel processor and Intel Xe Graphics, we compared it to the most recent 12th gen Intel business laptop we reviewed – Lenovo Yoga 9i. Starting things off with PCMark10, the Intel Core-i5 1235U on the Dell Latitude does pretty well and doesn't fall far behind competition. The same can be seen in the R23, and R20 scores as well. We tested the RAM on the Latitude 7430 using AIDA64. The laptop uses 16GB of DDR4-3200 RAM, compared to the LPDDR5-5200 RAM on the Yoga 9i. As such, the Yoga 9i

does outperform the Latitude, however, the scores are still good. The Latitude 7430 comes with a 256GB NVMe m.2 SSD. We tested read and write speeds using CrystalDisk and found them to be significantly slower than the Samsung SSD on the 9i. The Yoga 9i is around ₹50K pricier, and comes with better specs across the board.

**BATTERY LIFE**

Depending on your use case, you can easily pull between 8-11 hours out of a full charge. It's certainly on the higher side as far as business laptops are concerned.

**GAMING BENCHMARKS**

The Latitude 7430 understandably does not come with a dedicated GPU. We ran a couple of gaming benchmarks however, the scores indicate that you should be able to play older AAA games at low settings.



DESIGN.....	83
PERFORMANCE.....	72
VALUE FOR MONEY... FEATURES.....	67 68

**NOISE AND COOLING**

The laptop runs relatively quiet and cool. We didn't see the laptop get too loud at any time, plus the temps stayed fairly low, hovering around the 40 degree Celsius mark under high stress.

**VERDICT**

The Dell Latitude 7430 has decent specs across the board, a number of features, comes with a good display, and is slim, lightweight, and stylish. Pair that with above-average battery life and you've got a pretty decent business laptop offering here from Dell.

–Manish Rajesh

**SPECIFICATIONS**

SIZE: 14.00-inch | RESOLUTION: 1920x1080 pixels | TOUCH SCREEN: No | REFRESH RATE: 60Hz | PROCESSOR: Intel Core i5 12th Gen - 1235U | RAM: 32GB | GRAPHICS PROCESSOR: Intel Iris Xe | SSD: 1TB | 4G LTE: Yes | WI-FI STANDARDS SUPPORTED: 802.11ax | BLUETOOTH VERSION: 5.2 | WEB CAMERA: Yes | SPEAKERS: 2 Speakers | NUMBER OF USB PORTS: 3 | USB 3.2 GEN 1 (TYPE A): 1 | THUNDERBOLT 4 (TYPE C): 2 | HDMI PORT: Standard | MULTI CARD SLOT: 1 Micro SD Card Reader | HEADPHONE AND MIC COMBO JACK: Yes

**CONTACT**

PHONE: +91 91 9108883355 | EMAIL: NA | WEBSITE: [www.dell.com/en-in](http://www.dell.com/en-in)

**Funtouch OS 13 announced**

Funtouch OS 13 has been revealed and the Vivo X80 Pro is already the first phone to get it. <https://dgit.in/nov22-41>

**Age of Empires on mobile!**

Microsoft has announced that Age Of Empires will be coming to mobile devices. <https://dgit.in/nov22-42>

# Google Pixel Buds Pro

## Good first attempt at Pro TWS earbuds

**W**ith the latest Google Pixel Buds Pro, Google has finally taken the plunge into the flagship wireless earphones segment. The Pixel Buds Pro takes on heavyweights from brands such as Sony, Apple, Bose, Sennheiser, and others. But do they deliver on the hype? Here's everything you should know.

### BUILD AND COMFORT

The Google Pixel Buds Pro looks nearly identical to the original Pixel Buds and the newer Pixel Buds A-series. It has a Tamagotchi-esque charging case with Qi wireless charging support. It is pocketable and looks premium enough with a matte texture and a dual-tone design. It houses the USB-C charging port, an LED, and a pairing button. A simple flick of a thumb will open up the case with ease. The hinge isn't reinforced with metal, so the durability may not be the best in this price range. The buds themselves are diminutive in size and quite lightweight. They lack the silicone extensions or wings. There are three sizes of ear tips provided – S, M, and L – but none of them gave the reviewer a tight and snug fit. The back of the bud houses the Google logo and the capacitive touch sensor. You also get IPX4 water resistance on the earbuds and an IPX2 rating on the case.

### FEATURES

The onboard controls on the Google Pixel Buds Pro are incredibly intuitive and Google has even included swipe volume controls. Unfortunately, though, the earbud controls are not fully customisable via the Pixel Buds app. You can use the app to access various features such as checking battery levels, performing firmware updates, checking ear tip fit (which seems to be broken because it always says good fit, for some reason), and toggle features. It has Multipoint connectivity and Audio Switching



which intelligently switches between Android phones and tablets that worked flawlessly. Sadly, there are no customisable EQ or EQ presets available and the app is not available for iOS devices. Other features include Google Fast Pair support, in-ear detection for auto pause and play, and Find My Earbuds feature. It also comes equipped with ANC and Transparency Mode. Google introduced Silent Seal that adapts to your ear shape and delivers noise-cancelling that best suits your ear shape. We found the ANC to be pretty effective – especially with low-end, constant sounds. Transparency Mode pleasantly surprised us with how natural and clear it sounded.

### PERFORMANCE

Google Assistant worked flawlessly, especially when using the Translate Conversation Mode. Moving on to sound quality, the Google Pixel Buds Pro house 11mm dynamic drivers and supports the SBC and AAC audio codecs. They come with a V-shaped sound signature with slightly boosted bass and highs, and slightly recessed mids. The boosted bass sounds punchy and full-bodied and the highs have good enough clarity but the mids are slightly drowned in the mix. Vocals

in certain songs aren't as detailed and clear as heard on similarly-priced buds. In some tracks, the kick drums sound a bit too boomy. However, if you are an audiophile or someone who enjoys a more neutral sound signature, we'd suggest alternatives such as the Sony WF-1000XM4 or even the Oppo Enco X2. The wireless connectivity is also stellar with Bluetooth 5.0. The buds feature three microphones in each bud paired with voice accelerometers and wind-blocking mesh covers. The caller's voice sounds clear in most cases. However, it doesn't do too well with wind rejection, sometimes picking up wind more than the caller's voice.

### BATTERY LIFE

The Google Pixel Buds Pro's battery life is fantastic, right up there with the competition. We tested the buds' battery life for ourselves and recorded 6 hours and 35 minutes of playtime on the buds alone with ANC turned on and the volume set to 70 per cent. The case adds two extra charges. Not just that, the earphones also have fast charging support where a mere 5-minute charge will provide an hour's worth of playtime.

### VERDICT

Google's first attempt at Pro TWS earbuds is a successful one. At ₹19,990, the Pixel Buds Pro has fantastic handsfree Google Assistant integration, great battery life, and decent ANC. The sound quality is quite pleasant as well with detailed lows and highs.

—Dhriti Datta

### SPECIFICATIONS

**DRIVER UNIT:** 11 mm dynamic driver | **IP RATING:** IPX4 (earbuds), IPX2 (charging case) | **BLUETOOTH VERSION:** 5.0 | **MICROPHONE:** Triple microphone on each bud | **BATTERY LIFE (ANC ON):** 7 hours (earbuds), 20 hours (buds + case) | **BATTERY LIFE (ANC OFF):** 11 hours (earbuds), 31 hours (buds + case) | **FAST CHARGING:** Yes, 5 minutes = 1 hour | **WEIGHT:** 6.1 g (each bud), 50.6 g (case without buds)

### CONTACT

GOOGLE | PHONE: NA | EMAIL: Web chat | WEBSITE: <https://store.google.com/in/?hl=en-GB>

**Pay more for your games**

Valve has updated the regional pricing for Steam games for various countries including India. <https://digit.in/nov22-43>

**Google fined ₹936 crores**

Google was charged a penalty of Rs 936.44 crore for abusing its Play Store Policies. <https://digit.in/nov22-44>



# LG C2 42-Inch

**Best small-screen OLED TV money can buy**

The C2 (42) Evo OLED TV promises not just very good picture performance, and pixel-level dimming, but also brings to the table support for key gaming technologies like VRR, 120Hz refresh rate, G-Sync and more. Read our review to find if the TV lives up to the expectations and the price tag that comes with it.

## DISPLAY AND PICTURE QUALITY

Having used the C2 (42) for a while now, we can safely say, this new TV from LG definitely joins the list of some good OLEDs that LG has come out with. This is down to multiple reasons, and one of them is the company's use of Evo technology for the panel of the TV, which was restricted to LG's top of the line G1 range until last year. However, the Evo technology used on the smaller 42-inch model of the LG C2 we're reviewing today is slightly different than the one that's used on the models that are 55-inch and above. As such, on the 42-inch model of the C2, the gains are not as pronounced as the bigger models, because LG has had to cram in millions of pixels into very little space which has added to the TV's performance.

The presence of LG's new A9 Gen5 AI processor on the TV ensures that the C2 42 handles complicated scenes as well as video processing and the upscaling of low-resolution content really well. You also get support for HDR, HDR10 Pro, HLG and Dolby Vision. However, there is no HDR10+. In day-to-day use, you'd notice the pushes out some great visuals, with very good contrast, dynamic range and



DESIGN.....	92
PERFORMANCE.....	92
VALUE FOR MONEY ...	89
FEATURES.....	94

brightness peaks to wow. Darker scenes too are handled well by the TV, and there is also no blooming or halo effect.

Set to the Filmmaker mode to simulate HDR performance, the LG C2 (42) also performed really well in terms of colour reproduction, with skin tones also proving to be quite accurate. These findings were corroborated by the results of the Calman tests we ran on the TV, as the C2 (42) clocked some really impressive numbers. The TV also showed good performance in maintaining a strong RGB balance in tests.

Gamut coverage was also on point. Results for the slightly more challenging DCI-P3 were close to 100 per cent, with the panel also covering around 70 per cent of the BT.2020 colour space. Even in the luminance tests, we got really good results, with the LG C2 (42) reaching a peak of 292 nits in the SDR tests, and 750 nits when tested for HDR.

## GAMING

Apart from being a very good TV for watching movies and consuming multimedia content, the C2 also makes for a very good TV (alternatively a monitor) for gaming. There's support for a lot of gaming first features, such as 4K 120Hz, VRR and G-Sync/FreeSync support. There's also support for ALLM for decreased latency

to improve gaming experiences.

Interestingly, all these features are supported on all four HDMI 2.1 ports of the TV, making it a very good choice if you have multiple devices. All of these features combine to create immersive gaming experiences that took our breath away when running HDR-ready games such as Dirt 5 or Assassin's Creed Valhalla.

## AUDIO

LG C2(42) comes with 40W down-firing stereo speakers, which to our surprise, manages to sound good enough for the most part. While it may not be good enough for a living room set-up, this OLED TV will definitely be good enough if you plan to keep it in a smaller room. However, if the above-par audio experience is what you're looking for, then invest in a decent soundbar.

## VERDICT

The LG C2(42) offers all the goodness of a top-notch OLEDs. Be it gaming or watching movies, the LG C2 (42) is a great option, and its size also makes it a viable choice to use as a gaming monitor. However, it is this size that also ends up being the biggest headache for the TV. Compared to the bigger-sized models this 42-inch model does not enjoy the same generational benefits in the display department and moreover does not also come at a price that makes it a very enticing offering. Making this one a TV that you can skip for a larger variant of the LG C2 itself or maybe an OLED from the Sony A8OK line-up. Unless of course, you need a small-screen TV for your bedroom or a high-end OLED monitor for your desktop.

—Sushant Talwar

## SPECIFICATIONS

MODEL NAME: LG C2(42) OLED42C2PSA | PANEL SIZE: 42-inch | PANEL RESOLUTION: 3840 x 2160p (4K) | PANEL REFRESH RATE: 120hz | HDR 10 SUPPORT: Yes | HDR 10+ SUPPORT: No | DOLBY VISION SUPPORT: Yes | HDMI 2.1 PORTS: 4 | HDMI 2.0 PORTS: 0 | USB PORTS: 2 | BLUETOOTH: Yes, 5.0 | WI-FI: Yes, dual-band | ETHERNET: Yes | SPEAKERS: 40W down-firing stereo speakers | PROCESSOR: A9 Gen 5 AI Processor

## CONTACT

PHONE: +91 9711709999 | EMAIL: NA | WEBSITE: [www.lg.com/in](http://www.lg.com/in)

**Phishy business**

As Twitter plans to charge for verification, some people have started receiving phishing emails. <https://dgit.in/nov22-15>

**Best of the lot**

The November Xbox Game Pass lineup includes two of the year's best games. <https://dgit.in/nov22-16>

**HEAD-ON**

# BEST SMARTPHONE CAMERA UNDER ₹15K

We put three popular phones under ₹15,000 up against each other to learn which one has the best camera system

**Dhriti Datta** | [dhriti@digit.in](mailto:dhriti@digit.in)

**B**

udget smartphones are inordinately popular in India, especially under the ₹15,000 price

segment. Users are spoilt for choice in this price range – you can get budget smartphones that not only perform well but are also packed with features. But can you find a good camera phone under ₹15K? Usually,

the camera is where manufacturers make compromises to offer their phones at inexpensive price points. So, you definitely won't get cameras as proficient as the ones found on smartphones between ₹30-₹50K. But can these budget phones' cameras satisfy the average user who usually just takes point-and-shoot images?

To find that out, we tested three popular camera phones under ₹15,000 – the Realme C33, Infinix Hot 12 Pro, and Motorola Moto G42 – that launched in India in 2022. All three phones come equipped with a

50 MP primary camera. The Infinix Hot 12 Pro and the Realme C33 have a secondary depth/AI lens while the Moto G42 comes with an 8 MP ultrawide shooter and a 2 MP macro lens. In this detailed comparison, let's find out if you can get a reliable camera system under ₹15K.

**DAYLIGHT PHOTOGRAPHY**

In daylight, we get good pictures from the Realme C33 and Motorola Moto G42 but the Infinix Hot 12 Pro falters in some scenes. Moto and Realme do a good job of capturing details, even in gloomy and overcast conditions, whereas Infinix often returns a soft shot which lacks details. This is especially apparent in the corners of daylight pictures on In-



## Google shuts down Hangouts

Google has ended Hangouts, a text, video, and voice chat app, and upgraded it to Google Chat. <https://digit.in/nov22-17>



## YouTube Primetime Channels

YouTube has introduced a new feature, the Primetime channels. <https://digit.in/nov22-18>

finix where the details are minimal. Realme, while doing a good enough job in most daylight photos, can appear a bit too oversharpened due to excessive post-processing.

Colours look the most true-to-life on the Motorola Moto G42; they are slightly cool-tone but look the most natural. The colours are a bit saturated on the Realme C33 but look quite pleasing and social-media-friendly, nonetheless. However, Infinix falters yet again with pale, unnatural-looking colours with overblown highlights. All three phones have good natural background blur, which is great at this price point.

Another gripe we have with the Infinix Hot 12 Pro is the difficulty it faces to focus on a subject properly – even in bright daylight. There were times when we took close-up shots of flowers and while the other two phones focussed on the central point quite easily, we had to manually tap the screen to focus on the flower on the Infinix, and it still struggled. Realme does have some issues maintaining the details in the corners of close-up shots – the pictures we took had quite a bit of blurring and noise in the corners.

As for detail retention, we took an image of a tree's bark and Moto, yet again, managed to extract the most detail in its shot. Realme's image was also sufficiently detailed, especially in the centre of the picture, but In-

finix's overexposed highlights clipped the details in the shot yet again. Realme and Moto also have great dynamic range in daylight, with the Realme C33 capturing a lot of detail even in the shadow areas of the photo. Infinix struggles to due overblown highlights and crushed shadows in most images.

So, in our opinion, both the Realme C33 and Moto G42 are reliable budget cameras in daylight – there are some areas where Motorola's shooter is stronger and in some other areas, the Realme shines.

### PORTRAIT PHOTOGRAPHY

All three phones don't excel when it comes to portrait photography. However, out of the three, the Motorola Moto G42 has the best edge detection, while the Realme C33 and Infinix Hot 12 Pro struggles with object/subject edges. However, the background bokeh effect is also the least on the Moto G42, so it comes down to your own preferences.

When it comes to shooting human subjects, the Realme C33 and Infinix Hot 12 Pro often produce inadequate

results with the edge detection missing out too many spots. While the Moto fares slightly better in edge detection, you will still notice some distortion around the edges that make the result look choppy. Still, it is the best at snapping portrait shots in comparison to the other two phones in the mix.



Infinix Hot 12 Pro (Left), Realme C33 (Middle), and Motorola Moto G42 (Right)

In portrait photos, Infinix's shots have a whitewashed look and Moto has quite a cool tone. Realme's colours are the most pleasing for human subjects in most cases. Nevertheless, for the overall accuracy of portrait photos, we would still have to give the edge to the Motorola Moto G42.

### MOTOROLA MOTO G42 – ULTRAWIDE AND MACRO CAMERAS

In this comparison, the Moto G42 is the only phone graced with an ultrawide camera. The 8 MP ultrawide lens on the Moto G42, however, is lacking in detail retention. The dynamic range is subpar and shadows look very crushed via this lens. We took the same picture from the main lens and the ultrawide shooter and the disparity in detail and dynamic range was massive – with the shadows being completely crushed on the ultrawide lens' shot. There's also quite a bit of barrel distortion in pictures clicked from the ultrawide shooter.

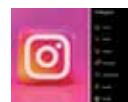
The Moto G42 also comes with a 2 MP macro shooter, but the shots taken from this lens are not really usable. There's a lot of softness and noise in pictures clicked with this lens. While we debate the usability of the low-resolution macro lens on this phone, the ultrawide lens is still useful to have despite its shortcomings, in some situations.



Infinix Hot 12 Pro (Left), Realme C33 (Middle), and Motorola Moto G42 (Right)

**No more ad-free articles**

Twitter will discontinue ad-free articles for Blue subscribers and will charge \$8/month for Blue tick. <https://dgit.in/nov22-19>

**New and improved!**

Instagram for Web UI has a new sidebar. The most used menu bar items are now on the left side. <https://dgit.in/nov22-20>

**HEAD-ON****LOW LIGHT PHOTOGRAPHY**

In low light, sadly, none of these phones perform particularly well. However, the Infinix Hot 12 Pro's low-light photos are definitely the least usable since the camera often fails to lock focus and produces soft and blurry pictures almost every single time. The Moto G42's night shots have decent detail retention in the shadows but look somewhat overprocessed and unnatural. The Realme C33's low-light shots are decent but there's a lot of detail missing in the shadows.

Shooting human subjects in low-light produces images with a ton of noise but, yet again, Infinix comes out with the weakest result of the three. The photos are inordinately dark, even with Night Mode turned on, and are pretty unusable with little detail. So, for low-light images, the Realme C33 and Moto G42 are better options than the Infinix Hot 12 Pro. Both Moto and Realme have their own strengths and weaknesses in low-light photography, so we can't definitely say one trumps the other over here.

**SELFIE CAMERA**

Surprisingly, selfies are the Infinix Hot 12 Pro's strongest suit when it comes to its camera setup. There's no pressing issue with overexposure, as we faced on the main camera. The Realme C33's selfie camera outputs

very noisy and grainy selfies in both daylight and low light.

Out of the three, the Moto G42 has the best selfie camera that packs detail in daylight images. There's a tad too much contrast in Moto's selfies, at times, but that's not a deal-breaker.

**VIDEO**

All three phones in this comparison can shoot video at 1080p at 30fps. But out of all three phones, the Realme C33 tops the charts with the cleanest footage. Noise is minimal and the video looks great with quite a bit of detail for this price point. Moto's footage, on the other hand, has quite a bit of noise. There's also constant jitter in the footage, which may be either a software or hardware issue. Selfie videos are grainy on all three phones, but the Realme C33 does have the brightest footage out of the three.

As for autofocus, Moto is snappy and locks focus the fastest among the three phones. Realme and Infinix struggled with locking focus on objects and on multiple occasions, the focus needed to be manually set. For low light, all

three phones output very dark and noisy footage but Moto does the best job at focusing on objects despite the noisy footage, so the videos from the G42 look the cleanest out of the three. So, we'd definitely give the Moto G42 a slight edge over the Realme C33 in the videography department.



Moto G42 Primary Camera (left) vs Moto G42 Ultrawide Camera (right)

**CAN YOU GET A RELIABLE SMARTPHONE CAMERA UNDER ₹15K?**

So, the question remains, which phone gives you the most reliable camera performance under ₹15,000? The answer is pretty straightforward to us – not the Infinix Hot 12 Pro. This phone is not meant for those who utilise their smartphone cameras a lot since it fails to provide decent photography and videography results even in brightly-lit conditions.

Between the Realme C33 and the Moto G42 – we would say the Moto G42 is more reliable at this price point. While the Realme C33 does a good job of capturing pictures in daylight and clicks pretty good low-light pictures as well, the Moto G42's camera stack is more reliable. Not just for daylight photos, but also for low-light videos, portraits and selfies. Additionally, you also get the added benefit of an ultrawide camera even though the one on the Moto G42 may not be able to click the most detailed shots. But, it's good to have the option nonetheless.

So, we'd recommend the Moto G42 if you have a strict budget of ₹15K and you want a decent camera phone. But, we truly believe that options under the ₹30K mark provide a more holistic smartphone camera experience. You'd get options such as the Samsung Galaxy A53, OnePlus Nord 2T, and Oppo Reno 8 at this price point that offer a far better camera experience than these entry-level phones can be expected to provide. □



Infinix Hot 12 Pro (Left), Realme C33 (Middle), and Motorola Moto G42 (Right)

**No more 8MP lenses**

Ming-Chi Kuo suggests Apple will ditch 8MP camera lenses in the upcoming iPhone 15 Pro.  
<https://digit.in/nov22-21>

**Drive adds file expiration**

Google Drive has updated its file access expiration, allowing users to set an expiration date. <https://digit.in/nov22-22>

# Best ways to publish Google Slides, Sheets, and Slides online

These tips and tricks will help you up your publishing game!

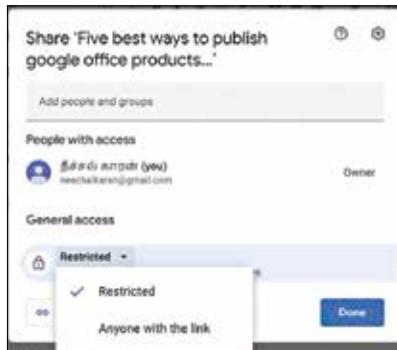
**Neechalkaran** | feedback@digit.in

**A**mong various Office products, Word, Excel, and PowerPoint are the most used applications in the industry. In the early 2000s, Office products couldn't be shared without an Office suite in a local machine. You needed an MS Office or LibreOffice suite to open and access the content. Then cloud based products from Microsoft and Google set a trend in online files. All these products could be shared with anyone on the internet. This was one of the best features in cloud based applications. Every user had an option to share it with one or many. Similar to Microsoft office products, Google brought its own products like Google Docs, Google Sheets, Google Slides. On closely examining various products of Google, you can find plenty of ways to share a file or content with multiple user friendly options available to users.

This article talks about some of those ways to publish the contents of documents, spreadsheets and presentations on the internet. Online sharing has many advantages like real time updates, no prerequisite software in the machine, easy collaboration, etc.

**VIEW**

Most of the users might be aware of



this method. This is the simplest form of sharing the file. Click on the Share button at top right corner, in General access, select "anyone with the link"

Finally click "copy link" and get the web url of your file. This url can be accessed from anywhere.

**PUB**

Even though the file got published in the above method, you will still see limited menu bars and sign-in button. Doesn't that look as compact? There is a second way to do that. Goto File Menu -> Share and choose "publish to web".

Then you will need to click the publish button in the Link tab. Finally you get the new url of the published link ends with the keyword "pub". Copy this link and you can share it with anyone. Still you can control the accessibility any time and stop publishing.

Either docs or sheets or slides, these files will be published as it is in applications.

**HOST IN GOOGLE SITES**

Google sites is the platform for webpage hosting. Users can create

their own website with zero coding. Here site urls are handy and easy to remember. Ex: <https://sites.google.com/<your-name>> If you don't have a site, create a new one. In Edit mode, Along with Textbox, Image there is an option called "Embed". Click and paste the Google docs Embed code.

To get the html code to embed, follow the steps

1. Open the Doc/Sheet/presentation
2. Goto File Menu -> Share and choose "publish to web"
3. Choose if you want to publish limited content.
4. Click "Start Publishing"
5. If you don't to publish after any change, uncheck "Automatically



republish when changes are made"

6. If you wish to stop publishing, you have that option as well.
  7. Goto Embed and copy the code
- If it is a google presentation, you can choose the frequency of slide animation and its size.

In the case of spreadsheet, you can select a specific sheet for publishing and keep other sheets as private.

Once you publish the site, Anyone can access the content unless you



### 'Twitter Complaint Hotline Operator'

Elon Musk has changed his profile to 'Twitter Complaint Hotline Operator' from Chief Twit. <https://dgit.in/nov22-23>



### Metro tickets on WhatsApp

WhatsApp is partnering with BMRCI to introduce a QR ticketing service for the Namma Metro. <https://dgit.in/nov22-24>

stop the publishing. One of the advantages of embedding in Google site is that anyone can easily memorise the url instead of having lengthy random characters.

### HOST IN BLOGGER

Similar to Google Sites, Blogger is an alternate option to publish these files with more features. If you want to track the viewers count, demographics or comment features, then Blogger is the best choice to publish. blogger.com is a free blogging platform with all the features like a website. There are multiple ways to publish content in blogger either can be a post or page or home.

Consider you have a blogger site named like example.blogspot.com (this is home).

Post is the date logged pages ends with year and month notion. example.blogspot.com/2022/09/<name>.html.

Page are like Static page ends with example.blogspot.com/p/<name>.html.

To do that first copy the embedded code as shown in the above scenario.

Add, frameborder="0".

Add this string to the src, &single=true&&headers=false.

Finally the code will look as below,

```
<iframe frameborder="0"
style="overflow:hidden;h
eight:100vh;width:100%"
src="https://docs.google.
com/document/d/e/2PACX-1XXXXXX8yDKr/pub?e
mbedded=true&single=tr
ue&headers=false"
width="100%" height="100%"></
iframe>
```

To publish it as a post:

- Create new Posts, then select HTML View.
- Paste your whole iframe code and publish it. This will look as a blog post with doc content. Viewers can comment on the post
- Create new Pages, and follow the same steps as above.

Finally, the entire blog site can be converted as a wrapper of our docu-

ment. To do that goto Theme -> Edit HTML and copy paste the below code and modify the highlighted url with your document url.

```
<!DOCTYPE html PUBLIC "-//
W3C//DTD XHTML 1.0 Strict//"
EN" "http://www.w3.org/TR/
xhtml1/DTD/xhtml1-strict.
dtd">
<html xmlns="http://
www.w3.org/1999/xhtml"
xml:lang="en" lang="en" >
<style>
#navbar-iframe {
    display: none !important;
}
</style>
<body style="margin:0px;padd
ing:0px;overflow:hidden">
<iframe frameborder="0"
style="overflow:hidden;h
eight:100vh;width:100%"
src="https://docs.google.com/
document/d/e/2PACXXXXan7L_
ieIsXXXXXXcEZ0n05CRd0jc8x-
4TODtsH/pub?embedded=true&
amp;single=true&headers=false" width="100%
height="100%"></iframe>
</body>
</html>
```

Once it is saved, the document will be published in your blogspot home page. You can still collect the stats and other details from Blogger settings. You can add google adsense code below to earn as well. Whenever the google documents get changed, the modifications will be reflected immediately. Adding images, multimedia files, Formatting are easy to handle with Google Menu bars. This will work for all google office products. You can control what section to be published. Same iframe code can be used in other hosting sites like wordpress, medium

### DOWNLOAD AS HTML

One of the dirtiest ways to publish is download as HTML. This will get you the folder with all the resources. This is can be hosted in any third party websites including GitHub, Heroku etc.

It may not be realtime, but it is cost effective to publish as a web page

without spending a single penny on web designing a page. If you need to simplify these HTML formatting, then try with some plugins like GoogleDoc2Html. For Google slides, there is no easy way to convert it as html. Instead, download as svg slide and place the code inside body tag or use as normal html. Alternatively you can download any single slide as pptx and convert it to html using apps like convertio.co.

### API WAY:

If you want to publish the spreadsheet as JSON to consume it in any other application, then you can use spreadsheet API v4. Google spreadsheet can be used as a backend database including mobile app to web app. There are few limitations in free quota, check in <https://developers.google.com/sheets/api/limits>. However you can pay if you exceed these limits.

1. First, share the spreadsheet as "publish to web"
2. Then goto google developer console. If you are new, then you need to create a new project.
2. enable Google Spreadsheet API at <https://console.cloud.google.com/apis/enableflow?apiid=sheets.googleapis.com>
3. Then generate API key from <https://console.cloud.google.com/apis/credentials>
4. use below syntax and get the spreadsheet in JSON response <https://sheets.googleapis.com/v4/spreadsheets/{spreadsheet id}/values/{sheetname}?key={APIkey}>

### Note:

*All above methods can be automated and even customised with help of Google apps scripts. If you are good in Google Apps script, Google Docs, sheets can be modified dynamically, Google Slides can be converted into video files, etc,*

*Google spreadsheet can be published as an app with no code platform appsheet <https://cloud.google.com/appsheet> This will be useful for cases including project management, customer relationship management, field inspections, and customize reporting. *

**Netflix ad supported plan is here**

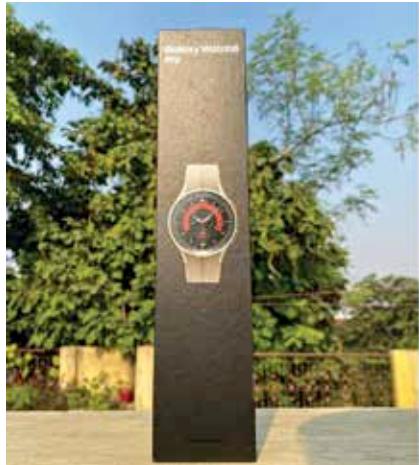
Netflix has finally launched its ad-supported subscription plan on November 3. <https://digit.in/nov22-25>

**Delete your number**

Facebook has a tool to delete your phone number from its database. <https://digit.in/nov22-26>

# Galaxy Watch 5 Pro

## The 5-week experience



I used the Samsung Galaxy Watch 5 Pro for 5 weeks and here is my experience

**G.S. Vasan | feedback@digit.in**

**G**alaxy Watch 5 Pro is the flagship smart-watch from the South Korean brand. It's the company's second

year of joint wearable initiative with Google called the new Wear OS. Powered by Samsung. It is therefore to be seen how far the software experience on the Galaxy Watch 5 series have come. Also, with its Pro-moniker, the titular product has a lot to prove. The official website (where it also currently retails for ₹49,999) touts attractions like GPS route tracking, Sapphire Crystal screen, a massive 590mAh battery, among a host of other health, fitness, and smart features. I have been wearing the Samsung Galaxy Watch 5 Pro for more

than 5 weeks now and here is my experience of using all these things.

**DESIGN AND FIT**

Samsung Galaxy Watch 5 Pro One of the best things going for the Galaxy Watch 5 Pro is its look. Yes it is a round-dial watch but sports a 45mm screen expanse cased in a raised lip and strong build materials for a powerful cum posh finish. The bill of materials includes Titanium casing, Sapphire Crystal glass front, and MIL-STD-810H compliance for endurance. Samsung has got an IP68 rating for dust and water resistance too. Now while you are out and about, the watch calls for attention partly because of its premium appearance and because it sits pronounced on the wrist.



It's a thicc boi and we generally do not like having any watch (let alone this) on our wrists, whilst we're resting. Don't worry, to test sleep tracking, we did wear it a couple of nights, and so you can also wear it if you want. We share a similar mixed sentiment towards the Galaxy Watch 5 Pro's magnetic metal buckle. Samsung calls it a D-buckle strap. The strap material is comfortable on the wrist and once set up, fastens and unfastens easily. However, the process of setting it up is a chore. The good thing is that you can buy bands from Samsung or other 3rd party vendors, and easily swap them.

**DISPLAY AND UI**

From design, let's get on to the beautifully designed watch faces that augment the Watch 5 Pro's 1.4-inch Super AMOLED screen. There are plenty to choose from and among the preinstalled options, my picks would be Flower Garden, Info Board, and Digital Dashboard. Like the names of the latter two, many of the watch faces are data ridden but beautifully presented. Besides the built-in ones, you can also download watch complications from Facer and Play Store (Arigato WearOS).

As for the display itself, it exhibits 450x450 pixels or about 321 PPI density. That resolution and display quality appear great both indoors and outdoors thanks to a peak luminance of up to 1000 nits. The black border engulfing the screen real estate is also bearable and acts as a digital rotating bezel with fine haptic feedback. However, we preferred using the swipes and button taps.

On the watch, the top button (called Home button) sits on the right side of the frame can be used for jumping right to the home screen from any screen.



**Control your iPhone with implant**  
There's a new implant that can control your iPhone & iPad using your brain  
<https://dgit.in/nov22-27>



**Sony PS VR2 in February 2023**  
Sony PlayStation VR2 And Sense controllers are set to release in February 2023.  
<https://dgit.in/nov22-28>

FEATURE

Pressing it longer triggers Bixby and if you aren't a fan of Samsung's smart assistant, you can switch to Google Assistant instead (in select markets). Overall, the UI responds smoothly and doesn't demand any long learning



curve. Good. But what's great is how Samsung lets you customize almost every aspect of the user interface such as menu options, watch complications, etc.

However, one area where we were very miffed is the lack of iOS support with the new Watch 5 Pro (at least at the time of writing this). So, it seems Samsung and Google are locking in the WearOS users to the Android smartphone space. This saddens the open ecosystem enthusiast in us.

## PERFORMANCE

Let's begin with the monitoring and measurements. With the Watch 5 Pro, you can track over 90 workout modes (including swimming), 24x7 heart rate count (both manually and automatically thanks to a continuous tracker), blood oxygen measurement (including automatic reading while you are sleeping), how stressed you are (with breathing guidance), body fat composition, sleep health (with details about time on various sleep stages, snore detection), and even a Blood Pressure checker. The BP monitor is missing in India.

We did check the rest of the stuff and compared them side by side to the results from our Apple Watch. The scores were mostly comparable. That said there were some discrepancies too. For example, in case of sleep tracking, this thing was behind by 20 minutes in one instance. However while Samsung falters in some areas, it compensates for that in other areas with goodies like

Body Fat Composition and snore detection that you may find useful.

In the day to day use, we liked how proactively its step counter and workout detection work. The actual counting, the distance traveled and GPS tracking is decent too. Even software tricks like how the screen auto-rotates regardless of the orientation to show the watch face mean something.

We also appreciate smartphone-like complements like the support for Samsung Keyboard (with quick responses), media controls, optional increase in touch sensitivity for gloves, etc. Coming to smart perks, you get hard fall detection, turn-by-turn navigation with voice or vibration-based alert, a backtracking option, and the facility to import your track routes (in GPX format for hiking and cycling) and other details into the watch. You can also connect the watch to third-party services like Strava and Technogym. You can get these and more apps from Google Play Store (on the connected phone or on the Watch 5 Pro). This vast app support is a big plus for this Tizen OS and Wear OS hybrid software. The only misgiving is that in some cases, there are similar apps from Google and Samsung on the watch. You can't uninstall them either. Ugh!

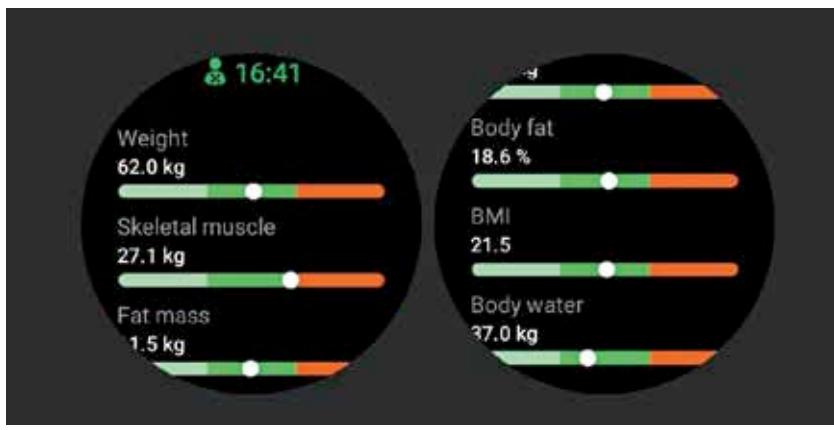
Also, Google Assistant may not work out of the box because of some language and region restrictions. Some other key features missing from the Galaxy Watch 5 Pro are ECG (certified but available in select markets only) and Skin Temperature Sensor (present but not active yet).

## BATTERY LIFE

Galaxy Watch 5 Pro bears a 590mAh battery that is rated to last 80 hours between charges. In our experience, it got more than 3 days of runtime. And when it's in a pinch for a charge, Samsung claims just 15 minutes of fast charging with the bundled magnetic puck can drive it for about 1h 40 mins or so. The charger has a fairly long cable which is good. Your mileage may vary depending on which features you use and how constantly you use them. If the display had been an LTPO, we suppose the battery life would have slightly benefited.

## SO, IS IT WORTH IT?

Samsung Galaxy Watch 5 Pro is one of the best smartwatches for Android smartphones that's currently available in India. It is built strong, looks bold and unique, and has a boatload of features. The latter cover regular health and wellness monitoring, some advanced fitness trackers, smart abilities like GPS routing, and the watch's overall proactiveness in tracking and alerts. All of this is backed by more than 3 days of battery life which is fairly good for a Wear OS-based watch. What is also fairly good is its tracking accuracy. However, that might not be enough for you and you may also miss the geo-restricted or otherwise unavailable features on the Watch 5 Pro. So, if you demand more from a Pro-grade wearable, you could look at other options out there. **d**



Body composition results

# digit Config

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

## INTEL

Basic Rig	₹42,776
Basic Gaming	₹80,268
Entry-level Gaming	₹1,05,655
Mid-Range Gaming	₹1,41,115
Semi-pro Video Editing Rig	₹2,69,282
Ridiculous Gaming	₹3,90,288

## INTEL

### BASIC RIG

Processor	Intel Core i3-12100	12,599
Motherboard	ASUS PRIME H610M-E D4	7,199
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)	31,576
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	OEM Cabinet	1,000
<b>TOTAL</b>		<b>₹42,776</b>

### ENTRY-LEVEL GAMING

Processor	Intel Core i5-12400F	16,799
Motherboard	ASUS PRIME H610M-E D4	7,199
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)	86,818
Monitor	Samsung Odyssey 24-inch LF24T352FWXXL	13,387
Cabinet	MONTECH X3	5,450
<b>TOTAL</b>		<b>₹1,05,655</b>

### 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
<b>TOTAL</b>		<b>₹2,69,282</b>

## BASIC GAMING

Processor	Intel Core i5-12400F	16,799
Motherboard	ASUS PRIME H610M-E D4	7,199
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)	64,618
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	MONTECH X3	5,450
<b>TOTAL</b>		<b>₹80,268</b>

### 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	7,038
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	3,999
Sub-total	(Excluding Monitor and Cabinet)	1,23,866
Monitor	LG 24GL600F 24-inch 144 Hz	13,299
Cabinet	Cooler Master Masterbox K501L	3,950
<b>TOTAL</b>		<b>₹1,41,115</b>

### RIDICULOUS GAMING

CPU	Intel Core i9-12900K	55,299
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
<b>TOTAL</b>		<b>₹3,90,288</b>

*Disclaimer: The new Intel CPUs were launched recently, and at the time of writing, we still await their final pricing and availability of compatible hardware. So, watch this space next month for the 13th Gen equipped rigs.*

## 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	₹33,717
■ Basic Gaming	₹72,239
■ Entry-level Gaming	₹1,04,381
■ Mid-Range Gaming	₹1,42,783
■ Semi-pro Video Editing Rig	₹2,80,752
■ Ridiculous Gaming	₹3,53,490

## 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
<b>TOTAL</b>		<b>₹33,717</b>

### 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
<b>TOTAL</b>		<b>₹1,04,381</b>

### SEMI-PRO VIDEO EDITING RIG

Processor	AMD Ryzen 9 7950X + Noctua NH-D15	74,207
Motherboard	X670 Auros Elite AX	25,900
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)	217,901
Monitor	Dell U2723QE	54,667
Cabinet	Cooler Master MASTERBOX TD500	8,184
<b>TOTAL</b>		<b>₹2,80,752</b>

### 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
<b>TOTAL</b>		<b>₹72,239</b>

### 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 1TB (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)	122,683
Monitor	LG 24GN650-B 24-inch 144 Hz	16,150
Cabinet	Cooler Master Masterbox K501L	3,950
<b>TOTAL</b>		<b>₹1,42,783</b>

### RIDICULOUS GAMING

CPU	AMD Ryzen 7 7700X	36,500
Motherboard	X670 Auros Elite AX	25,900
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	113,000
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
<b>TOTAL</b>		<b>₹3,53,490</b>

# Everless SmartBag: Self-folding reusable bag

**Funding:** \$ 348,438 pledged of \$ 4,400 goal

**Link:** <https://dgit.in/SmartBag>

**B**ehold what claims to be the smart and sustainable alternative to single-use bags. This is an actual carry bag that is apparently able to hold up to 50 lbs, which is quite capable for something that essentially folds back up to the formfactor of a wallet. You don't have to use feeble paper bags any more or bags that won't make you feel like quite the odd one



out, because finally the Everless SmartBag descends. Made with recyclable fabric, you can promise yourself more blessings from nature while using a carrying medium that is water repellent and

ultra durable. The SmartBag is said to be made for over 50% from bioplastic and is fully recyclable. Designed keeping in mind the urban-conscious consumer of tomorrow, we see this as more of a backup bag empowering reducing the footprint you leave behind. Made with what the company calls recyclable ultra high tenacity triple ripstop memory fabric mouthful of a material name, Everless is supposed to be the last bag you'll ever need. Another one of the cool things that separates Everless SmartBag from others is that it folds up automatically when shaken, including foldable handles.



## Raven CNC

**Funding:** \$ 474,003 pledged of \$ 100,000 goal

**Link:** <https://dgit.in/Raven>

**A** unique feed-through CNC machine for large-scale creations with a small desktop footprint. CNC stands for computer numerical control. These are used for making parts for almost any industry. They create things out of plastics, metals, aluminium, wood and many other hard materials. These CNCs depend on digital instructions usually made on Computer Aided Manufacturing (CAM) or Computer Aided Design (CAD) software like SolidWorks or MasterCAM. RAVEN CNC claims to be a next-generation desktop CNC carver with a unique feedthrough system, allowing you to create large-scale masterpieces but with a small footprint. They believe that their advanced technology will enable people to make a wide range of products and projects with precision, speed and efficiency. This is a fantastic machine to build components, full scale products, carved artworks, props and what not. Every Raven CNC comes with a reusable, self-adhesive AccuTrack strip which easily applies to most materials and can be reused over and over again. Next, you insert the material into your Raven, and lock it in place. Pressure sensors measure and display the strength with which the material is clamped down. The AccuTrack belt locks your material in place, ensuring accurate, repeatable action for perfect results, even across extremely long pieces of material for large-scale projects. Raven also promises incredible speeds without sacrificing precision, with accessible depth up to 2.125"/54mm in a single pass.

## Whimsyou Merbuds

**Funding:** \$ 14,028 pledged of \$ 25,000 goal

**Link:** <https://dgit.in/Merbuds>

**A**s the company puts it, these weird Wireless Earbuds With Whimsical Beauty are more of a jewellery than revolutionary earbuds. To them, it is a fashion accessory that expresses who you are and accentuates the natural beauty, quirkiness, and oddities that you uniquely withhold within. Stating the same quite boldly with their 'aquatic' design, these Merbuds are perfect for someone who wishes to be different, believes in being noticed and

demands more. But why a mermaid centric design? Well... because that was the first thing to spring in the mind of the creator. For real. But that also means we can expect more of such fancy designs in future in case you like yourself decorated like your creative souls. Although we cannot vouch for the technical specifications of these Merbuds, there is a com-



parison chart along with the listing that self validates its in-ear security, comfort, water resistance (one would expect), and charging case against other top of the lines like Apple Airpods. These bluetooth powered Merbuds are claimed to last about 8 hours on a full charge and have securefit support. They are also sweat proof with IPX4 Water Resistance and are injection moulded from high-quality materials, premium PCB, and custom audio components. With the support for Bluetooth 5.2 and a range of upto 10m, these buds are claimed to provide premium sound quality comparable to JBL audio. It utilises type-C charging and supports good old Siri's voice assistance as well. Apart from that it has physical buttons to perform the usual handsfree interactions and media control.

# Matrix: The Ultimate Materials 3DPrinter

**Funding:** \$ 132,274 pledged of \$ 10,000 goal

**Link:** <https://dgit.in/Matrix3D>

**M**atrix is a large format ceramic 3D printer that is also compatible with many other viscous fluid materials. It is smart, fast, large format, pre-assembled, modular and very powerful with 0.4 mm (0.02 IN) precision. It's claimed to be the next-gen of ceramic 3D printers with all the features designed to provide makers with productivity tools for prototyping a wide range of ceramics, from vases to statues, lighting to wall tiles, and an endless variety of ceramic models and prototypes. The Matrix series features three models: M500, M600, and M700 with the M700 offering the maximum printing area of 500 x 500 x 700 mm (19.7\*19.7\*27.6 in). It also includes a new ceramic 3D printing extruder, which has an air chamber



to remove the air trapped in the material tube during the clay loading process. The dual Z-axis design and 3030 aluminium profile column can support large size ceramic print models with ease. It uses a novel Z calibration method with a unique

nozzle calibration setter for easy, fast, and reliable five point levelling. The CORE XY design adds more stability and with the screw extrusion & electric putter solution, and a minimum layer thickness of 0.4mm(0.02 in) can be printed using this machine. It can reach the fastest printing speed of 60mm/s (2.4 in/s). It can be operated via a 3.5-inch full-colour touch screen with intuitive and simple controls and also supports SD card and USB reading. Not only ceramic materials, Matrix can print using a wide range of viscous fluids, especially environmental and ecological restoration materials making it a very capable machine for research materials too. Matrix supports most modelling and slicing software like Cura, Slic3r, PrusaSlicer, Simplify3D and also launched Clayon - Intuitive and Professional Modeling Software for Ceramic 3D Printing software, with Microplus.

## Bottle Farm Mini

**Funding:** \$36,212 pledged of \$4,432 goal

**Link:** <https://dgit.in/BottleFarm>

**M**eet the Bottle Farm Mini. A modular kit that turns your old jars, cans and containers into a herb garden. A sustainable and beautiful solution to make you finally give up on buying plastic pots while making your home greener, easier than before. It flexes the ability to grow your saplings in any possible container with least maintenance because of its self watering feature. It uses a clever technology called hydroponics to achieve that. All you have to do is add the provided Plant Fuel to tap water and now your plants have all the nutrients they need to grow. The company also claims that it helps them grow faster than in soil and uses up to 90% less water. The Bottle Farm Mini is apparently self-watering because the plants drink exactly the amount of water they need and save the rest for their next meal. So you just have to keep

it topped up. And while they are providing their Kickstarter backers with basil, tomato, chilli, lettuce, rocket, chive, coriander, parsley and mint seeds, you can essentially grow any plant you wish from herbs to veggies. Each kit of Bottle Farm Mini that you get, comes equipped with all the things that you will need to get started. All you will need to do is some minimal prep work as stated in the instructions.



## Lumos Firefly

**Funding:** \$ 1,102,903 pledged of \$ 25,000 goal

**Link:** <https://dgit.in/Firefly>

**P**resenting the Ultimate Bike Light System solution, Lumos Firefly upgrades your ride with turn signals, brake lights, synchronised flashing and more. A huge upgrade over conventional bike lights, Firefly lights convey far more information along with insane features like indicating where you're going and when you're slowing down. Finally brake lights are a thing for bicycles too now, thanks to these synchronous lights that are activated via a sensor built into the Lumos Remote (sold separately). Talking of synchronous, these lights also support Synchronised flashing making the rider to leave a much larger visibility footprint. Synchronised flashing is a feature that is activated with Team Sync, where the syncing of your lights is extended to your entire group while you all ride together. These Fireflies are said to be capable of being attached anywhere securely and effortlessly because of Magnetic mounting support.



But these lights were also tested to hang on just as tight even while riding roughly. Each Firefly carries red, yellow and white diodes that act as either a front, rear and/or turn signal light.

**In high demand**

Apple CEO Tim Cook said the demand for the Apple iPhone 14 Pro had extended the supply. <https://dgit.in/nov22-09>

**Committees against social media**

Indian government may set up a committee to address user grievances against the social media apps. <https://dgit.in/nov22-10>



# Apple Watch Ultra

Rugged and kinda repairable

**Satvik Pandey** | [satvik@digit.in](mailto:satvik@digit.in)



## Lifting the lid

Apple has been known for their signature taptic engine present in their iPhones and Watches. And, that is the first thing that will greet you along with the battery, when you prop open the front of the watch (screen) using the Jimmy tool and the Opening Pick. Be mindful of the ribbon cables though, as the glue holding the screen and the case together is stronger than ever. So, make sure you are gentle when prying open the screen. All you need to do is soften the adhesive, and then pry up the screen a little. After that, slice the adhesive using the opening pick and you'll be in. To get to the ribbon cables, you'll first need to get rid of the battery though. Once that is done, you will see a display cable connected to the housing using a Lego style connector. Using the spudger, gently pry it away and you'll be done!



## Removing the battery

Once you have opened the front of the watch (the screen), the next thing that you will need to do, before moving any further with the teardown process is to remove the battery. To do that, you will have to get rid of the two 2.3mm Y000 screws holding down the connector bracket. Next, disconnect the battery using the spudger by prying it up towards the battery. Now remove the two screws holding the battery down and pry it up using the opening pick and you are done.

**Apple takes down casinos**

Apple takes down casino ads on App Store product pages after backlash.  
<https://dgit.in/nov22-11>

**iPhone 15 Pro with A17 Bionic**

Apple iPhone 15 Pro could come with A17 Bionic chipset and feature USB-C instead of Lightning <https://dgit.in/nov22-12>

**Take out the buzzer**

Apple's fabled tactile engine can also be removed and replaced if needed, in the Apple Watch Ultra. All that you will need to do is, remove the screen and then disconnect the battery from the watch. Once you have removed the battery, the tactile engine will be the only thing that is left behind. To remove that, all you need to do is take the spudger and gently remove the ribbon cables that are connected to the body using Lego style connectors. Before you take the tactile engine out of the body though, you will need to remove two screws holding down the entire contraption in place.

**Sensor assembly - Now removable**

Apple, as we can guess in a bid to reflect their furthering of the user repairability of the Apple Watch Ultra, now lets you remove the back sensor assemble on its watch. First up, using the battery removal process, you will need to unplug the battery. Next, unfasten the four 2.2mm long screws that are holding down the sensor assembly. You will need to heat it up a bit to soften the glue. Once that is done, gently slide in the opening pick and pry up the sensor assembly away from the housing. Again, be gentle as there are ribbon cables connecting the whole assembly to the rest of the watch. To completely remove the assembly, you will need to disconnect the ribbon cables. This can be done by gently prying them away using the spudger.



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# digit TOP 3

## RECOMMENDED BUYS

From mobile phones to smart TVs, here's what we recommend for your next purchase.



### Budget Laptops for Students

HP Pavilion Gaming 15.....	₹71,205
Acer Aspire 7 .....	₹55,980
Mi Notebook Horizon 14.....	₹51,990



### IEMs under ₹1,000

KZ-EDX Pro .....	₹999
JBL Endurance Run.....	₹999
Audio-Technica CLR100IS BL Sonic Fuel.....	₹699



### Smart TVs

Sony Z9J .....	₹8,99,990
LG Z1.....	₹24,99,990
Samsung Q900A.....	₹12,49,990



### Mobile Phones

iPhone 14 Pro Max .....	₹1,39,900
Samsung Galaxy S22 Ultra.....	₹99,999
Vivo X80 Pro .....	₹82,999



### 2 TB External Hard Disk Drive

Seagate Backup Plus Slim .....	₹5,499
WD Passport .....	₹5,399
Adata HD710 Pro Military-Grade .....	₹6,470



### Desktop Gaming Speakers

AudioEngine A2+ .....	₹20,409
Logitech LightSync G560.....	₹19,995
Razer Nommo Chroma .....	₹17,718



### Gaming Controllers

Sony PlayStation5 Dualsense .....	₹5,990
Microsoft XBox Elite .....	₹25,365
Sony DualShock 4 V2.....	₹5,050



### Smartwatches

Apple Watch Ultra.....	₹89,900
Apple Watch Series 8.....	₹45,900
Samsung Galaxy Watch 5 Pro .....	₹44,999



### VR Headsets

Oculus Rift.....	₹79,747
HTC VIVE Pro.....	₹1,54,199
Oculus Quest 2.....	₹41,225



### Tablets

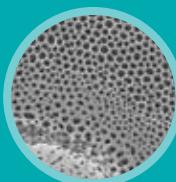
Apple iPad Pro (12.9-in, 5th Gen).....	₹99,900
Samsung Galaxy Tab S7+ .....	₹67,990
Apple iPad Air (5th Gen) .....	₹54,900



SCIENCE IS THE PATH TO KNOWLEDGE, AND FINDING OUT ABOUT HOW OUR UNIVERSE WORKS. YOU CAN'T BE A GEEK AND NOT KNOW YOUR SCIENCE!

## THIS MONTH IN SCIENCE:

This month in science we look at the accomplishments of NASA's DART Mission, and take a deep dive into the growing problem of the presence of microplastics.



## Splendid indeed

A recent study titled, Hexagonal Voronoi pattern detected in the microstructural design of the echinoid skeleton, has revealed a special pattern in sea urchin skeletons that could open gates to the development of light-weight yet extremely sturdy materials.

<https://digit.in/Spld>

### WHAT'S NEW

## NASA's Hubble captures spectacular pair of interacting galaxies

**N**ASA's Hubble Space Telescope has captured a stunning pair of two face-on galaxies, providing spectacular views of their spiral arms, background stars and galaxies. The two interacting galaxies, making up the pair known as 'Arp-Madore 608-333', seem to float side by side in this image from the Hubble Space Telescope. The interacting galaxies are part of an effort to build up an archive of interesting targets for more detailed future study with Hubble, ground-based telescopes, and the NASA/ESA/CSA James Webb Space Telescope. To build up this archive, astronomers scoured existing astronomical catalogues for a list of targets



spread throughout the night sky. They hoped to include objects already identified as interesting and that would be easy for Hubble to observe no matter which direction it was pointing.

<https://digit.in/NASHubb>

## Indian startups to soon launch Space Satellites

**O**n the occasion of the first anniversary of the Indian Space Association (ISPA), Jitendra Singh, Union Minister for the Ministry of Science and Technology, said Indian startups will soon be able to launch space satellites and satellite constellations and experiment with their rocket technology. Indian Space Association (ISPA) celebrated its first anniversary recently. While speaking at the India Space Conclave in Delhi,



the Union Minister stated that startups and private players led by ISRO could revolutionize India's space technology. In addition, HAL and L&T are domestically producing five PSLVs. Also, with the help of

ISRO and NSIL, OneWeb is all set to launch its satellite. Hence, integrating R&D with academia and industry has benefited the country's space sector. 102 startups in India are currently working on space debris management, nano-satellite, launch vehicle, ground systems, research, etc. Jitendra Singh elaborated that ISPA has been an important link between the key stakeholders.

<https://digit.in/IndSat>



### First star is born

NASA's flagship telescope that hasn't failed to gather headlines since its launch, in another staggering discovery, has spotted the earliest stars that have been seen so far. These stars are said to be born 800 million years ago, and are a part of a dense group that surrounds the Sparkler galaxy.

<https://digit.in/StarBorn>



### Fishers are back!

Also known as "tree wolverines", Fishers, a group of tree-climbing carnivores have finally come back to Washington's forests after 14 long years. The efforts that began in 2016, have finally paid off, as the population of Fishers reached an all time high.

<https://digit.in/FishTree>



### Green lakes

As if climate change hadn't caused enough problems and issues for everyone dwelling on this planet, a recent research study published in the journal Geophysical Research Letters has revealed that climate change could turn green or browning due to the changing climatic conditions.

<https://digit.in/ColorChg>

**Challenging Google**

Google preparing to challenge Competition Commission on India's anti-competitive directives. <https://dgit.in/nov22-01>

**200 MP camera?**

Samsung Galaxy S23 Ultra could reportedly feature a 200MP camera. <https://dgit.in/nov22-02>



# MICROPLASTICS: EVERYWHERE, EVERYTIME

## Is Your Infant Drinking Microplastics?

**Kajoli Anand Puri** | [feedback@digit.in](mailto:feedback@digit.in)

A recent study published in the National Center for Biotechnology Information (NCBI)

revealed the presence of microplastics (MP) in human breast milk. The study also confirmed the lack of links between participants who had MPs in their breastmilk, stating that it is likely that the pollutants infiltrated the human body via the environment. In other words, human exposure to MPs has become inevitable.

With the global production of plastic exceeding 350 million tonnes

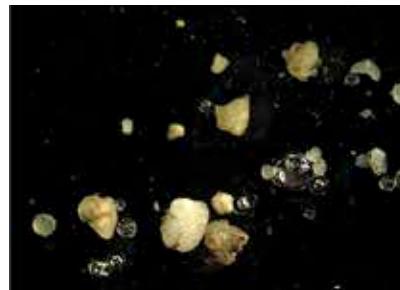
per annum, microplastics have previously been found in seafood, water bodies, the blood of animals (such as pigs and cows), and even in the human placenta. This is the latest study in a line of research that proves ingesting MPs has deeper ramifications that can impact the human population as a whole.

Microplastics are defined as bits of plastics smaller than 5 millimeters (or sesame seeds). They can infiltrate human cells via the membrane and cause lasting changes to the body and its functions. As they can also travel within the body, they can trigger multiple cellular responses, leading to a host of diseases.

### WHAT DID THE STUDY PROVE?

To determine the extent of MPs in the body, scientists used Raman Micro-spectroscopy, which is a chemical analysis technique used to determine

the composition of specific matter. They found microplastics in the breast milk of 26 out of 34 samples. These microplastics were made of polyethylene, polyvinyl chloride, and polypropylene.



This is a pilot, which means that it is the first of its kind to be conducted, and is also the first in a series to determine how MPs impact infant nutrition as well as the health of the mother. Researchers collected breastmilk samples a full week after



## Encryption in Google Messages

Google Messages is testing end-to-end encryption for RCS-enabled group chats.  
<https://dgit.in/nov22-03>



## OxygenOS 13 roadmap released

OnePlus has released the roadmap for the OxygenOS 13 update.  
<https://dgit.in/nov22-04>

delivery via manual expression. This means that participants were required to pump out breastmilk using their hands by holding them in a C-cup shape to apply pressure and expel milk. Breastpumps were not used predominantly because they are made of plastic, which could have impacted the study adversely.

As a part of the study, the MPs were classified on the basis of size, colour and shape. The findings showed that most of these MPs were in the form of irregular fragments and spheres, a majority spanned 4-10-mm, and were coloured blue or yellow. MPs in the form of film or fibres were not found to be present in breastmilk.

This is alarmingly because of obvious reasons. An infant's primary source of nutrition is breastmilk, and when it is contaminated with MPs, it can cause not just nutritional deficits, but also physiological damage. Although there were no specific links between the participants, it is believed that mothers are exposed to plenty of MPs in daily life. The human body can ingest MPs by simply breathing, using personal care products that are available in plastic packaging, ingesting food and beverages, and even through tactile exposure in some cases. It is estimated that 39,000 - 52,000 MPs are ingested per person per annum.

### WHY IS THIS CONCERNING?

Breastmilk has been found to contain a variety of contaminants like polychlorinated biphenyls (PCBs), polybrominated diphenyl esters (PBDEs), organochlorine pesticides, per- and polyfluoroalkyl substances (PFASs), phthalates and phthalate metabolites, phenols, and even metals. While the impact of MPs on infant health and development is still being studied, it has been proven that substances such as PCB can lead to cognitive impairment on exposure in early life. It can also impact the endocrine system.

Similarly, PBDEs are known neurotoxins and can adversely affect

behavioural development, motor skills and cognitive development.

These contaminants are known to interact with MPs in the breastmilk, which enhances their sorption capabilities. This means that the risk posed to infants increases not only because of the MPs themselves,



but also because of the additional toxins they may have absorbed from the breastmilk. With infants being especially vulnerable to harmful substances, this poses a large threat to their health.

### WHAT ABOUT THE ADULTS?

This isn't the first time that scientists have reported finding MPs within the human body. In March 2022, a study conducted by the Dutch National Organisation for Health Research and Development and Common Seas found MPs in human blood for the first time, with the particles present in 80% of participants tested. MPs have also previously been detected in human stool (including the stool of infants).

Elaborating on the need for such studies, Professor Dick Vethaak, an ecotoxicologist at Vrije Universiteit Amsterdam, said, "The big question is what is happening in our body? Are the particles retained in the



body? Are they transported to certain organs, such as getting past the blood-brain barrier?" And are these levels sufficiently high to trigger disease? We urgently need to fund further research so we can find out."

Similarly, a study conducted in 2020 revealed the presence of MPs in the placentas of unborn babies. The findings showed that out of the 6 placentas studied, 4 contained MPs. The researchers explained "Due to the crucial role of placenta in supporting the foetus's development and in acting as an interface with the external environment, the presence of potentially harmful plastic particles is a matter of great concern. Further studies need to be performed to assess if the presence of microplastics may trigger immune responses or may lead to the release of toxic contaminants, resulting in harm."

While studies on how MPs impact foetal growth are underway, experiments on rats have shown that MPs in the placenta of pregnant rats can enter the lungs, brain, muscle tissue, kidney and other organs in the baby rat.

### WHAT CAN BE DONE?

MPs have been discovered at the summit of Mount Everest, as well as deep oceans, demonstrating that



plastic pollution is inescapable. We inhale and ingest these particles daily, and with plastic production set to double by 2040, the situation is likely to become more dire. While we can all practise living a greener lifestyle on an individual basis, the truth is that this is an issue that requires deep-rooted systemic changes for any positive impact to take place. **d**



# NASA's DART Proves It's Serious About Planetary Defense

**Deflecting asteroids, defending Earth!**

**Kajoli Anand Puri |** feedback@digit.in

T

The asteroid hurtled along its path, shedding orange embers as it made its way to its target.

The darkness it had emerged from created a silent veil that absorbed all light until all that existed was the giant rock and anything that lay in its path. It moved with purpose, gaining speed until it finally sunk against the cold, metallic space-craft hailing from a little planet called Earth.

No, this isn't an excerpt from a Sci-Fi novel - it's what happened on September 26, 2022, when NASA's spacecraft crashed into Dimorphos, an asteroid that was a part of a double-asteroid system. The

collision was carried out as a part of NASA's Double Asteroid Redirection Test (DART), an effort to determine whether large asteroids moving toward Earth could be redirected. You know, to save humanity.

## WHY DID WE FLING A SPACECRAFT AT A RANDOM ASTEROID?

The idea of defending the Earth from life-threatening asteroids had been doing the rounds at NASA and the European Space Agency for a while. The two organisations joined forces with other international entities in 2015 to form the Asteroid Impact and Detection Assessment (AIDA). The primary

function of AIDA is to help create defense protocols for Earth in the event that a large asteroid threatens its being. AIDA efforts comprise DART (from NASA), LICIACube (from Agenzia Spaziale Italiana) and HERA (from ESA).

As the name indicates, DART's primary function is to test whether crashing a spacecraft into an asteroid is a feasible solution for veering it off course. It is the first ever test of its kind, and has been created to demonstrate NASA's kinetic impactor technology (which relies on the notion that kinetic impact can be used to veer an asteroid off its course in space).

Scientists chose Dimorphos, a small asteroid orbiting a larger one known as Didymos. This asteroid is estimated to have a mass of 5 billion kilograms, and will never intersect Earth's orbit, which means it was never a threat to begin with. Additionally, its impact with the 560kg DART spacecraft will also



not cause it to eventually steer into Earth's orbit. To ascertain whether the experiment is successful, the original plan was to deploy two spacecrafts - DART and AIM. The latter would deploy a year ahead of DART to capture images of Dimorphos before and after the impact. This would help scientists validate whether the asteroid changes its orbit on impact.

However, this plan was revised as the years went on. AIM was replaced by HERA (heralded by ESA), which will now be observing Dimorphos 4 years after the impact. This will help scientists monitor whether the asteroid would stay on its new course, along with checking to see long-term impacts on the asteroid's surface caused by the collision. It is believed that this data can enhance planetary defense knowledge.

## SO, WHAT'S THE GIST OF IT?

DART was launched on November 23, 2021 10:21 PM PST, and collided with Dimorphos on 26 September 2022, 7:14 EDT). Its payload has a single instrument, Didymos Reconnaissance and Asteroid Camera for Optical navigation (DRACO - you think they chose the acronym first and reverse-engineered the name?). DRACO is a narrow-angle telescope equipped with a LORRI camera, and is being used to capture high-resolution images of the asteroid before and during impact. DART is also equipped with Light Italian CubeSat for Imaging of Asteroids - LICIAcube, courtesy of the Agenzia Spaziale Italiana (ASI). NASA also developed a special algorithm, Small-body Maneuvering Autonomous Real Time Navigation (SMART Nav) to detect the right asteroid and hit it correctly.

With a successful launch, it took 10 months for the spacecraft to reach and then hit its target. Since then, NASA has been collecting data using DRACO and other technologies to determine the depth of its impact.

## WHAT DID NASA LEARN?

The good news is: yes, if a life-threatening asteroid were to make its way to Earth, we can deflect it by essentially Hulk-smashing it with a spacecraft. Prior to impact, Dimorphos took 11 hours and 55 minutes to orbit Didymos. Now, the asteroid takes 11 hours and 23 minutes, with its orbit shortened by 32 minutes.

Accordinging to NASA, an orbital disruption of just 73 seconds would have been considered a success, so it's fair to say that the little spacecraft passed this test with flying colours. This represents a 4.5 per cent change in direction, which is a number that can be improved based on how much time NASA scientists have on detecting killer rocks.



Interestingly, post collision, Didymos has now left a trail of dust and debris in its wake, proving that no matter where humans wander, they love to litter. This dust and debris is made of smaller chunks of the asteroids that broke apart on impact. Scientists are keen to study this further to understand the composition of asteroids. Such knowledge may help craft more efficient planetary defence protocols in the future, with technologies that target asteroid matter itself, rather than just blow it apart. This, of course, is only a speculation at this point as NASA is yet to fully identify what asteroids are made of. Based on images captured by WEBB and HUBBLE, Dimorphos is still continuing to eject debris.

Elaborating on DARTs recent findings, Cristina Thomas, DART's principal investigator said “I am absolutely thrilled about today's announcement of the orbital period change due to the Dart impact. I am

constantly impressed by this team and the phenomenal observations that they were able to collect in the two weeks since the impact. Our team has been preparing for these observations for years as we worked to understand the pre-impact orbital period and this result is a testament to how prepared we were for this moment.”

Nancy Chabot, the DART coordination lead from the Johns Hopkins Applied Physics Laboratory (APL) said “DART has given us some fascinating data about both asteroid properties and the effectiveness of a kinetic impactor as a planetary defense technology. The DART team is continuing to work on this rich dataset to fully understand this first planetary defense test of asteroid deflection.”

As far as proving the initial hypothesis, it's fair to say that DART has shown that kinetic impactor technology is a viable solution for defending the Earth against asteroids. The same can't be said for aliens, though. We'd definitely need a shield for that.

## WHAT'S NEXT?

NASA scientists are collecting data from DRACO, WEBB and HUBBLE. At this point, evidence from all three have gone a long way to indicate just how deeply the collision has impacted the course of Dimorphos. However, there's still plenty of research up for grabs. The next big milestone comes in 2026 when HERA will be deployed to monitor the double asteroid system. This will further validate the test, and may also bring new information regarding the surface composition of asteroids to the fore.

DART marks the first ever instance of mankind altering the path of an asteroid, and with that in mind, the mission offers plenty of reasons to celebrate. The future will see NASA determine how impacts to Earth can be prevented with what they have learned (though, as of writing this, there doesn't seem to be one headed towards Earth anytime soon).

**WHAT'S NEW**

# A good pledge

**O**n October 6, 2022, a coalition of general-purpose robotics companies signed an open letter titled "General Purpose Robots Should Not Be Weaponised." The alliance includes known names from the robotics industry, including Agility Robotics, ANYbotics, Clearpath Robotics, Open Robotics, Unitree Robotics, and the developer of the viral robotics dog that took the internet by surprise in 2020, Boston Dynamics. These companies have led the world by inventing new-age sophisticated mobile robots in the last couple of years. In the open letter, they express their concern about the "possibility of misuse," including the weaponisation of their technology. The open letter signed by the companies is available as a press release via



Business Wire. As mentioned in the letter, the companies have a consensus that adding weapons to consumer-

grade robots that are operated autonomously and are capable of navigating to remote locations "raises new risks of harm and serious ethical issues." Hence, all the companies whose names are mentioned in the beginning have pledged that they won't weaponise their advanced general-purpose robots or the software that makes their robots come to life.

<https://dgit.in/HappyRobo>

**THIS MONTH IN CULT:**

This month in cult we have Boo-Man boozing the best in tech and we also take a deep dive into the world of transparent tech, looking at its journey from being a necessity to a novelty and its evolution through the years.



## What else?

Tom Cruise, who has built a reputation for doing crazy stunts for his films, is set to become the first civilian ever to spacewalk in an upcoming project. Any further details about this project have been kept under wraps for now.  
<https://dgit.in/CrusinSpace>

# We have legs in the metaverse!

**M**eta has announced that they would be adding legs to their Meta Horizon avatars. Yes, you heard that right. The company says that it will let users add legs to their avatars on VR, mobile, and more as part of the company's next generation of avatars. According to CEO Mark Zuckerberg, legs were "probably the most requested feature on our roadmap." The reason why adding legs to the



avatars took time for Meta was that recreating legs in the AR/VR metaverse is difficult. Since the VR headsets only track upper-body movements like hands and facial gestures, getting legs was not an easy task for

Meta. Meta has also confirmed that they aren't just working on legs. The company says that its aim is to add a whole bunch of new avatar-related features. As of now, the company is exploring how to make expressive and photorealistic avatars to represent yourself in different situations. Soon you will be able to create and share your Meta avatar in WhatsApp.

<https://dgit.in/WalkingAround>



### Doom on Notepad

As YouTuber Samperson (Sam Chiet) has demonstrated, the fabled game, Doom can run on Notepad. Yup, that note taking application in Windows can now run Doom. After all the places that the Doom enthusiasts have run the game, what's next?  
<https://dgit.in/doompad>



### Dragons for four seasons

George RR Martin, the creator of Game of Thrones has confirmed that the prequel series to his immensely popular show, House of the Dragon will last for four seasons. He shared this update in his recent blog post.  
<https://dgit.in/4Dragons>



### Key Marvel films delayed

It looks like Disney is out on a mission as the studio has delayed multiple Marvel hailing superhero films have been officially delayed. This includes much anticipated films like Deadpool 3, and Avengers: Secret Wars.  
<https://dgit.in/DElayed>

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**New crime in the metaverse**

Interpol is worried that the metaverse will help criminals execute existing crimes more sophisticatedly. <https://digit.in/nov22-05>

**Elon Musk takes over Twitter**

After months of back and forth, Elon Musk has finally gone ahead and taken over Twitter. <https://digit.in/nov22-06>

# TRANSPARENT TECHNOLOGY



## A need for some, a novelty for others?

**Satvik Pandey** | satvik@digit.in

**W**hen dealing with modern technology, one thing is definitely clear in the minds of the user. It should get the job done. When this box is ticked, the second place where the mind goes is the design of the product. The question that plagues the minds of the users when they are dealing with the looks of technology is, "Does it look cool enough?". And, what this does is that, it brings in trends.

Trends that govern how manufacturers make their products look like. One such trend that has seen a resurgence off-late is that of see-through tech. While there have been see-through gadgets where you peep through their shell to get a look at the electronics packed inside, this design trend has been gathering a lot of steam off late. However, did you know that this trend was first seen in

prisons? Well, if not, then let us take you on a short journey, where we will be exploring everything about clear tech.

### LOOKING BACK IN TIME

The origins of transparent tech dates back to not that long. Transparent tech saw its rise in the mainstream for the first time in the 1990s. We had an array of transparent gadgets in the market. These were not novelty items like we had today. These were pieces of everyday technology that people like us had around their houses.

Don't believe us? Well then look at the image of the telephone receiver here. While it looks cool, it was a regular feature in places where there were phones, after its launch in the year 1993. The brand that made this phone was called Bell Atlantic. Bell Atlantic was later bought out by Verizon, and phones also died out with the advent of mobile phone technology. So, you may not see these around that often. Another bit of tech that was from around

the same era was the Gameboy Color. It was launched about half a decade after the Bell Atlantic Telephone receiver. However, given that it was related to gaming and people tend to like preserving their older game consoles, you can still see some of these circulating in the market. If you are looking to buy one though, we are sure that they will definitely cost you more than the \$69.99 you would have paid for the device back in 1998.

The '90s were crazy times. The trend to create transparent and see through designs for different pieces of tech, was also seen when King-tech, another company that barely

anyone would recognise today, launched their iconic alarm clock. The clock had dual power inputs in the form of a battery and direct connection to the wall socket for back up. It not only looked extremely cool, but also had a utilitarian value as we said before. These weren't a novelty back then. The pricing really hit the



GameBoy Color



### Forward images with texts

WhatsApp will soon add a feature allowing you to forward images and videos with text captions. <https://digit.in/nov22-07>



### First Flight of the Gaganyaan

ISRO to test the First Flight of the Gaganyaan Mission in February 2023. <https://digit.in/nov22-08>

roof when Apple took the charge and started making their computers transparent. The first one of the lot was the original iMac. This was in the year 1998. The new iMac G3 became the talk of the town at the time. The popularity rose to such a level that we can see the ripple effects of that even to this day. There were people like Casey Neistat and many others for whom this beautiful machine was their gateway into film editing. People could peep through the outer shell to look at what was powering their edits.

Come 2009, it was revealed that this was not the first time that Apple had made computers with a see through design. Their Macintosh SE/30, which was one of the most popular computers of the time, had seen a small production run with 10 of those being made with a transparent shell. These were not sold to the public though. All of them were pre-production models that were used to test whether all the components fit in without any problems.

As time passed, the industry trends and demands changed. The industry shifted away from making translucent pieces of tech. One place remained where transparent tech was and is still is, are prisons. Intriguing, right?

### BEHIND THE BARS

Prisons have always been notorious for having a lot of smuggling activities going in and around the place. And, the most prevalent ways of smuggling contraband objects in and out of the prisons, especially in the United States of America, was to stuff that into tech that was given to prisoners.



Macintosh SE/30

**"In many cases, the emergence of transparent technology can be seen as a physical metaphor for the message or mantra a brand is trying to exude."**

**In the case of Nothing, for example, the brand is heavily promoting the ideals of trust, integrity and transparency in the technology industry and by having a physical product literally represent this is a great method for building awareness."**

- KANO VIA MEDIUM

To combat this, the administrators at both the Federal and state levels decided to make the tech that was being used for smuggling activities transparent. And, that is how the modern world (we mean in the 2010s) took notice of transparent tech again.

From CD players to Televisions were all made transparent on special orders from the jail authorities.

They were not top of the line CD players or TVs. In fact, it wasn't until recently that the prisoners got access to flat screen TVs.

However, the benefit of using transparent products instead banning all electronic items from prisons was greatly appreciated. The prisoners got access to these pieces of tech and the jail authorities could have the peace of mind that there was nothing going wrong in their area of surveillance.



An inmate showing their transparent CD player

### THE RETURN

As the world changed and the internet arrived, the trends across the world started shifting. There were people like JerryRigEverything on YouTube, attaching an aspirational value to transparent tech in his videos, and modders on the internet, modifying their tech to have transparent casings and outer shells. The gaming industry also caught on. And, as we have today, almost all the mid to high end gaming PCs are see through.

We also have brands like HTC that started making translucent phones, a trend which was carried forward by Nothing. They first introduced the Nothing Ear (1) TWS earbuds and then the Nothing Phone (1). The gambled on the hype that surrounded these



Nothing Ear (1) earbuds

products and won! And, now we have more and more companies trying to enter that realm.

Brands like dbrand are collaborating with creators like JerryRig to provide skins for devices, giving the users a look inside the devices which they would have otherwise gotten if they opened the device.

As the tech industry moves ahead, and with the top executives of brands taking notice of the growing aspirational value attached to transparent/see through technology, will we see more products being introduced with a see through design? Or will this end up being a passing trend. What do you think? Write to us at editor@digit.in and let us know your thoughts. **d**

**Google discontinuing Street View**

Google has plans to discontinue its dedicated Street View app on Android next year. <https://dgit.in/nov22-13>

**iOS 16 5G Beta soon**

Apple will enable 5G in the iOS 16 Beta software programme soon for select users in the country. <https://dgit.in/nov22-14>

# The best in tech

**"The greatest ever"... really?**

**Boo-Man** | [booman@digit.in](mailto:booman@digit.in)

**T**he last few months have been packed with tech launches. I am seeing gadgets go in and out of the Digit Test Centre like it is a saloon in America before prohibition. And, the best part for people like me, is that almost none of the products are impressive enough to blow our minds. In September we had Apple's 'Far Out' event where they truly went far and out to display how clueless they are. Their marquee phone wasn't optimised and as usual had a ton of features renamed to hype things up. Then, one fine day, on a dull Saturday when I was about to head out of the Test Centre, the NVIDIA RTX 4090 showed up. Team green by then had already announced the product and it had started showing up on the social media handles of many creators overseas. When it came to us after a long time, I was impressed by the unboxing experience. They had put in thought into the packaging, making it into something that any tech enthusiast would appreciate.

However, once our eager reviewers had ripped the whole outer packaging apart, out came the mammoth card. Everyone was astonished by the size of this inferno that was going to burn a massive hole in most of these people's pockets. But, I stood there in thought. There were a million questions running through my mind at the time, with the most prominent one being, is it worth the size? The case that I have definitely wouldn't fit it. And, IF I dare to throw it into my system, without a proper sup-

porting bracket in place for the card, then it would rip the PCIe slot off the board. While we see tech getting smaller by the day, why is it so that the GPUs are getting bigger by the day. Just look at the pictures that are there on the internet. I know that it is a meme that you'd have come across a million times if you are on the PCMR subreddit. But, it does invoke a thought. At least, it did for me. I don't know about other simpletons that seem to be raging in all their glory on the internet. Yes, I am talking to you PCMR expert Simon. I am sure I will get a couple of emails with the following argument "It Is wOrth tHE IncrEAsEd sIzE bEcAUsE It pEr-foRMs bEttEr..."

But, I want Simon and everyone else to spare a thought. At what point do you say no to the increasing prices and size of tech, which is the most important thing in this case? The case that I am using (pun NOT intended) will need to be changed, which means I will have to spend money there. An additional expense

would be the anti-sag support. Yes, I am calling it that. Both these things put together will set me back atleast a quarter of the cost of the card itself. That is, provided I am not going all guns blazing on the case choice.

At 1080p, the performance numbers of the RTX 4090 were great. After looking at these numbers, the head of the Test Center where I work, wrote "...from what we've seen thus far, it seems like the RTX 4090 will have a similarly impressive performance gap over the previous gen GPUs." That is true. But...

I do not want to lash out at the makers of the card. I know the consumers demand the best of the best from them. So, they are left with no choice but to give them the best of what they can make at the time. In this case, it leads to more heat being generated and the size of the cooling system being increased. But there has to be a point where we are content with what we have. And, I just want to know - To what lengths will we go to, in order to fulfil the inherent urge of buying and experiencing "the best in tech"?

It might seem to you that age has finally caught up to me. But, in reality, it is nothing like that. I believe, it is more of being bombarded with the "best in tech" by anyone and everyone that I am sure has caught up to many members of the tech community. Last month, the SKOAR! cover story covered the near death experience of AA games to the hands of AAA games. And, I am sure that there will be a time when everyone will be making the greatest ever piece of tech and everyone except the top rung of the community will feel left out. It is that time of the year when we have festivals around us, meaning we have some time off to slow down during one of those days and spare a thought. If you have something that you come up with, feel free to share that with me at [booman@digit.in](mailto:booman@digit.in).

Game @1080p (RTX 4090)	FPS
Assassin's Creed Valhalla	182
Battlefield V	213
Borderlands 3	95
CIV VI	311
Control	231
Cyberpunk 2077	135
Doom Eternal	483
F1 2022	295
HITMAN 3	131
Metro Exodus	240
Cyberpunk 2077	135
Cyberpunk 2077 RTX	81

# cover story

# THE FUTURE OF AI



Digit attended the Global AI Summit 2022 in Riyadh, Saudi Arabia, and had a chance to interact with AI experts from all over the world to understand how relentless tech progress and AI evolution will benefit humanity all over the world. Through this cover story, we aim to inform our readers of the most crucial areas of AI innovation now and into the future...

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# SAUDI ARABIA'S GLOBAL AI AGENDA

Where are things headed?

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**W**hen you think about Saudi Arabia, you can't not think about oil; and where data is the new oil of the 21st century, how can Saudi Arabia not have any skin in the game?

AI expert Kai-Fu Lee predicted in his 2018 non-fiction book how technological change will create a world dominated by two superpowers: China and the US. Other countries are so far behind it's not even funny, according to the 2019 AI Index Report, published by the Stanford Institute for Human-Centered Artificial Intelligence and IBM Global AI Adoption Index 2022. As far as strategic long-term ambition goes, Saudi Arabia no doubt wants to challenge the likes of Europe, UAE, Singapore, and even India, to that third spot and be at the centre of driving AI conversations and adoption in a big way. We got a small sense of it all while attending September's Global AI Summit held in Riyadh.

A human-robot artist duo to kick off the AI Summit couldn't have been more apt for what was in store. Commencing with a live presentation dubbed 'Humans can have a better future with the use of AI', the opening keynote showcased several scenes of humanity's relationship with AI – the story of



machine learning, AI ethics, and using AI for the good of all of humanity in the future. The president of SDAIA (Saudi Data & AI Authority) H.E. Prof. Abdullah bin Sharaf Alghamdi welcomed over 15,000 attendees from over 90 countries from around the world, calling Saudi Arabia nothing short of the "home of artificial intelligence."

Prophetic words backed by a whole lot of substance, as the AI summit showcased the Kingdom's AI strategies influencing all walks of life – public sector, private sector, and the youth of Saudi Arabia. Set beyond the Kingdom's unique national identity, the event's agenda couldn't be any more

global, its mission spreading far beyond its own borders.

Highly esteemed business leaders and academic experts spoke at the Summit, including Amin Nasser, CEO of Aramco, Dr. Junaid Bajwa, Chief Medical Scientist of Microsoft Research, Sebastian Thrun, CEO of Kitty Hawk, and Dr. Jürgen Schmidhuber, Director of AI Initiative at KAUST, among others.

Some of the world's brightest AI minds congregated at the second edition of Global AI Summit to discuss difficult (but necessary) topics that should be high on any company or nation's AI agenda — what principles should govern matters related to the ethics of AI? Should there be a UN to oversee AI's impact? How do we make AI conversations more than just the tech but more about people? And how AI innovations can reach all sections of the society in a quick and efficient manner? In many ways, GAIS reinforced Saudi Arabia's Vision 2030 ambitions unequivocally. Looking towards the endless possibilities of AI technologies now and

into the future, the summit had CEO of Saudi Data and AI Authority (SDAIA), Dr. Majid Al Tuwaijri to discuss an ecosystem approach to AI adoption.

## PIONEER AI INNOVATIONS TO BENEFIT THE WORLD

The International Telecommunication Union (ITU) and SDAIA signed an agreement to create a set of Global AI Readiness Frameworks for key socio-economic domains such as e.g. health and smart mobility that could help countries adopt best practices in their use of AI necessary for countries to harness AI's full potential. The AI Readiness Framework will be developed by the ITU, with funding support from SDAIA, and will enable a variety of tools and activities to explore national AI best practices and countries' readiness.

H.E. Dr. Abdullah bin Sharaf Alghamdi, SDAIA President remarked, "We truly believe that nations should collaborate and exchange as much of the AI know-how and best practices as possible to maximize the efficiency and effectiveness of national efforts."

Following a Ministerial roundtable at the Global AI Summit, member states of the Digital Cooperation Organization (DCO) agreed to adopt the Riyadh AI Call for Action Declaration (RAICA), which seeks to use AI technology to benefit people, communities, nations, and the world as a whole.

The declaration was signed by all members of DCO including Bahrain, Cyprus, Djibouti, Kuwait, Morocco, Nigeria, Oman, Pakistan, Jordan, Rwanda, and Saudi Arabia. The call to action aims to advance the DCO's commitment to identify and address

present, emerging and future humanitarian issues in the field of AI. The declaration highlights the different ways AI can be used as a tool to benefit the lives of millions of people around the world by improving the quality of work, developing better designed public policies and nurturing efficiencies into the ecosystem.

SDAIA and IBM signed a strategic agreement to drive adoption of artificial intelligence in the carbon capture and industrial domains across the Kingdom of Saudi Arabia. According to the agreement, SDAIA, the Ministry of Energy and IBM will use artificial intelligence technology to detect, map, and eventually reduce carbon emissions across the country. Dr. Majid Al-Tuwaijri, the CEO for the National Center for AI, said, "This agreement with IBM will contribute to creating opportunities by addressing key challenges in the circular carbon economy, petrochemical and industrial domains." Google Cloud, in joint efforts with the Saudi Data & Artificial Intelligence Authority (SDAIA), Ministry of Environment, Water and Agriculture (MEWA) and Climate Engine have launched the Earth Observation and Science Program. Using that technology and AI, the program will provide sustainability solutions for the region.

## WHILE BOOSTING LOCAL AI ECOSYSTEM

Of course, the Summit attracted a lot of local investment and interest within Saudi companies pushing the frontier of responsible AI adoption. To that end, Saudi Aramco signed an agreement valued at \$250 million with Beyond

Limits, a California-based artificial intelligence technology company, to build a global AI corridor, the oil behemoth announced at an industry event in Riyadh last week. The global AI corridor would create an ecosystem in the Kingdom by commercialising complex AI solutions, training Saudi talent and supporting Saudi startups.

KAUST President Tony Chan announced a new partnership with Saudi Data and AI Authority (SDAIA) as part of his address at the Summit. "There is enormous demand for AI courses and training in the KSA, and KAUST will take a leadership position on that, in partnership with SDAIA," said Chan. KAUST Academy is creating an educational program that will nurture the next generation of Saudi talent with its series of hands-on training courses in artificial intelligence, among other themed areas. The Saudi Company for Artificial Intelligence (SCAI), has signed an MoU with the Saudi Technology and Security Comprehensive Control Company (Tahakom). The two parties will collaborate to develop the AI infrastructure and super-computing capabilities necessary to power the next generation of AI applications.

## INSIGHTS BY AI EXPERTS

We spoke to a lot of field experts that are being disrupted by AI applications – everything from health and medicine to ethics and beyond. The overall sense we got from the second edition of Global AI Summit organized in Saudi Arabia is that AI cannot just be a conversation dominated by tech experts and computer science nerds anymore, especially when it has far-reaching implications on commerce, safety and security of everyone from individual users to nation states. There's a need for more nuance in how AI evolves across various sectors from now onwards into the near future.

In the pages that follow, we try to give you various perspectives on individuals and organizations that are working on the cutting edge of AI progress. We give you a sense of their challenges and opportunities, so you can better understand what are some of the ways AI innovation is happening across the world. **d**





# HOW TO SURVIVE ROBOTS VS HUMAN JOBS

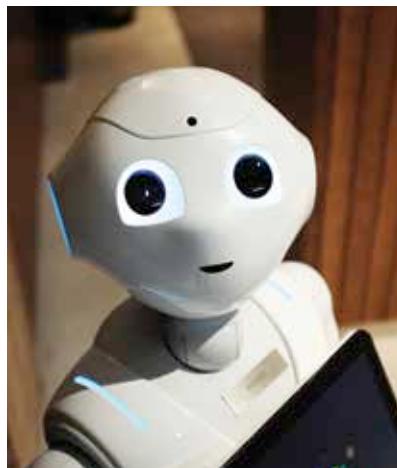
**Humanity is racing towards a future of fully automated luxury capitalism in a post-jobs world**

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In the future, machines will replace humans in jobs. This is not controversial: it's what machines have done since well before the start of the industrial revolution. Petrol pump attendants were replaced by automated pumps, secretaries were replaced by Microsoft Office. This is what economists call the substitutive effect of automation: humans are substituted in jobs by machines.

## THE COMPLEMENTARY EFFECT

From time to time, fears have been expressed that humans would run out of jobs entirely. I first wrote about this concern in 1980, and like many other people at the time, I under-estimated the resilience of the complementary effect of automation. To simplify a little, this means that when a human job is automated, the amount of wealth generated in the economy increases. That increases demand, which in turn increases employment. The new jobs that are created are done by humans because machines can not yet do everything that we can do for money.



The complementary effect probably won't last forever. The amount of compute power you can buy for \$1,000 continues to increase exponentially: Moore's Law is evolving, not stopping. This means that in a decade, the machines we have will be 100 times as powerful as the ones we have today. In two decades the multiple will be 8,000, and in three decades, 1,000,000. There is no straight-line correlation between compute power and the ability of AI to carry out human tasks, but the two

do travel together. People who airily dismiss fears about medium-term technological unemployment are committing the Reverse Luddite Fallacy. They are making four mistakes.

## THE REVERSE LUDDITE FALLACY

First, they forget that we have seen technological unemployment before. In 1915 there were 22 million horses working in America, pulling vehicles and working on farms. The horse population of America today is two million. That is severe technological unemployment.

Second, they argue that because automation has not caused technological unemployment in the past, it will not do so in the future. The past is often a good guide to the future, but it is far from perfect: if it was, we would not be able to fly.

Third and fourth, they are thinking too short-term, and they are not taking into account the astonishing power of exponential growth. Machines will not be able to do everything humans can do for money in the next year, nor in the next decade. It is also true that

technologies are not implemented overnight. It takes time for companies to figure out how to use them. But three decades from now, when our machines are 1,000,000 times more capable than they are today, they will probably be cheaper, faster, and better at almost everything that humans can do for money.

Some people reply that we will endlessly create jobs which machines are unable to do, either because they are not creative, or because they are not conscious, and therefore have no empathy. These are likely to prove vain hopes: AI systems are creative already, and they can decode human emotions very effectively. They can also provide the same appearance of empathy that humans often do at work.

If technological unemployment is coming, we must transition to a very different type of economy. I call the transition the “economic singularity”, using a term from physics which was first applied to human affairs by computer pioneer John von Neumann. Back in the 1950s, he said we were “approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue.” How should policy makers respond to the challenges presented by the economic singularity? Let’s look at a few options.

### SHOULD WE TRY TO PROTECT JOBS?

In America, some truckers’ groups want to ban the introduction of self-driving lorries. Not unreasonably, they argue that the technology will put millions of them out of work, with serious knock-on effects for their families and their communities. This could be an effective strategy if they were not in a competitive market: train drivers unions in the UK have prevented efficiency measures for years. But unlike trains, trucking is a competitive market. And even if the federal government were to wave a magic wand and give the truckers their wish, the US economy would become less competitive internationally. Protecting jobs stifles competition, kills innovation, and makes everyone poorer.



### SHOULD WE TAX ROBOTS?

Taxing robots in order to fend off or mitigate technological unemployment would also stifle both innovation and competitiveness. It also suffers from conceptual difficulties. Machines will rarely replace humans on a one-for-one basis, and most of the “robots” automating jobs in the coming years will be software, not androids. Humans will disappear from many call centres, for instance, and be replaced by AI systems running on banks of servers in big buildings with powerful air conditioning. Does the government tax one entity – namely the AI system - or each individual server? Or does it estimate the number of humans who have been laid off by the system and calculate the tax based on that?

If we are going to tax automating machines, do we start with tractors and weaving machines? Or do we just tax new instances of replacement? Imagine



two firms making the same product. One has been going for a few years, and recently replaced half its staff with machines. The other is a startup, and used machines from the outset. The former would be hit by a tax that the latter would escape. Not only is that patently unjust, it would simply mean the former would close, and the tax base would disappear anyway.

### SHOULD WE INTRODUCE A UNIVERSAL BASIC INCOME?

There are a number of problems with introducing UBI in the types of economy that exist today, which is why it has never been done, except in limited, temporary trials. The biggest problem is the little word in the middle: basic. Without spending implausible amounts, the best that UBI can do is to make its recipients poor. That is much better than being dead, if that were the alternative, but it is nowhere near good enough. As the noted economist John Kay said, “either the basic income is impossibly low, or the expenditure on it is impossibly high.”

### ABUNDANCE

Despite its failings, the proponents of UBI have hit upon a vital insight: in a post-jobs world, there are going to have to be substantial transfers of income and / or wealth from the minority who are still in paid employment, and from the owners of major assets. The problem is that if the cost of a good life remains high, then these transfers will be onerous, and therefore avoided.

Wealthy people will move to jurisdictions which don't enforce the taxes, or they will simply cease to work at all.

The solution is not to persecute the wealthy, but to reduce the cost of a good life. This means developing the economy of abundance, in which the prices of all the goods and services that you need for a very good standard of living are very low. Then the transfers from the wealthy need not be onerous – and avoided.

This does sound crazy when you first hear it, but if you think about the music industry, you can see how it



could happen. Twenty years ago, not even a rich person could listen to any piece of music which took their fancy. Now it costs \$10 a month, thanks to Spotify and similar services. Music, of course, is now digital, so it is dematerialised and non-rivalrous, as economists say. But more and more of what we value these days is digital, and this trend will continue. In another decade or so, many of us will probably spend hours at a time in virtual realities.

### FULLY AUTOMATED LUXURY CAPITALISM

What form of economic and political governance will best suit this post-jobs world? Some have argued for a version of communism, called fully automated luxury communism. While



this approach deserves credit for facing up to the exponential future, it overlooks two important facts. First, it is no coincidence that wherever communism has been tried, it has degenerated into some of the worst regimes the world has ever seen. Communism grants absolute power to a ruling elite, and we all know what absolute power does to people.

The other fact is the astonishing power of markets. Markets incentivise people and firms to provide goods and services that are genuinely valued, and to do it efficiently. Allied with technology, free markets (with appropriate welfare safety nets, and with regulation to ensure that markets are not suborned) have made this the best time ever to be a human. Technology provides potential solutions to problems, and markets provide the incentive for people to develop and invest in those solutions. This is how China has gone from backwater to superpower in a single generation.

Even in the abundance economy, it will be a very long time before we have the technology to build the matter replicators found on Star Trek's USS Enterprise, so goods and services will impose a residual cost. And as long as we are human, we will also face shortages of things like attention, artisanal goods, and works of art. Markets are the best system we know of for resource allocation, so to start with at least, the optimal system for the economy of abundance is likely to be a form of capitalism: let's call it "fully automated luxury capitalism".

In fully automated luxury capitalism, people would continue to trade and innovate. Fortunes (and also more modest wealth) would continue to be made by creating art, artisanal goods, and other forms of intellectual property. Even when AIs can create objects more beautiful than the ablest human craft worker, there could well be a premium attached to items which are "made by hand". Judiciously trading scarce assets such as beach-front properties, and original Aston Martin DB5s could remain another source of wealth and income.

But not everyone will be able to or inclined to participate in this reduced commercial world. The three central insights underpinning the idea of fully



automated luxury capitalism are (1) that most humans will not have jobs, (2) that everybody must be wealthy – or at least comfortable rather than poor; and (3) that the taxes levied on wealthy people and organisations must be affordable. The only way to achieve this is to drive prices down – to evolve the economy of abundance.

If we can achieve the economy of abundance, then we should be thankful that humans are not condemned to



do jobs forever, because although some people love their jobs, plenty of research shows that most people don't. Many people will take time to adjust, and some will need help, but a post-jobs world could be one in which humans do whatever we want to. We could have a second Renaissance. The Reverse Luddite Fallacists are not only probably wrong – they are also profoundly pessimistic.

### CLOTHIFY AND CONSTRUCTIFY

Is the economy of abundance possible?

Obviously, not everything is digital, like music. Can we reduce the cost of non-digital goods and services too, like housing and clothes? Can we create their Spotify equivalents, "Constructify" and "Clothify"?

We can, if we do three things. First, we must take the expensive humans out of the production process for all goods and services. That is exactly what automation does, so this is a case where the problem is also part of the cure.



Second, we must make energy very cheap. The cost of solar cells is falling fast, and battery technology is improving. Many observers think that within 20 or 30 years, electricity could not only be much cheaper to generate, store and transmit than the oil and gas we get by digging up dead dinosaurs – it could be almost too cheap to meter. This would also reduce CO<sub>2</sub> emissions much faster than most people today think possible.

Third, we must use AI to make all production processes as efficient as possible, requiring minimal material inputs.



## AUTOMATE AND REDEPLOY

Andrew McAfee pointed out in his recent book "More From Less" that we are already on this path, but there is much further to go. We should therefore not hold automation back; instead we should accelerate it. The mantra for companies and for countries should be: "automate and redeploy, rinse and repeat". Companies which automate rapidly will prosper, but the outstanding ones will be those which also genuinely value their people: companies where people actively seek to work out how to automate their tasks, in the knowledge that they will be rewarded both with pay and with more interesting work in the future.

## THE CHURN

For a decade or three before technological unemployment arrives, AI-driven automation will have an increasingly disruptive effect on the job market: the Churn. People will lose their jobs to machines, and they will have to be redeployed within companies, between companies, and between industries. With increasing frequency. Workers will have to learn how to work with machines: AI won't replace humans in all jobs, but increasingly, humans who can work with AI will replace those who cannot. We cannot yet say what jobs people will be re-trained to do; no doubt some of them will surprise us.

This process will be disturbing and frightening for many of us. Governments will need to support their people through the Churn with enhanced welfare programmes and other methods of economic support. The experience of massive government intervention during the corona virus crisis should teach us valuable lessons about what works and what doesn't.

## EDUCATION WILL BECOME VACATIONAL, NOT VOCATIONAL

During the period of Churn, we will need to re-train ourselves more and more frequently, and do it faster each time. Education and training are notoriously hard industries to reform. Here again, AI will provide solutions as well as raising the challenge in the first place. Education and training will become

personalised, as we all acquire learning assistants - digital coaches which know better than we do (and better than any human teacher could do) what we already know, what we need to learn next, and how to optimise that learning process. For many years, these assistants will work alongside human teachers rather than replacing them. If we manage the transition smoothly, then by the time the replacement happens, we will hardly notice, and we won't object. Once we arrive at the economy of abundance, some people will continue to re-train for economic activity, but for most of us, education will become vacational, not vocational. Which is what many of us wanted it to be all along.



## PANIC OR PLAN

To survive the economic singularity, we need to identify the optimal outcome in a largely post-jobs economy. If it is indeed the economy of abundance, and fully automated luxury capitalism, then we need to build a consensus for that, and a plan for how to get there without panic. Panic at the thought of racing toward technological unemployment without a plan could be almost as bad as the fact itself. But if we can manage the transition through the economic singularity successfully, the outcome will be wonderful. **d**

### About the author:

Calum is a sought-after keynote speaker and best-selling writer on artificial intelligence. His non-fiction books on AI are *Surviving AI*, about strong AI and superintelligence, and *The Economic Singularity*, about the prospect of widespread technological unemployment. Before becoming a full-time writer and speaker, Calum had a 30-year career in journalism and in business, as a marketer, a strategy consultant and a CEO. He studied philosophy at Oxford University, which confirmed his suspicion that science fiction is actually philosophy in fancy dress.

# IN PURSUIT OF ETHICAL AI

**Always walking a fine line**

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Eighty years ago in 1942, acclaimed science fiction writer, Isaac Asimov had the foresight to anticipate the potential risks of autonomous, near-sentient robots or technology systems of the future to propose his Three Laws of Robotics in order to limit their danger to humanity. In Asimov's fictional ethical code, robots would never harm humans (1st law), robots would always obey humans (2nd law), and robots would always protect themselves (3rd law) as long as they didn't contradict the first two laws.

Asimov understood that technological advancement was inevitable, the problem he wanted to avoid was the unintended consequences of poorly designed technology. By proposing his Three Laws of Robotics, he was undoubtedly forcing machines to operate under a moral code of conduct. If you expand that logic to AI, then it's nothing but forcing the architects of game-changing AI applications to take greater moral responsibility for their actions – from the drawing board itself, not after releasing a poorly thought-out or potentially dangerous AI algorithm to cause irreparable damage to our way of life.

"AI Ethics can be defined as a socio-technical lens on the design and impact of AI solutions on our societies, involving the application of

principles and techniques to ensure responsible development and use of AI technologies," according to Ria Cheruvu, Lead Architect - AI Ethics, Intel. AI Ethics can cover various domains, she says, including Transparency; Sustainability; Fairness and Bias; and Security, Safety, and Privacy.

## NEED FOR ETHICAL AI

The importance of ethical AI is highlighted from not only a technical or organizational standpoint, it also takes into account individual and societal perspectives around some serious topics: Algorithmic bias causing harm and discrimination to certain populations. Transparency and trust concerns with AI systems, with the potential to severely impact consumer confidence and brand reputation. Technical failures and vulnerability to attacks, particularly critical to assess for high-risk scenarios and data types, such as vulnerable and sensitive medical records. Impact of AI systems on the climate, such as the carbon footprint or AI systems, and even copyright and license concerns for AI technologies in the future, among other things.

Mariagrazia Squicciarini, Chief of Executive Office and Director AI, UNESCO, explains this further. "AI has an advantage that is much more pervasive – so it's not only one sector, it can help all sectors. And what you ultimately need is skilled human resources, good computational ability and access to data," she says.

Ethical AI means that it needs to be better framed for people to be able to not give their data by the time they don't want to, or know what they're used for and consent to it. Ethical AI can level the playing field, allow developing countries to leapfrog ahead of advanced economies to benefit from technological progress, according to Squicciarini.

"At the levels of organizations and businesses, Ethical AI can be approached from defining principles and guidelines to ensure responsible development practices are followed within an organization. These processes and objectives are known as ethical governance," says Intel's Ria Cheruvu.

"At the technical level, toolkits, frameworks, and methodologies can play a key role in accelerating identifying issues with AI systems early-on (e.g., transparency mechanisms)



**RIA CHERUVU**  
Lead Architect - AI Ethics, Intel

## ASILOMAR AI PRINCIPLES

**M**IT cosmologist Max Tegmark, Skype co-founder Jaan Tallinn and DeepMind research scientist Victoria Krakovna worked extensively with AI researchers and scholars from various disciplines to create the 23 guidelines for AI, known as the Asilomar AI Principles. Highlighted below are only 13 guidelines from the Ethics and Values section of the full 23 guidelines:

1. **Safety:** AI systems should be safe and secure throughout their operational lifetime, and verifiably so where applicable and feasible.
2. **Failure Transparency:** If an AI system causes harm, it should be possible to ascertain why.
3. **Judicial Transparency:** Any involvement by an autonomous system in judicial decision-making should provide a satisfactory explanation auditable by a competent human authority.
4. **Responsibility:** Designers and builders of advanced AI systems are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications.
5. **Value Alignment:** Highly autonomous AI systems should be designed so that their goals and behaviors can be assured to align with human values throughout their operation.
6. **Human Values:** AI systems should be designed and operated so as to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.
7. **Personal Privacy:** People should have the right to access, manage and control the data they generate, given AI systems' power to analyze and utilize that data.
8. **Liberty and Privacy:** The application of AI to personal data must not unreasonably curtail people's real or perceived liberty.
9. **Shared Benefit:** AI technologies should benefit and empower as many people as possible.
10. **Shared Prosperity:** The economic prosperity created by AI should be shared broadly, to benefit all of humanity.
11. **Human Control:** Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.
12. **Non-subversion:** The power conferred by control of highly advanced AI systems should respect and improve, rather than subvert, the social and civic processes on which the health of society depends.
13. **AI Arms Race:** An arms race in lethal autonomous weapons should be avoided.

through qualitative and quantitative metrics, as well as helping mitigate certain types of issues (e.g., bias). Technical tools are not a one-size-fits-all solution for AI Ethics – consequently, a key next step identified in the Responsible and Ethical AI space is to strike the right balance between tooling and societal aspects,” she adds.

### ETHICAL AI CHALLENGES

A critical challenge with standardizing ethical AI concepts we see today is identifying the right definitions and scope of the AI system, in relation to stakeholder personas and the AI lifecycle, according to Ria Cheruvu of Intel.

“These challenges of developing ethical AI standards also open up important opportunities, including reaching alignment at national and international levels towards how AI systems should be implemented, guidelines, and guardrails towards the system. A great example of this is determining categorizations of ethical AI risk that can apply to different sets

of AI systems for varying use cases, enabling implementation of ethical AI guardrails,” argues Cheruvu.

UNESCO’s Squicciarini echoes Cheruvu’s sentiment, that it remains a challenge on how to translate AI implementation into government guidelines right now all around the world.

“Let’s say by the time you have to move from the principles to the practice, you have to actually start by serving what already exists. The challenge that AI has is that it touches so many parts of governments. And we know that governments very often work in silos, not because they are nasty, but simply because it is very complicated to bring everybody on board,” says Squicciarini.

But the good news is that there is a lot of work being done around the world and there are many government initiatives around regulating AI, according to Squicciarini.

“I think we shouldn’t start from scratch, we shouldn’t reinvent the wheel. We should check what work works and share the good practices from one part of the world to another,” she emphasizes.

Intel’s Ria Cheruvu is definitely trying to push the realm of ethical AI beyond just business and bottomlines of companies. “My team within the Network and Edge engineering group at Intel creates technical toolkits and frameworks in the AI Observability and Robustness spaces to help our users better comprehend AI model outcomes, as we calibrate our tooling capabilities with customers. We see great value in collaborations across industry, academic, government, and other organizations to drive alignment towards the use of AI, and the right balance of technology that we can introduce to help reach ethical AI,” explains Ria Cheruvu. ■



**MARIAGRAZIA SQUICCIARINI**  
Chief of Executive Office and  
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# FUTURE OF AI IN HEALTH

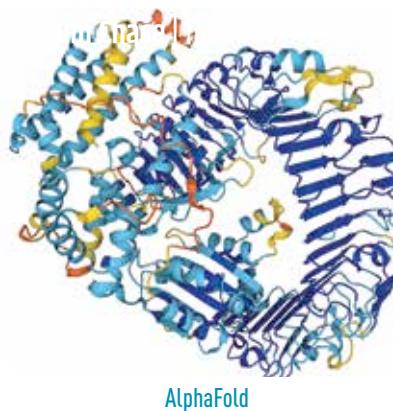
**Getting medication from an AI. Is this the future?**

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**O**ne of the biggest proofs that AI isn't just a passing fad, of AI's unparalleled transformative power, came in the form of DeepMind's AlphaFold – an AI program that effectively solved arguably the most difficult challenges in understanding one of the most fundamental building blocks of human biology and, in effect, all of life.

Before AlphaFold, modern science knew 3D structures for under 20% of roughly 20,000 proteins in the human body. These protein structures had been verified thanks to decades of tireless scientific pursuit, involving experimental methods like X-ray crystallography and nuclear magnetic resonance – needless to say, all of these cutting-edge methods to predict the 3D structure of a protein molecule wasn't just extremely expensive, it was also extremely time consuming. But thanks to DeepMind's AlphaFold, within just a year, 3D structures of 98.5% of all protein structures in the human body have been predicted – over 58% of them with high accuracy no less.

This is but just a tiny glimpse of what truly groundbreaking AI application can help humanity expand its knowledge of health sciences in a



way that just wasn't possible until the AlphaFold breakthrough.

## NEED FOR AI IN HEALTHCARE

Just think about your own experience of visiting a hospital or medical care facility in the recent past. From the point of booking a doctor's appointment to visiting the hospital, think of all the various touch points where technology can come in and make positive disruptions. What if there was a better, faster way of filling up the general admission form? Could technology step in to reduce all the administrative work done by nurses and doctors, day in and day out, so they have more quality time to spend with actual patient care?

There are a number of administrative applications for artificial intelligence in healthcare. The use of artificial intelligence in hospital settings is somewhat less game changing in this area as compared to patient care. But artificial intelligence in hospital administrative areas can provide substantial efficiencies. AI in healthcare can be used for a variety of applications, including claims processing, clinical documentation, revenue cycle management and medical records management.

One of the biggest challenges of infusing AI in healthcare at scale is the unavailability of data standardisation models – because artificial intelligence in healthcare requires access to large amounts of data in order to be effective, this is the most important problem that needs to be fixed by the healthcare industry as a whole. Another challenge is that there is a risk of bias if the data used to train the algorithms is not representative of the population as a whole. Finally, there is a lack of standardisation across different artificial intelligence systems, which can make it difficult to compare results or combine data from multiple sources.

## EXPERT VIEW

Microsoft Research's Chief Medical

## TOP ALGORITHMS IN HEALTHCARE

**Naïve Bayes** - Based on the Bayes theorem used to determine probability of an event based on prior knowledge of conditions, this is one of the most efficient machine learning algorithms in use currently. All clinicians, both medical doctors and clinical psychologists, have been taught Bayes' rule at university. It's abundantly used in the healthcare industry for designing systems that fundamentally help improve the quality of data leading up to disease prediction.

### Support Vector Machine (SVM)

(SVM) - SVM is a critical supervised machine learning model that's capable of handling various data sets to resolve multiple problems, especially in a healthcare setting. According to experts, classification of medical data is the primary way SVM can do medical data analytics – and this very fundamental classification of medical data is vital for clinical coding and transforming the medical data into standardised statistical code. Researchers around the world have verified SVM's ability to better detect prevailing health conditions such as cancer, blood pressure, and diabetes – simply through medical data analytics.



Futuristic doctor's face

**Random Forest** - Random forest is a commonly-used machine learning algorithm which combines the output from multiple sources to reach a single result. Its ease of use and flexibility have fueled its adoption, as it handles both classification and regression problems, according to IBM. The random forest algorithm has applications within computational biology, allowing doctors to make estimates around drug responses to specific medications, based on gene classification and biomarkers.

### Logistic Regression

According to IBM, this type of statistical model is often used for classification and predictive analytics. Logistic regression estimates the probability of an event occurring based on a given dataset of independent variables. Specifically in the medical field, this analytics approach can be used to

predict the likelihood of disease or illness for a given population pretty effectively. Everyone from healthcare organisations to general physicians in private practice can set up preventative care for individuals that show higher propensity for specific illnesses, using logistic regression models.

Scientist, Dr Junaid Bajwa believes we are living in a moment where technology, data and consumer demand is reshaping the healthcare market and redefining how value is defined and captured. This convergence of technology and medicine today, in delivering increasing levels of automation and soon increasing levels of artificial intelligence (AI), will lead to an autonomous future for healthcare.

"Medical knowledge doubles every 73 days," according to Dr Junaid Bajwa, when he spoke to us at the Global AI Summit, Riyadh. Bajwa believes OpenAI's GPT-3 could hold the answer to solving various challenges in healthcare, offering more specific, personalised, and result-backed healthcare solutions, treatments, and consultations to people across the globe.

With the World Health Organisation predicting a shortfall of 14-mil-

lion healthcare workers by 2030, Dr Bajwa was hopeful of the role that technology can play in fixing the gap. "Healthcare is exorbitantly expensive with 5% of the population taking anywhere between 25-60% of those resources from the most vulnerable in society. We need to move to a healthcare system that is not just about diagnosis and treatment, but about recognising and prevention,

and ultimately towards personalisation and personal healthcare," he said during a medical summit in the Middle East last year.

Dr Bajwa obviously feels AI can play a huge role in improving healthcare all around the world, but he's acutely aware of how AI requires access to data, access to domain expertise and access to massive computing power to work.

"Today's story is one of automation of processes, aggregation of data, moving to intelligent analysis and AI, and then repeating that cycle. If we get this right, it really has the potential to reduce costs and support clinicians by unmasking occult disease types, generalising new associations and perhaps even generating new novel hypotheses and new mechanisms with which we diagnose disease in ways that we could have only imagined in the past," he summed up his thoughts. **d**



DR JUNAID BAJWA



# FUTURE OF AI FOR FOOD

What does the future for AI look like? What are some of its next evolutionary steps? The world's brightest minds on the topic try to give us some answers.

Jayesh Shinde | jayesh@digit.in

"Right now, in AI there's a huge focus on this concept of foundational models, like DALL-E or GPT-3, that are trained on tremendous amounts of data. Not everyone can afford to do those, so only big tech companies like Microsoft, IBM, Google, can really afford to make those investments.

But there's a challenge associated with them. If we look at GPT-3, which is the largest AI language model, there's a tremendous amount of danger that exists in the form of bias, in the form of hatred, in the form of propagating bad ideas and bad concepts and bad actions that humans have taken in the past. It's important for us to remember that AI is just math, right? You're using math and you're using computer science, and the math itself is not inherently biased. The bias comes from the data, which is a representation of the bias of the bad past decisions that humans have made. And so we need to make sure that when we, especially big tech companies, are approaching these models, that responsibility is first and foremost. Responsibility is not just bias. Responsibility is inclusivity, explainability, and making sure that consumer protection is involved. A new emerging field called neuro symbolic or logical neural nets will start applying more human-like intelligence to actual training of AI models."

"Can machines have their own thought experiments or can machines guess? I think the answer is yes, for sure. As in some areas, machines have set us models in applications beyond our own expectation, and in some degrees have forced us to adapt ourselves into them.

So what are the necessary conditions for machines to have thought experiments? I believe it's the AI computing power. The demand for computing power by the top tier AI algorithms has increased by nearly a million times in the last decade. We can only rely on machines to develop their own insights on several issues.

We do have to understand each and every step of the process, but still, we could use them more efficiently and with better governance. Right now, I believe that any new development of AI is just like the moment an apple fell on Newton's head. Universal AI infrastructures would be the fundamental elements to drive the innovation paradigm shift of the future."

"In school we teach each student math not because we think every one of them will grow up to become mathematicians, but because mathematics will help them do many other things in life and apply knowledge better, and that's how AI is similar to math.

AI will make humans more efficient at their jobs, freeing up time from the mundane and make them enjoy their lives better, but I don't think AI will replace humans fully. I know a lot of people are afraid of that possibility, but I don't think it will ever happen. If data is the new oil, then AI is the technology of data.

If you look at some of the UN Sustainable Development Goals like no poverty, no hunger, availability of water for all and so on, AI can play a huge role in advancing these goals. Because most of the world is very poor and it cannot afford a lot of gadgets and gizmos. Only AI can develop and encapsulate new forms of technological application that can benefit everybody, and help achieve global equity in many ways faster than we can otherwise imagine on our own."



**DR SETH DOBRIN**

Founder, Qantm AI.

He was IBM's first ever Chief-AI-Officer.



**DR XU LI**

Chinese Computer Scientist,  
Co-founder and CEO of SenseTime



**PROF TONY CHAN**

President, King Abdullah University of Science  
and Technology

# DALL E DRAWS

Team Digit spent some time tinkering with Dall E, trying to get it to put their wildest imaginations in colour. Here's what we got.

Team Digit | [feedback@digit.in](mailto:feedback@digit.in)

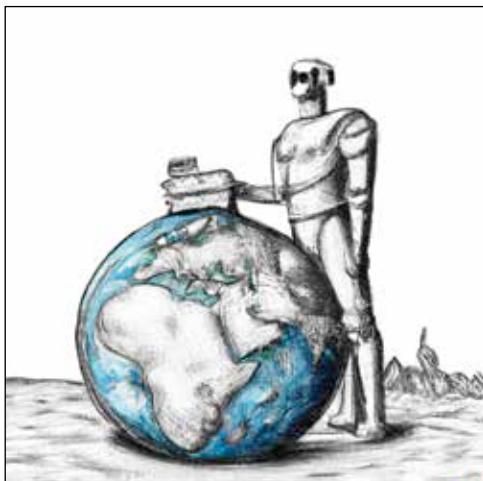
→  
Astronaut  
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←  
AI taking  
over the  
Earth,  
photorealistic



→  
AI taking over  
the Earth  
sketch art



←  
A rat driving  
an f1 car in  
Monaco



→  
A chihuahua  
eating masala  
dosa in  
Maldives



←  
An oil  
pastel  
drawing of  
an annoyed  
cat sitting  
on a throne  
in space



# BIGGEST MYTHS OF AI

Elon Musk is terrified about humanity creating sentient AI like in the Terminator and The Matrix movies. But surely it's an overreaction? What other myths exist about AI? And what are our biggest hopes on AI's promises? We asked these questions to actual AI experts, and this is how they responded.

Jayesh Shinde | feedback@digit.in



"The notion that AI will be so smart that it will take over our lives. At the end of the day, AI is just a tool. Pretty much like the shovel or kitchen knife, it can be used both in good ways and bad ways. But what we shouldn't forget is that the responsibility will always be with humans. So if an AI goes wrong, we have to find the people behind it and punish them, and not necessarily the technology on the front."

**- SEBASTIAN THRUN, CEO of Kitty Hawk Corporation, and chairman and co-founder of Udacity.**  
He's a German-American computer scientist.



"Most people have no idea about the importance of the current exponential growth in technology. Forget about smart AI, there's this idea that we're already in the fourth industrial revolution, which I think is absolutely not true – we aren't even in the subset of an industrial revolution. What we're at the beginning of is in fact the information revolution, which started around the 1960s, and it's going to have a bigger impact than the agricultural or the industrial revolution."

**- CALUM CHACE, Speaker, Best-selling author of *Surviving AI* and *The Economic Singularity***



"The biggest myth about AI is that it's a black box – it's not. No matter how sophisticated the AI algorithm designs, they can be changed, adjusted and continuously refined. So AI isn't something that we can't do anything about, because we retain control on how we shape its future."

**- MARIAGRAZIA SQUICCIARINI,**  
Chief of Executive Office and Director a.i.,  
UNESCO



"Biggest myth about AI is that it's dangerous and it's surpassing humans and human intelligence. Don't get me wrong, AI can outperform in many human tasks like image, text and voice recognition, so in these assistive technologies AI will be a great helper to humankind. AI will never be dangerous, I don't think it will ever acquire consciousness, and malevolent use of AI will be only controlled or limited by the human mind."

**- ALEX ZHAVORONKOV, Founder and CEO, Insilico Medicine**



"AI is going to take away all of our jobs, AI is dangerous, and that AI wouldn't help humanity to have a better life!"

**- MAJID ALSHEHRY, Official Spokesperson, Saudi Data and Artificial Intelligence Authority**



"Today, there's a lot of hype around AI, and a lot of solutions marketed as AI are actually quite simple linear regression models and scripts. Apart from a tiny core of impressive AI out there, but a lot of it is just hype and marketing and really not all that exciting, to be honest."

**- GEIR ENGDAHL, CTO and Co-Founder of Cognite**



"You have to be good in math to excel at AI, or you need to be amazing in science to master the nuances of AI. If AI learning models are designed intelligently, with intuitive use at its very core, then I think everyone can be a potential expert at learning how to apply AI across different fields."

**- HEIDI SAMPANG, MD, Philippines Flying Labs**

# BIGGEST HOPE OF AI



"AI has a very big potential to help the humanitarian sector. For example, with intelligent mapping of areas, AI can easily identify areas affected by natural disasters or conflict anywhere in the world – but we aren't doing that yet at the humanitarian level, we aren't getting the data for the right kind of analysis. This leads to fragmented responses to any disaster. But with AI coming in, my hope is that we can better target our action plan and limited resources to have the maximum humanitarian impact to natural catastrophes all around the world."

*– HEIDI SAMPANG, MD, Philippines Flying Labs*

"The way I see AI is really no different from the way software and the internet has changed the world. It's not an abstract thing, AI is going to be all-pervasive, it's going to be everywhere in every software stack, and that's going to change the world. It's not going to happen overnight because it's not just about the technology, it's about the people, the process, the change management. But ultimately as software is eating the world, AI is going to have an even bigger impact in the near future."

*– DEBANJAN SAHA, CEO, DataRobot*



"If human beings are sufficiently patient to study and understand not only the concepts of AI but also innovative enough to understand when, where and how to apply AI in different situations, we will see that AI has more advantages than disadvantages. It will give us the opportunity to solve the problems we face as individuals and communities better than ever, and that's what I'm most excited about the potential for AI all over the world."

*– TOYOSI AKERELE-OGUNSIJI, Founder, RISE Networks*



"The rate at which we are progressing with AI is amazing, but we need to remember that there are lots of parts to AI than just pure machine learning, and if we improve on those additional aspects of AI as well as we have done with machine learning, there'll be a tremendous future for what can be done by humans in what I call as the AI Age."

*– CONRAD WOLFRAM, CEO, Wolfram Research Europe Ltd*

"My biggest hope is that AI will help us use resources as efficiently as possible. It will help all of humankind all over the world to do as much as possible and fulfill our maximum potential while reducing our energy consumption, material impacts and environmental impact while leading healthy and happy lives in the future."

*– GEIR ENGDAHL, CTO and Co-Founder of Cognite*



"I think AI is going to transform all of our lives, it's going to be as impactful as the printing press or the book has been as a catalyst to human progress. AI will help us understand what people do well, and do it with us, teach us and do it better. More importantly, I think AI will help us get rid of remedial and repeatable work most of us find ourselves doing every single day. I think our AI future's going to be great!"

*– SEBASTIAN THRUN, CEO of Kitty Hawk Corporation, and chairman and co-founder of Udacity. He's a German-American computer scientist.*

"AI is going to offer a huge advancement to the entire humankind, it's an extension of the human brain – like a sidekick which can add on to and plug the holes to a lot of stuff that we simply aren't capable of doing. In all those instances and more, AI can take us forward and fill those blanks as we go ahead. Immediately, AI is going to be very useful in the medical industry – everything from radiology, brain surgery or even treatment for cancer. All the complicated things that we aren't humanly capable of processing, AI has the capacity to scale itself and find solutions for us."

*– AJAY SUNKARA, Co-Founder and CEO, Nala Robotics*





THIS IS  
TECHNOLOGY,  
CULTURE AND  
SCIENCE WITH A  
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TO MAKE MOST  
NORMAL PEOPLE  
GO "WTF?"

## This month in ALT:

Understand why some tech in Formula 1 did not land well. Read our reviews of She Hulk: Attorney At Law, The Playlist, and what we felt after using the Noise ColoFit Pro 4. Also get to know about POCO's offline plans in India in this month's BackTalk.



## BMW adds Gaming to its vehicles!

BMW recently announced their collaboration with the gaming platform AirConsole to provide entertainment to people inside the car when the car might be charging or stuck in traffic for prolonged periods of time.  
<https://dgit.in/CarRacin>

### WHAT'S NEW

# RBI vocalises its views on the concept of a digital currency - The eRupee

**W**hile you may have heard much speculation about the eRupee concept floating around the air, the Reserve Bank of India(RBI) has finally opened up on its views and possible future plans for releasing a digital currency called the "eRupee" in a 51 page white paper listing out the "objectives, choices, benefits and risks" related to releasing a Central Bank Digital Currency (CBDC). In the paper, the RBI defined CBDC as a new variant of central bank money apart from physical note tenders and central bank reserve/settlement accounts which, when released, would be considered equivalent to a physical



sovereign currency and accepted as a payment medium on par with legal tender. The eRupee will also be freely convertible against cash as and when holders want. The eRupee will also be categorized into two types based on the usage and purpose of the transaction. The exact technology and the kind of system to be put in place for the eRupee are not yet decided. Things like the minting process, whether the currency will be token-based or account-based, and more are yet to be decided. <https://dgit.in/ePaisa>

## Share Tweets not screenshots!

In a new revelation on Social Media apps trying to pull more users to their platforms, Twitter seems to be the one trying out something new in terms of hitting right where it could get the most conversion rates in terms of getting new users in the mix.

Quite a few users of the app on iOS reported that upon taking a screenshot of a Tweet,



they would get prompts to share the tweet instead of sharing the screenshot.

It seems as though Twitter is trying to subtly remind

people that the app comes with a share button which arguably could be the least used button of the four under each tweet. Whether or not will this work in getting new users to the app is something only time will tell and if it does, it will be interesting to see what steps other apps take to boost their userbase.

<https://dgit.in/ChirpSnap>



### Facebook issues a warning for users

Facebook announced that it will be notifying about a million of its users of their login data being compromised by unsafe apps where users would have logged in using their facebook accounts. Meta also said they had already notified Google and Apple of the apps.  
<https://dgit.in/FBWarn>



### Google's ex-SVP releases his ad-free browser

Google's ex-SVP, Sridhar Ramaswamy's web browser, Neeva saw the light of day in Europe recently as the browser was released in the continent. Neeva is known for offering privacy without tracking user activity making it appealing to a lot of users.  
<https://dgit.in/Neeva>



### Elon Musk's Starlink still funding Ukraine

After announcing that Starlink will be discontinuing services due to losses, Elon Musk reversed his decision and announced that the company will keep supporting the Ukraine government even if it means the company loses money.  
<https://dgit.in/LinkinStar>



## AirBell

**C**urrently, the #1 bestselling bicycle accessory on Amazon and available for 25USD in the Asia Pacific, The AirBell is an easy-to-use, secure, and covert accessory for your Apple AirTag attached to your bike. The AirTag is discreetly and silently accommodated by the AirBell, which doubles up as a working mechanical bell of your bike. It is supposed to be an innovative item that can hide your AirTag safely and inconspicuously on the handlebars of your bike, e-bike or scooter while you always know its exact location, even in your absence. It is rated at 85 dB, and it is intended to be amply audible in equivalence to your alarm. The extra-durable, fibre-reinforced plastic AirBell, which has an aluminium bell housing, fits any standard bicycle handlebar with a 22mm diameter. Installation is claimed to take only a few minutes. With the mounting tool included, you can apparently complete the process in just 3 simple stages. The AirTag connects to Apple's Find my Network, where you can track your AirBell and everything connected to it from anywhere in the world.

*Note: Apple AirTag is sold separately and not included with the AirBell.*

## Apple Watch Ultra

**T**he Apple Watch Ultra is the brand's most expensive watch to date and was created for people who enjoy being outside. Although it is made to withstand the rigours of outdoor living, the titanium chassis gives it a considerably lighter feel than you might anticipate given its size. The watch is big and beautiful, with impressive battery life and a very bright vivid display. Apart from the spectacular display it also sports an extremely good battery, which on average lasts upto 36 hours, and precision dual-frequency GPS. It is also the only Apple Watch model sold solely with cellular connectivity. Equipped with the Apple S8 64-bit dual-core processor and 32GB of storage,

## Wooting 60HE

**I**t is an analog mechanical keyboard in the form of a compact RGB gaming keyboard. What makes the Wooting 60HE special is its ability to detect full switch motion with 0.1mm accuracy from start to end. What it means is that it can sense exactly how hard you're pressing each key. So its analog nature leads to unique benefits, like setting multiple binds per key apart from making it a great feature for gaming where you can control varying intensity to trigger different actions (in supported games). Using the provided "Wootility" software, you can tell the key switches where and when to send a signal on a down press, at any depth from 0.1mm to 4.0mm. You can also do the opposite of faster response times for keys that



you don't wish to be accidentally pressed in the heat of a battle with the power of being able to decide the actuation point for each key. It is also spill-free and comes with a strap and a braided USB-C cable. With all that said, it doesn't just target gamers with its immersive experience and obvious competitive improvement. While still being a 60% layout keyboard (with no dedicated f-row, no arrow keys, no home key, no delete key), the mechanical "Lekker" switches from the Wooting are really nice to type on and sound great. It's also surprisingly moddable, which means you can take off the switches and replace them with lower-tension springs from Wooting in case you aren't a fan of how they sound.



the watch is a truly smart one that can function independent of your phone.

There are also new watch faces available on the Apple Watch Ultra, out of which is Wayfinder, one of the incredibly detailed one. There are also new features like trackback with which you can place pins along the route as you stroll or visit a new city to help you navigate back to the starting point. The Watch can function as a complete dive computer and instantly detects when you are submerged as well. While the watch might not suit people with thin wrists the best, considering its thick design, it is definitely a great option for extreme sports athletes who prefer advanced sensors, adventurers and travellers alike.

# Vertiv Liebert ItON 600VA CX

**V**ery few people might have heard of Vertiv when they're out to purchase a UPS (Uninterrupted Power Supply). What might come as a surprise is that Vertiv is actually a massive company that handles infrastructure and services for data centres. Liebert Corporation is a subsidiary which has been manufacturing power infrastructure systems for decades and the Vertiv Liebert ItON range of uninterrupted power supplies brings all their decades of experience into the consumer segment.

The Vertiv Liebert ItON 600VA CX is a line-interactive UPS aimed for home and small office applications. It's a pre-assembled unit which means that you can use it right out of the box without any issues. Often, there are UPS units which come with the battery disconnected which need to be plugged in before use. With improved battery technologies, there's no need to ship UPS units without the battery plugged in and that's the case with the Vertiv Liebert ItON 600VA CX as well.

As for the specifications, the input voltage range is between 140-300 Volts AC and the AC voltage regulation has a tolerance of about 10 per cent. If the UPS switches to battery mode, then the AC voltage range tolerance becomes 1 per cent which is pretty good for a line interactive UPS. The transfer time between AC to battery or vice-versa is typically between 2 to 6 milliseconds.

It's also a simulated sine wave UPS. For certain power supplies installed in desktop computers, this is a problematic combination. When you have a desktop PC built using an SMPS that has an Active PFC, then it's always advised to use a Pure Sine Wave UPS rather than a Simulated Sine Wave UPS. Using a Simulated Sine Wave UPS might cause the PC to reboot in such cases. However, Pure Sine Wave SMPS are usually more expensive and therefore rarer to come across. Nevertheless, you should



always check your SMPS before finding the right UPS to pair with it. Vertiv has line-interactive UPS units with Pure Sine Wave output as well, such as the Vertiv Liebert PSI5. Coming to the protection circuits, overload protection, discharge protection and overcharge protection. All in all, it's got a nice feature set considering the price bracket.

The Vertiv Liebert ItON 600VA CX has a rigid plastic body like most UPS in the price range. The front of the unit has a push-to-on button for switching the unit on and a little LED indicator for the status of the UPS right next to the power button. There are three output sockets on the back side of the UPS and each socket is the typical Type D 5 Ampere socket that's most popular in India.

There are ventilation slits on the top surface and bottom surface of the body. And the bottom has four plastic feet. We feel that they could have added rubber inserts in the feet considering that it has a pretty beefy transformer inside it.

Speaking of the insides. There is a Class B transformer meaning that it is rated for 130 degrees Celsius. So should there be heavy load on the UPS, then the transformer should be capable of handling a lot of heat that's typically generated under high-load

conditions. The main switching circuit is attached to the top side of the UPS and seems to be a fairly simple design manufactured by TAIWAN WAN NIEN ELECTRIC APPLIANCE CO., LTD. There are four YL303H-S-12VDC-1Z PCB relays with 10 Ampere switching capability for when the UPS needs to switch from AC power to battery backup. It follows a Buck and Boost

design to perform Automatic Voltage Regulation in the UPS to perform adjustments to the incoming AC voltage to stabilise the power that is being sent out.

Now if you know the power consumption of all the devices that you are plugging into the UPS, then you can calculate how long it will last with a simple calculation. If your connected devices are pulling about 120 Watts then the Vertiv Liebert ItON 600VA CX can provide up to 15 minutes of back up time. This is provided there is a continuous load of 120 Watts. High-end gaming PCs will draw a lot more power and will give you less back up time. But with UPS units, the primary objective is to give you enough time to save all your work and then safely shut down your PC.

We connected the UPS to a decently powerful gaming PC and fired it up. With the machine running a couple of applications, we switched off the main power to see how long the UPS could provide back up power. With nominal load, the unit provided about 19 minutes of back up which is quite decent. It gives plenty of headroom to actually complete whatever tasks that you may have running on the PC.

-Mithun Mohandas

# Noise ColorFit Pro4

**T**he smartwatch market is crowded as ever. Even if you go sub-5000 INR, you have got some decent choices out there. And one brand that's making a lot of noise in the budget smartwatch space is well, Noise. The company launched its ColorFit Pro 4 and ColorFit Pro 4 Max wristwatches in India this year. We have with us the former and upon wearing it day in and day out for a while now here's our experience of using it.

One of the exciting aspects of Noise ColorFit Pro 4 is its design and to some extent its build quality. From a distance, people could mistake it for an Apple Watch. Its squircle dial and digital crown may appear inspired by Apple's design manual. But, when you come closer, you'll notice the central placement of its crown, the differences in its strap design, and the Noise branding, of course. In fact, many complimented me on its looks. The case has got a nice sheen, even though it is made of plastic. But thanks to this polycarbonate build, the device weighs only 24.1 grams and should be light on your wrist. The detachable strap feels nice to touch, but it can get a bit itchy and leave marks after a long course of use. You can easily unfasten the default 22mm strap and swap it with another one. And this buckle-type strap is, in our opinion, better than what expensive products like Apple Watch offers.

The watch has a 1.72-inch TFT screen with 356x400 resolution. The thing is decently legible indoors but under bright sunlight, your eyes will have to struggle a bit. Now when it comes to navigating through the UI, you will realize this isn't the smoothest screen experience. You can hold and press on the main screen to switch between the watch faces. Speaking of which, to decorate the screen, there are 150+ watch faces (some of which are downloadable from the cloud). The colourful choices add to the look of the watch. However, when you use a fair or light-coloured wallpaper, you'd notice the watch's thick bezels. On the contrary, if you are like me who prefers dark watch faces, those borders won't seem that limiting.

Starting with the pairing process, you just need to scan a QR code on the watch using the NoiseFit app on your smartphone. Once it's paired, you can use it to track up to 100 sports modes. The list only lacks swimming. We're not complaining as the watch is IP68 certified. If not for major sports activities, you can simply use it for step counting (without false counts), distance tracking (using phone GPS), walking, running, etc. It did those tasks rather well. While you are on the move or still, there is Auto HR (heart rate) at work. But, we don't recall a time when it alerted us. We had set the watch to intimate me if my heart beats above 130 BPM. But nada! It takes its sweet time to hit that mark even during intense activities and hardly ever alerted us even when the

beats passed 130. That brings us to the general heart rate measurement, which we found to be somewhat spotty. Then there are times, the watch would auto-pause the workout because of ghost touches. Also, the wrist twist to wake the screen doesn't always work. These latter two issues bothered us during our workout sessions. You can also keep tabs on other health parameters like blood oxygen, sleep, and stress. As for monitoring oxygen levels in the blood, the built-in SpO2 tracker was comparable to an actual pulse oximeter. Similarly, sleep tracking also gave almost proper readings. You can also know your stress score and do breathing exercises to reduce that by following on-screen inhale-exhale instructions coupled with haptic feedback. Coming to other features and functions, there is stuff that complements the smartphone like timely notification sync, alarm, music control, weather, stocks, and calling. The lattermost is especially interesting as it comes with Bluetooth calling. In theory, it lets you

receive and make calls using the in-built speaker and mic setup. But, in our use, it was frequently getting disconnected and we would have to take the phone eventually. Maybe an issue with our unit. Can't say! What we can is that the voice quality was decent. So it covers most of the things you would want from a budget smartwatch, including the smartphone companion features. While using the thing to track the fitness metrics too, it could easily take care of a regular person's needs. Only when it's compared against the likes of an Apple Watch, you would realize the activity tracking needs some work.

Finally, all those performances are rated to last up to 7 days. In our time with it, it lasted for 6 days. Mind you that's with all sensors and features on constant testing. A normal user may get the full advertised battery life. When it comes to charging, the company's claims held true in our testing. The bundled pogo-pin adapter topped it up in about 2 hours. Not bad. The ColorFit Pro 4 has a lot of features and usually sought-after fitness sensors. We like that Noise has served us a buffet of varied options at ₹3,999 even if they aren't all optimal in their operation. But it's not like anybody buying this expects a professional-grade device. Also, unless you pit it against many expensive alternatives and focus on the minutiae, you would be fairly satisfied with the offering here. Not to forget, the data and stats from even those pricey wristwear aren't always medically admissible. If you're not hard-bent on the accuracy, you can track the most common sports activities, and health metrics, know your progress and work to improve and achieve targets. If you are okay with the offering thus far, you would also find the accompanying smart or smartphone-related features as an added bonus.

-G.S. Vasan

## WEB SERIES

## The Playlist - Ett svenskt mästerverk

**★★★★★** | If you stream music, then there is a very good chance that you have used or are using Spotify. Ever wondered how this platform came to be? Well, that is the story that plays out in front of you as you sit and watch this absolute masterpiece of a drama miniseries on Netflix.

At the start, the series plays out like a typical business mogul's story. Following the journey of Daniel Ek, played very convincingly by Edvin Endre, the plot opens in a small Swedish apartment, with Daniel and his mother having a



rather comical moment. Not to reveal too much, but it sets the tone right for what events are going to follow as the series moves on.

The first episode is about the birth of the vision of Spotify, and it moves through the founders' tussle with the industry, the law, the lead coder of the app, and the partner, who plays a pivotal role in the series, with things finally coming to a grand end with Spotify being pitted against the artist community.

Each episode is dedicated to one facet of the story of Spotify, from a startup in a basement to a multi-million dollar streaming service. Everything from the pushback from the music industry to the rise and eventual fall of Pirate Bay all fits in like a Lego brick in a showpiece that eventually pans out to be Spotify.

If you were wondering, then yes, we watched the series in Swedish with the subtitles turned on for obvious reasons. And, we'd recommend you to do the same too. As for the leader, in English, it translates to - A Swedish masterpiece.

-Satvik Pandey

## WEB SERIES

## She-Hulk Attorney At Law - End of the charm?

**★★☆☆☆** | There was a time when Marvel could do no wrong. Even the flops they pumped out made a lot of money and, as a part of the larger Marvel Cinematic Universe, fit in neatly in the continuity. Films like Thor: The Dark World and Iron Man 2 weren't great, but they did the job and pushed the studio ahead, culminating in the blockbuster that was Avengers: Endgame.

The MCU was every nerdy kid's dream come true, especially for a more global audience. For a while there, it looked like Kevin Feige was walking on water. But, as it is with the way of the modern world, nothing good ever lasts. Phase Bore \*ahem\* Phase 4



was, for the lack of a better word, an absolute disaster. The streak of luck had finally come to an end, and all that was left were scraps that Marvel had to work with. The comic book division of Marvel was already a roaring dumpster fire, and the last thing Feige should have done was to adapt the modern, failed comic book storylines. But that's

exactly what he did, and we, as fans, have been paying for it ever since.

So, what is She-Hulk all about? Well, it really is about nothing. There is no character progression, no story beats that really drive the season home. Is it supposed to be an avant-garde, experimental show that pushes the boundaries? No, She-Hulk is just a terrible TV show that tries to pass off as some meta-examination of fandom or some such nonsense. The writers and producers tried to pull in some of the original Marvel fans with 'cameos', but even that was a disaster. Like, what is Megan Thee Stallion, Some kind of super-powered horse in the MCU? No, it's a rapper! And a terrible one at that. They even tried swinging in a Daredevil appearance, but that was handled about as subtly as a jackhammer.

It looks like by now that Marvel is creatively bankrupt. As a comic book collector and fan from a young age, it was our dream to see these characters onscreen. But alas, all good things must come to an end and what an end it is to the MCU.

-Andrew Lu

# डिजिट अब हिंदी में

देश का सबसे लोकप्रिय और विश्वसनीय टेक्नोलॉजी वेबसाइट डिजिट अब हिंदी में उपलब्ध है। नयी हिंदी वेबसाइट आपको टेक्नोलॉजी से जुड़े हर छोटी बड़ी घटनाओं से अवगत रखेगी। साथ में नए हिंदी वेबसाइट पर आपको डिजिट टेस्ट लैब से विस्तृत गैजेट रिव्यू से लेकर टेक सुझाव मिलेंगे। डिजिट जल्द ही और भी अन्य भारतीय भाषाओं में उपलब्ध होगा।

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डिजिट

# POCO'S OFFLINE PUSH

In a bid to make its offline presence more robust, Poco has launched an exclusive sales and service centre in Mumbai. In conversation with Himanshu Tandon from POCO India, to learn more about POCO's offline push.

**Dhriti Datta |** dhriti@digit.in

**F**irst introduced during the pandemic in India, POCO is a tremendously popular smartphone brand that focuses on pocket-friendly offerings with a good balance of features and hardware power. The company's portfolio includes the C, M, X, and F series, ranging from entry-level to POCO's top-end models. All phones from the house of POCO typically retail for under ₹30,000, thereby appealing to the price-conscious masses in India. However, POCO has largely been an online-focussed brand, selling its smartphones via Flipkart.

Now, a few years since its inception in India, the company is looking to strengthen its offline presence



**Himanshu Tandon,**  
Country Head – POCO India

as well. The company recently launched its second service centre in India, in Mumbai, and we had the pleasure of visiting this spot. Users can not only get their after-sales support in this centre but can also browse POCO's portfolio of smartphones to get hands-on experience before buying a product. The brand is also providing home delivery services for all of its products. We got to speak with Himanshu Tandon, Country Head, POCO India about POCO's new vigour to push their brand and products in exclusive offline centres. Here's what we gleaned from the conversation.

**Q This is the second exclusive POCO service centre in India, after the one in Kolkata. What kind of after-sales**

**services can customers expect from POCO service centres?**

**Himanshu:** This is the second service centre we've opened. This is not only a service centre but a sales plus service centre, so we will be selling all the newly-launched POCO models through this centre at very attractive, discounted prices. Since we were an online-only brand, we thought of venturing into offline with a unique model. So, that's why we came up with this unique concept of sales + service centre. The first was launched in Kolkata where the entire operation was run by women only and this is the second one which we've opened in Mumbai. So, all the after-sales services for POCO products will be done here. Also, from a sales perspective, you can come here, explore POCO products in our Experience Zone, and then buy the products right here from this sales + service centre.

**Q What are some of the highlights of the POCO sales + service centre?**

**Himanshu:** If you see, this entire place is an exclusive service centre for POCO. The one we opened in Kolkata is an entirely female-run show. We gave it a special name – the "Pink Service Centre". The one in Mumbai is not a Pink Service Centre but the experience and the service is the same. We strategically opened the centre in a location where we think our output or throughput would be

higher. We will have our trained staff here who will educate the customers that walk for the service about POCO products and the offers we are running in these service centres. We are trying to create a differentiated model of offline operation by opening these service centres.

**Q What's the query resolution time customers can expect at POCO service centres?**

**Himanshu:** If you see our oral call load, 95 per cent of it gets answered in 1-4 hours and 97 per cent of the call loads are resolved in a single day. Apart from that, we are also running other initiatives. For example, we are running an extended warranty offer on our X4 Pro and X3 Pro – which was basically 6 months of extended warranty. The recently-launched POCO F4 5G had one year of extended warranty. Moving forward, we are planning on some special initiatives for the customers and the customer service support team in form of discounts that we give on repairs. A lot of initiatives are still in the pipeline as well considering the sales service centre we've opened here.

**Q How many service centres does POCO plan to open and what is the plan for offline expansion?**

**Right now, we exploring the transition from 4G to 5G and getting ready for that transition. Next year we will focus on 5G products. We are not going to vacate 4G products though.**

**Himanshu:** We have already tied up with our sister brand – Xiaomi – and we have 1000+ service centres across India. But what we trying to do now is create a differentiated and sole experience for POCO customers. We opened the first service centre in Kolkata, the second one is now in Mumbai. Moving forward, we will be opening more dedicated services centres first in 4-5 key markets. On basis of the response and customer demands, we will be exploring Tier-2 and Tier-3 cities as well. But now, the priority is to open service centres in Tier-1 cities.

**Q How important is customer service at POCO and what are the measures taken to satisfy customer needs?**

**Himanshu:** POCO is a very youth-oriented and customer-oriented brand. Opening offline channels through customer service centres shows our thought process and the importance we give customer service. So, if you see many online brands venture into offline operations. But we ventured into offline operations through this unique model of service + sales centre. So, it is very critical for our brand.

Not just opening up the centre but creating a differentiated experience where other brands are running the same models and have the same experience. So, we are trying to differentiate ourselves from the rest of the players in the market.

**Q Service centres aside, can you give us insight into the future plans of POCO in the smartphone industry?**

**Himanshu:** We had an amazing 2022, we had great Diwali sales, and we were among the top players on Flipkart as a platform. We recorded some breakout numbers in phones such as the POCO M4 Pro, X4 Pro 5G and M4 5G. Next year, firstly, we will try to play on this 5G theme. Right now, we exploring the transition from 4G to 5G and getting ready for that transition.

Next year we will focus on 5G products. We are not going to vacate 4G products though. However, most of the portfolio will transition into 5G. Secondly, next year we will attempt to enter into non-mobile categories as well. We have a lot of non-mobile categories globally but in India, we couldn't do it over the last two years, so will be testing and exploring non-mobile categories. And if we hit our benchmark of price to performance, we will certainly delve into that. The third thing is channel diversification. We are an online-only brand now, so with such service centres, we are exploring entering the offline platform with a differentiated model. So these are the three pillars we're working towards for our 2023 strategy. **Q**



POCO's sales and service centre in Mumbai

# F1 TECH THAT DID NOT LAND WELL

Only some people liked it

Satvik Pandey | satvik@digit.in



1

## THE X WINGS

It might sound like the name of a TV show, but this F1 design innovation took the world by storm when it was first introduced in the year 1997 by the Tyrrell F1 team. They had been lacking grip in their cars and were not able to compete at the top of the grid despite having a fairly powerful car otherwise. Dubbed the Tyrrell 025, the car sporting repurposed wings, called the X Wings, became a benchmark for other teams to match up to. Teams like Ferrari, Jordan, Prost, and Sauber also tried their hands at adding these extra wings to their cars for some added downforce. However, as time passed the Formula 1 governing body decided that they will not allow teams to have X Wings fitted cars as it was a safety hazard. The ban wasn't contested as much as later Tyrell, the team that had introduced this in the first place, came out and accepted that the added wings were causing problems for their drivers.

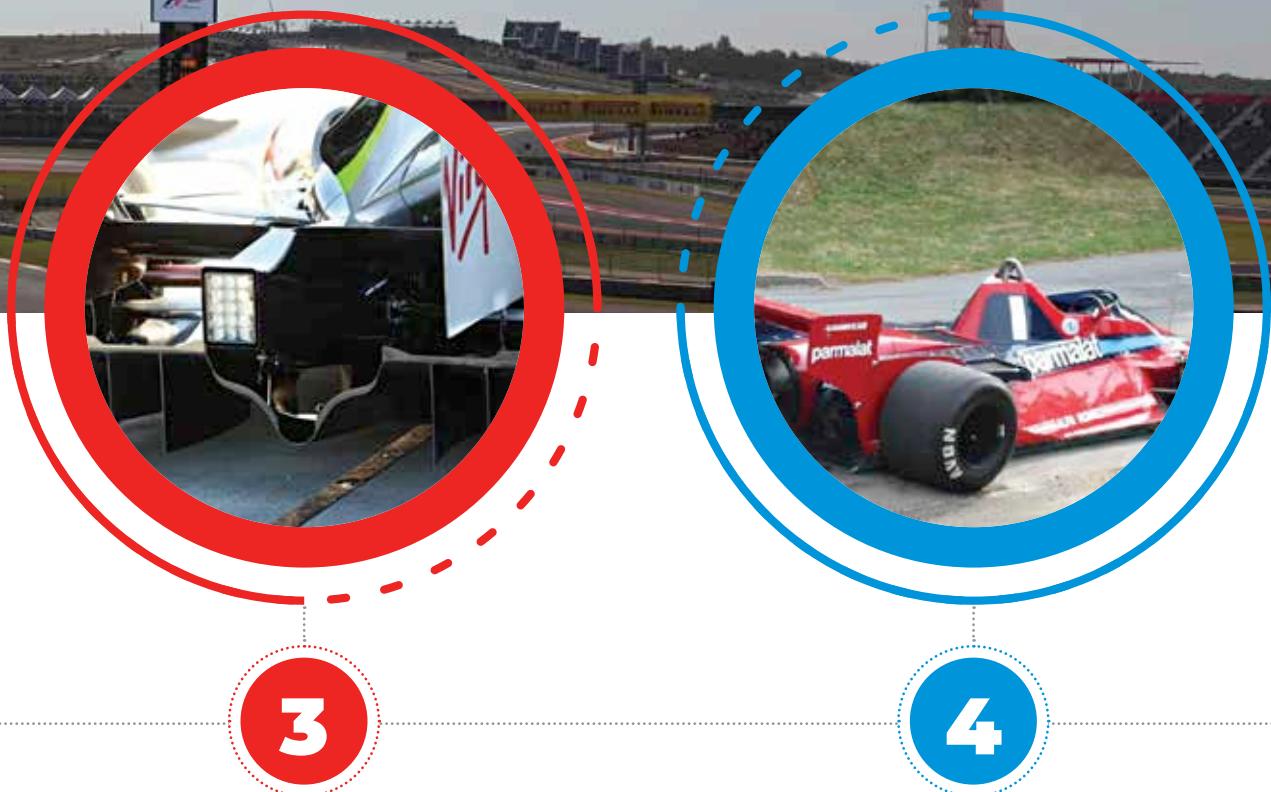


2

## DOUBLE CHASSIS

As absurd it may seem, but F1 teams in the olden days were insanely innovative when it came to designing their vehicles. Their ideas went to the extent where the Lotus F1 team decided to have two separate chassis in their car, the Lotus 88 in 1981. The idea was that while the other shell would cover the vehicle and provide the team with all the benefits of ground effect, which by then had been outlawed. The inner chassis would house the driver and all the machinery and ensure that the driver was protected from the absurd forces exerted onto their body from the downforce that the car was experiencing. This design by Colin Chapman was contested by the teams and the FIA asked Lotus to revert to the single chassis design. While teams were not against this innovative design, their concern was the amount of money they'd all have to shell out to match what Lotus had done with their car.

There is a reason that Formula 1 is often referred to as the 'pinnacle of motorsport'. Thanks to the changes in regulations and innovations in technology over the past several decades, F1 cars have seen some design and technology improvements that would put many modern cars to shame. While some of these designs and developments caught steam and are still seen in modern-day cars in some way, shape, or form, others were quickly contested by teams and their designers and were dropped by the teams as quickly as they were adopted. Here we will have a look at some such technological innovations that did not land well with the teams.



**3**

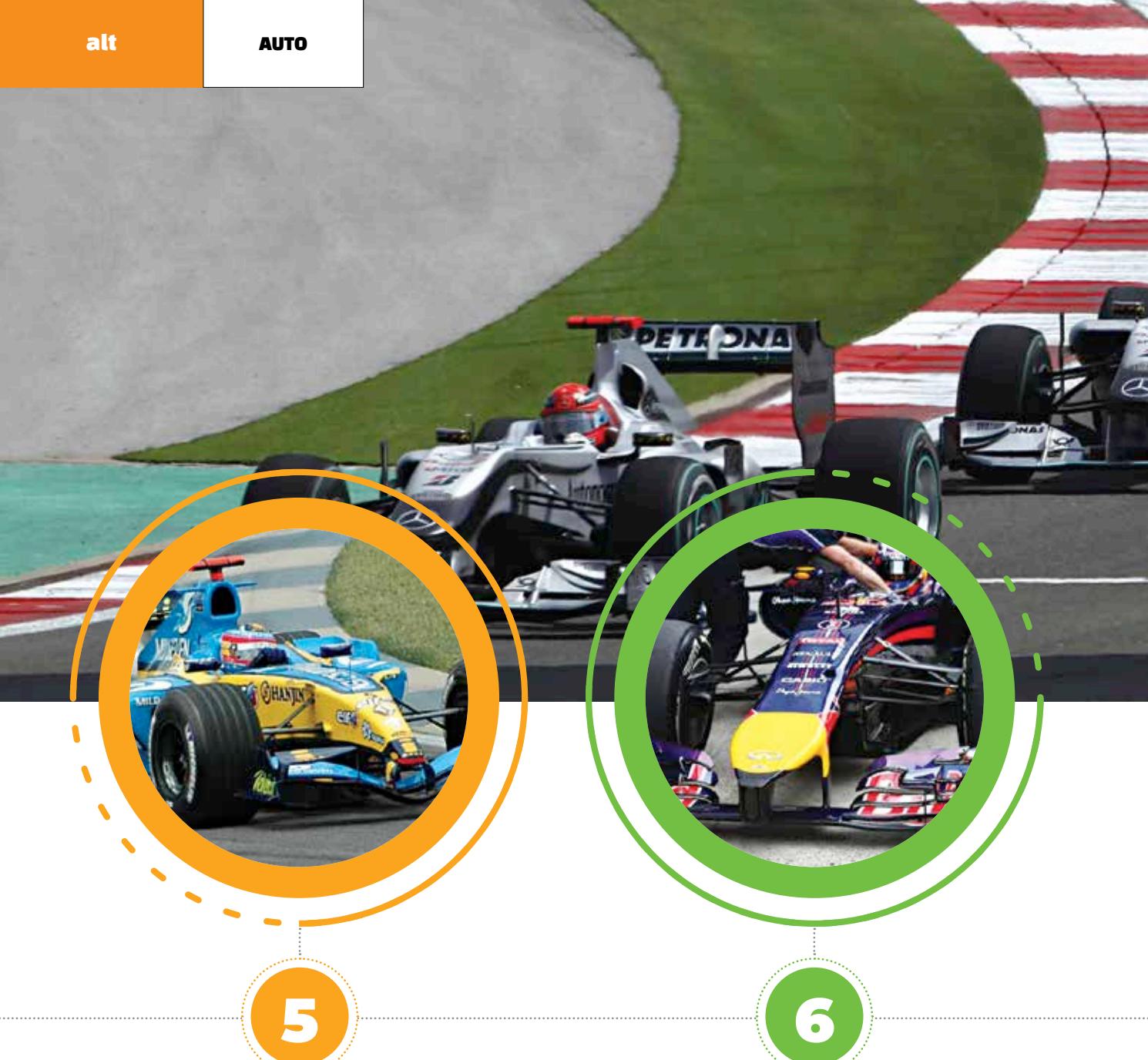
### BRAWN DOUBLE DIFFUSER

Ever heard of the story of an underdog coming with a solution to a problem in a sport and clinching the title out of nowhere? Well, if not, then you'd like to explore the story of the Brawn F1 team and their double diffuser design using which they raced to a double championship in 2009. Formula 1 was in the nascent stages of entering the turbo hybrid era, which would be dominated by Brawn's successor, Mercedes AMG F1 team. The foundations of this domination was laid when the Brawn team designed their car with a double diffuser design for the 2009 season. While other teams had been using a traditional design which had only a single deck of airflow channels, Brawn's design had something different. The engineers had added an additional duct to increase the airflow and create a double decker design, allowing the team to regain some of the lost 50 per cent downforce due to the regulation changes. Other teams protested this design but the FIA deemed it legal and the rest is history.

**4**

### THE FAN CAR

If there was one F1 car that would be a definite contender for the most absurd design award, then it would be the Brabham BT46B driven by Niki Lauda in the year 1978 during the race in Sweden. This time, it was the brain of Gordon Murray doing the trick. This was another example of a team battling to get the most of the now legal, ground effect. What the additional fan did was increase the downforce on the car by a substantial margin when it raced around the track, giving it more grip around the track, especially the corners. The results were instant as the car went on to win the only Grand Prix it ever raced in. The teams again were quick to protest, with Colin Chapman leading the charge. Legend has it that a combination of teams' outrage and political pressure resulted in the car being outlawed immediately.



5

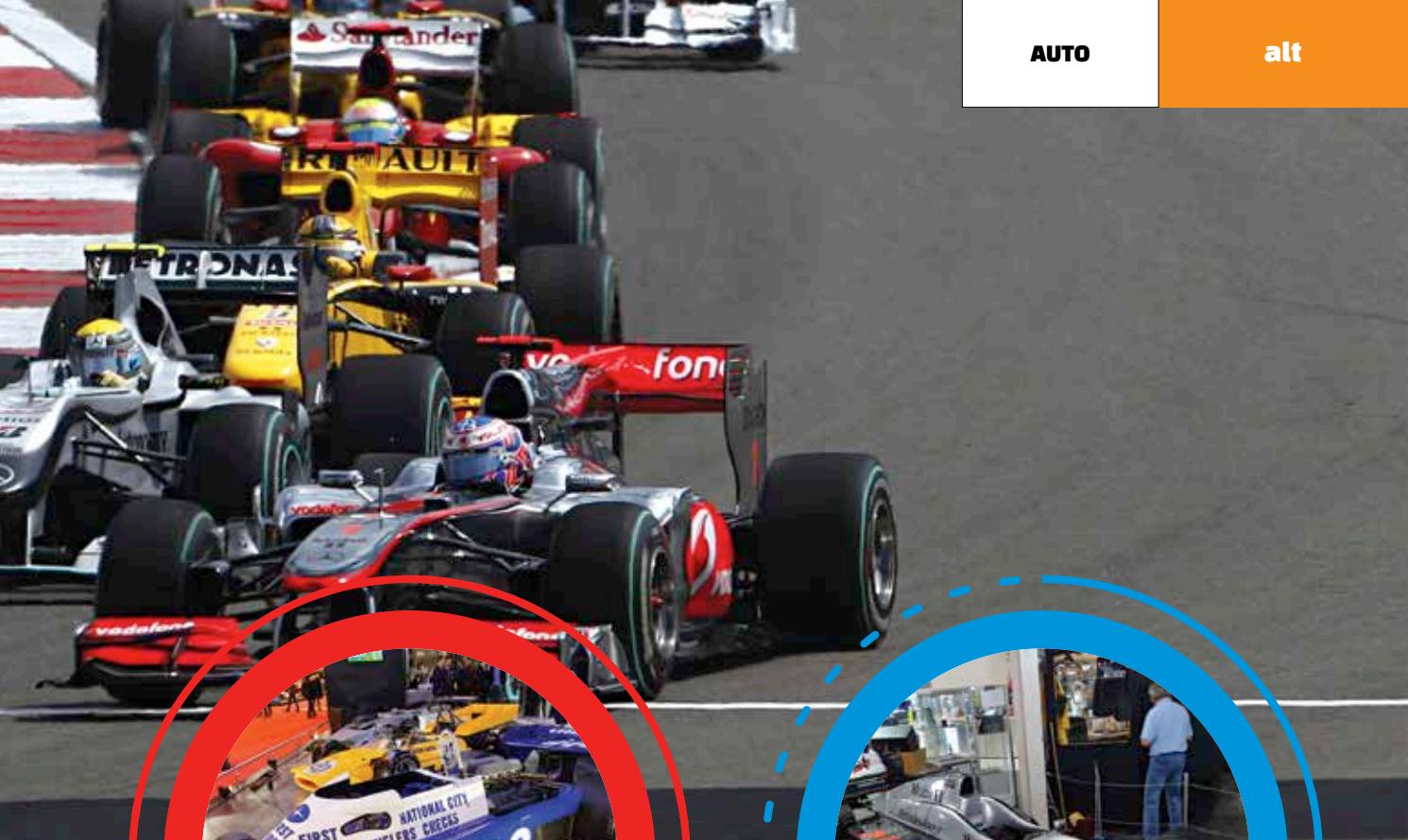
### RENAULT'S MASS DAMPNER

Ever seen a Rolls Royce driver over bumpy roads? Well, that is exactly how Renault made their Formula 1 Car to be during the later stages of the 2005 World Championship. Called the 'tuned mass dampener' by the team, the way this device worked was by acting as a counterweight to dampen out the car's bouncing frequencies through the corners. While other cars on the grid were bouncing around when riding the curbs of the circuits across the world, Renault's car was riding them like a hot knife sliding over a brick of butter. This resulted in Renault's car having better grip levels due to the minimal bouncing, and as a result, the car's performance improved drastically. Next year, after the FIA approved it, Renault fitted the system in the back of their car as well. Other teams, seeing the bump in performance, tried to replicate the system in their own machinery but failed. However, their pursuit and Renault's success was short-lived, as, after the summer break during 2006, the FIA outlawed these new dampers.

6

### NEWEY CAMERA

Adrian Newey is heralded as one of the greatest designers to have worked on Formula 1 cars in the history of the sport. One of his latest design geniuses was seen when he fitted the 2014 Red Bull cars with what we'd call the Newey camera. This ingenious development came in the form of body cameras being fitted in Red Bull's cars, helping them get rid of the external mounting hardware that would otherwise have been in place to hold the camera. Adrian had found a loophole in the FIA guidelines, which stated that the camera should not be located in the car's structurally crucial carbon fibre parts. He played with the words and added the camera to the front wing of the car, which is essentially considered to be a vanity structure. This innovation was short-lived as the team had to revert to the regular mounting design just after five races. Since then, there have been no changes made to FIA regulated camera designs.



**7**

### THE SIX-WHEELED MONSTROSITY

In all the years of you following F1, we are sure that no sight would be as strange as a six-wheeled car racing around the track. As absurd as it may sound, Formula 1, during the 1976 season, saw Tyrrell take their 6-wheeled F1 car, called the P-34, to the track. To the surprise of many who witnessed the car racing during that year's Swedish Grand Prix. Driven by Jody Scheckter, the car sped through the field to take the chequered flag before anyone else on the grid. However, that was the only taste of success that the car and team got that year. Come 1977, and due to the lack of even moderately impressive results, Tyrrell discontinued their 6-wheeled car. However, the concept was floated around for some time, as March, Ferrari, and Williams all played around with the idea until 1982! This concept however never made it to the tracks and with the current gen cars practically being rocketships on wheels, we might not see that design coming back soon.



**8**

### REAR BRAKE PEDAL

One of the least surprising of all in this list of technical innovations that did not land well in Formula 1 is the rear brake pedal that was fielded by McLaren and two other teams during the 1997 season. Behind the wheel of the front-running McLaren that year was Mika Häkkinen, whose car was photographed by a cheeky journalist after his retirement from a Grand Prix, revealing the presence of a third pedal in the car. This additional brake pedal allowed the driver to independently control the rear braking of the car, not only providing extra control around the corners but also improving the overall drivability of the car. McLaren's innovation was protested by many teams. However, after Ferrari's massive protests against the change, the FIA banned it in the early parts of the 1998 World Championship season. In modern F1 cars, there is no need for the deployment of such a design as all the controls are present within a thumb's reach of a driver.

INSIDE

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**SKOAR!**\*  
LIVE TO GAME

# GAMING ON A LAPTOP

A guide that will walk you through  
all about that portable life



MOBILE MONTHLY | Chinese Parents: Live that authentic Chinese kid life

# Dear Ragequiter...

I get that you probably had a bad day,  
Why take it out on us?  
I get that the game's no longer fun for you,  
Why make it unfun for the rest of us?  
Are you perhaps on a losing streak?  
Getting outclassed, feeling particularly weak?  
Was your ego not being satiated?  
Were your skills not being appreciated?  
Was the loss really that hard to anticipate?  
Was it so surprising, your inability to dominate?  
Or maybe I've just got you wrong.  
Maybe you don't actually suck.  
Maybe you actually were just lagging.  
Your internet connection was actually lacking.  
It can't possibly be because you're bad.  
Right?  
Git gud scrubs...

Prose aside, I know a thing or two about being tilted, but I've never, I repeat, NEVER, left a game. Don't do that guys, it's not cool. I am of course speaking strictly about online competitive games here, be it an FPS or a MOBA. I've had plenty of experience with rage quitters and let me tell you, it's not fun when you're with them, it's not fun when you're against them.

Playing any game is no fun when you've essentially got one player who's holding the entire team hostage, threatening to rage quit if you don't do things their way. On the other end of the spectrum, winning against a team with a rage quitter is no fun because you



**—Manish “Trigger-Happy” Rajesh**  
SKOAR! Overlord | [feedback@skoar.in](mailto:feedback@skoar.in)

don't really deserve that win for beating a handicapped team.

I understand that there are extenuating circumstances at times, by all means, if there's an emergency, go! But those of you that rage quit for no other reason than because the game's not going the way you thought it would, you know who you are. The scum of the gaming world is what you are. \*

## Razer announces the EDGE tablet



Razer in a move to promote handheld gaming more announced their EDGE gaming tablet which will be working on Google's android platform. The tablet will also ship fully equipped with 5g capabilities and a 144Hz display. The Edge's main competitor will be the SteamDeck.

## Insomniac's SpiderMan 2 confirmed



After fans showed concerns that Insomniac's best-selling title Spider-man's third instalment's release might get delayed, Insomniac Games has come out and spoken on the discussion saying that the game will surely be coming out in 2023 and fans needn't worry.

## Logitech G partners with Herman Miller



After their first collaboration turned out to be an immense success, it seems that Logitech and Herman Miller want to keep the train going with their newest chair in the lineup which will cost \$495 less than the previous one, the legendary Embody.

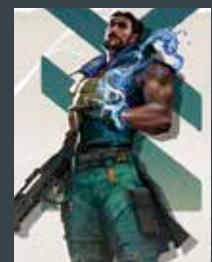
## Overwatch 2 sees a disruptive launch as servers overload.

The much-awaited sequel to Blizzard's hero-based fps shooter lived up to the hype at its launch with numerous regions facing long queues as soon as the game was officially launched worldwide. Fans of the franchise were undoubtedly disappointed when they had to wait behind over 40,000 players in line to even get into the game and that got some players complaining.



## Valorant releases their latest agent - Harbor!

In other fps news, Riot's latest addition to their own hero based shooter is none other than a water themed controller from the sub-continent of India, Harbor. As Riot revealed the agent with their trailer, the abilities for the agent seemed quite amazing and meta-changing to say the least. This was confirmed when streamers and content creators were brought in to test out the agent live on their streams.



## UP AND COMING



### Football Manager 2023

If you are a fan of football, and were awaiting the next iteration of Football Manager, then your wait would soon be over as Football Manager 2023 is set to release on November 8 accross platforms, including consoles, PC, and mobile phones.

**Release Date:** November 8



### God of War Ragnarök

One of the most anticipated games of this year and the latest addition to the God of War franchise, God of War Ragnarök is set to release on November 9. The expectations are high as this promises to be one of the best titles in the God of War game franchise.

**Release Date:** November 9



### Sonic Frontiers

Who doesn't like a new Sonic game? Especially when it comes as part of the year-long celebration of the blue hedgehog's 30th anniversary. This game will be packing what the developers are calling an "Open Zone" experience of the players.

**Release Date:** November 8

In the early days of CS:GO, players could vote for a rematch if they enjoyed their matchmaking game enough.



# What is India's eSports future like?

**EsportsXO's CEO and Co-Founder, Vikas Goel** sheds light on India's esports future and the role of their platform in its development

By Team Digit | feedback@skoar.in

We had the opportunity to converse with Mr Vikas Goel, Co-Founder, EsportsXO, who shed some light on the SaaS platform. EsportsXO is a platform that connects brands to upcoming content creators and aspiring gamers. Here's what he had to say –

**Q Can you tell us a bit about EsportsXO? What exactly is EsportsXO?**

**A** So the idea of EsportsXO was conceived in somewhere in April 2020. I'll give you the background of the other two founders. When both of these guys are very young, I met them during a conference. And these guys were doing some fun and exciting stuff in dropshipping, which was very big thing in 2020. A lot of people were making a lot of money in Shopify stores, so I got naturally attracted to the idea and I told them, 'Okay, I'll put in some money'. You guys handle the store, I know how to the products. So we started a store in January. It ran into trouble in April because the supplies ran out and we could not ship products from Shanghai to us.

That's when they told me, Okay, there is a game PUBG and a lot of people are playing and you can talk, you can, you know, watch, you can obviously share screen. So I played this just for fun for a few days, and I understood that this market is very fragmented, and we decided to okay, let's launch our own app within the first 16 days.

And we decided, okay, to organize these tournaments, which are otherwise being organized on WhatsApp and Discord. In the first three and a half months, we got over 1,40,000 installs without having spent a single penny on Facebook and Google advertising. And that's when we realized, okay, this idea is too big. We need to register a company, and put in some more money. And by the time we could do that, by October, the game got banned. So we pivoted out and the story quite unfolded. You know, we got into other stuff, we did some agency work, we spoke with a lot of players, we built our own teams, and then, you know, we decided to scrap up the old tech and started working on the new tech. We realized that this idea is so big that I cannot support it individually. So I decided to raise money. And that was another journey. We never raised money. I've always ran profitable companies before. So we learned how to work this out. We found a circle, found us, and they led that round, and we raised about \$1.1 million in December 2021.

**Q How exactly does this system benefit, an up and coming gamer or a new gamer who's looking to go pro?**

**A** If you, if you continue to play, if you explore this opportunity of coming and playing tournaments, getting ranked and creating enough, continue to get notice, you have an option to make money, you have an option to,

you know, become a professional gamer. You also have an option to, if you're not playing actively, if you're not a gamer, you can still make your career in casting, you can still be a technician. There are hundreds of roles out there, which nobody knows, which, which we can probably give you access to. So this is how, you know, a gamer's journey is. They never become famous on day one.

Now, let's say, I'm a gamer. I want to stream and I want to make billions of dollars. No, you have to start by playing games first. You need to download and find a game that you can play good and become, excellent across maybe three to four months, five months, six months down the line. Once you do that, once you have built that repetition within the Indian gaming scene by constantly performing in a particular game, you get noticed this is how models and scouts were built, right? They got noticed only when they performed in domestic, international, and other podium finishes. They got noticed by brands. That's how they get invitation from domestic and international competitions. So we've understood that journey very clearly.

We are tracking their behavior, we are building our own data links. So the whole journey from no one to becoming a professional gamer, there are a lot of stuff and we are trying to solve that problem using the tech on battleexo.com, which is the product that we built. \*



# Reasons why Retro PS2 Games are Better than Modern PS5 Games

Better times...

By D “Ninja Duck” S | feedback@skoar.in

**C**all Of Duty Modern Warfare II is the talk of the gaming world ever since the Beta version of the game was made available for PC and PlayStation 5. With exciting new maps, weapons and (needless to say), some stunning graphics, many of us were completely won over by COD's latest offering. However, as we drift towards the era when developers are trying their best to make games look similar to real life, we can't help but think about the simpler times every now and then.

Yes, we're talking about the times when developers had limited resources and managed to create masterpieces out of them. And those masterpieces are treasured even today. With that being said, let's take a look at some reasons why retro PS2 games were much better than today's PS5 games.

## 1. Focusing more on gameplay and story

The retro PS2 games had their focus on the game's story as well as gameplay, rather than just the graphics. This doesn't mean that the modern games



are not in those areas, but there are times when PS5 titles end up becoming more about the graphics and less about anything else. Take the remastered versions of various PS2 titles, for instance. In case of some games, all that they got was an upgrade in terms of graphics with everything else remaining the same. Was it worth it? That's a question the gamers differ on and it often leads to various debates amongst them.

## 2. The gaming environment

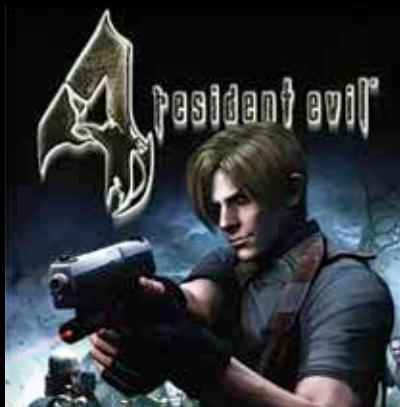
With the evolution of multiplayer gaming, the world is much more connected and you can be playing with anyone while remaining in the comfort of your special zone. On the surface, this is a great thing and enables you to connect with fellow gamers. But it has a

downside as well. Some gamers are not that respectful towards others and might indulge in using foul language during gameplay which hampers the experience for others. And there's the dreaded word, 'noob', which players are often teased with when they aren't as good as others. This creates an overwhelming pressure upon gamers to perform better than the others, thereby hampering the very intent of gaming which is, well, to have fun! And when you're so focused on competition, you can forget having fun at times. The retro era had these elements too but they were rare. People mostly enjoyed the game for what it was and the spirit of competition was healthy.

## 3. Affordability

Remember the days when you could get a PS2 CD for a couple of 100 bucks at your nearest electronic store? You would then happily head home, try out your new CD, and have hours full of bliss. Fast forward 2022, an average middle-class person has to think hard before buying a new PS5 game because those cost around 5 or

6k on an average. Also, if you don't own a 4K TV, you could feel like you're wasting the potential of your PS5. The PS2 games were, therefore, accessible to a larger section of people and had us smiling without burning a hole in our pockets.



#### 4. The nostalgia factor

This point is not so much about the games but the 90s kids who grew up playing PlayStation games and associate the PS2 with happy memories like the 8MB memory card, the sound of a heavy game loading up, the feeling of purchasing a brand new CD, the excitement of multiplayer games, and so on. For many of us, the PS2 was the first console we ever owned and it will always have a special place in our hearts.



#### 5. Less hype, more substance

Without taking names, let's just take a moment and think about some of the 'highly-awaited' PS5 games that turned out to be a bit of a disappointment. The launch of a game is a huge event today and is overly hyped at times with numerous teasers, trailers, gameplay videos, and so on. While there's nothing wrong with promoting the game before its releases, it does raise expectations to a whole

new level. And at times, the game just doesn't match its excitement level. Promotions happened in the PS2 era as well but games weren't overhyped and worked because of what they had to offer.



#### 6. The God Of Games

In the 'golden ages', serious gamers turned to PCs and believed there's nothing better than that. Along came the PS2 and it said, 'Hold my beer'. It is with the PS2 games and their popularity that console gaming occupied real space in the market and became a means of entertainment. The PS2, hence, redefined gaming and stuck around for a long time. It was launched in the year 2000 and its successor, the PS3, came six years later.

#### 7. Start of epic gaming franchises

The PS2 was the start of epic gaming franchises that are immensely popular even today. The God Of War franchise, whose next game is eagerly-awaited by players around the globe, started on the PlayStation 2. The first GOW game came out in 2005 and was the onset of a saga that continues



even today. While we all are waiting for God Of War: Ragnarok with bated breath, we can't forget the first time we were introduced to the Blades of Chaos and tasked with killing the most ferocious enemies. Another epic title that released on the PS2 was the GTA III. Prior to GTA III, the GTA 1 and 2 were played from a bird's eye view. However, things changed with GTA III and gamers got a chance to experience the world with a third-person view. GTA III was a huge success when it launched and was positively received by the critics as well as gamers. Games like GTA: Vice City and San Andreas also emerged as fan favourites and many of us have fond memories of playing these games on consoles. A couple of months ago, Rockstar Games had launched Grand Theft Auto: The Trilogy, which contained updated GTA III, Vice City and San Andreas. The three games' visuals and gameplays got an update but players across the globe couldn't help but think about the retro GTA games and how they were quite perfect.

#### 8. The best horror games

Yep, we saved the best for the last. PlayStation 2 saw some remarkable horror games that caught us off guard and were a roaring success. The Fatal Frame franchise, for instance, was launched on the PlayStation 2 and was one of the many horror gaming gems of the time. From exploring haunted houses in dreams with just a camera to fight off ghosts to solving various mysteries, the Fatal Frame franchise gave us memories we won't forget. Other popular horror titles that came out on the PS2 include Clock Tower III, Haunting Ground, Devil May Cry, Resident Evil 4, Silent Hill: Shattered Memories, and so on.

At the end of the day, sky is the limit for modern gaming and the industry is getting bigger and grander with each passing year. However, the nostalgia around retro games isn't dying down anytime soon and on days when all seems unwell, these are the games and memories that can put a huge smile on your face.\*



# FIFA 23

## EA BOWS OUT WITH A GAME FOR THE FANS

By Sushant Talwar

[feedback@skoar.in](mailto:feedback@skoar.in)

**F**ifa 23 is finally here. As a long-term fan of the franchise, it's a bittersweet moment for me to review the last installment of what's arguably the world's most popular football simulator. With Fifa 23, a three-decade-long partnership that started in 1993 finally comes to an end. EA has already announced plans of launching a new game under the banner of EA Sports FC starting next year.

But that hasn't stopped the publisher from completely surprising me with this one. After years of dishing out the same old experience, Fifa 23 feels like a big step forward for the franchise. Not only does it feel closer to being a football simulator than before, it feels like a well-built game, based on a code that's not a simple variation of what was used to build last year's game.

### WHAT'S NEW?

Even in terms of feature updates,

FIFA '23 is also one of the best we've seen over the last few generations. We get women's club football teams for the first time, and later this year, it will also get an update that will bring the squads and a tournament mode for the men's world cup.

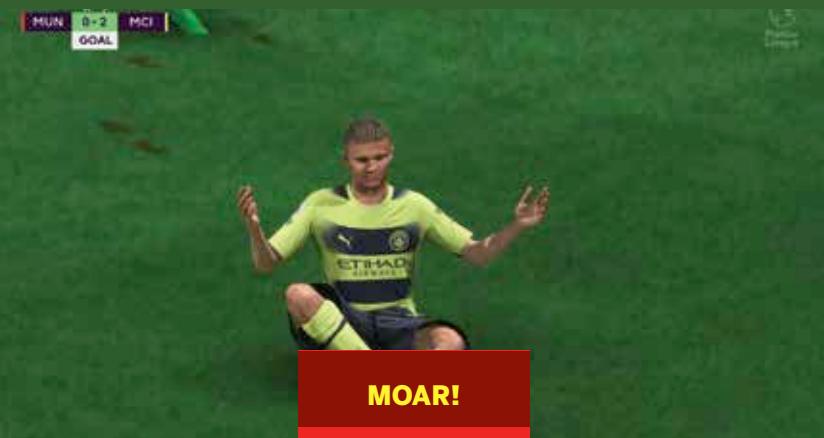
Then there are updates to VOLTA, Pro Clubs, Career Mode, and last but not the least, we also get some much-needed changes to the Ultimate Team, with the team chemistry system that builds the base of the franchise's money-making mode now being completely overhauled. However, even this system is biased heavily towards the idea of using the game's best players and finding a way of putting them in a team -- something that we would have loved to have seen change with this game.

And did we mention that we finally get online cross-play? Yes, now EA allows the matching of games between consoles, and now those on PC are also able to play against PS5 and Xbox Series X players in seasons and friendlies, significantly cutting down those long wait times for finding matches while playing online.

But in our opinion, the biggest changes that have been introduced with Fifa 23 are not in the features department. Rather, it's in the game mechanics.

### GAMEPLAY AND MECHANICS

The game feels more fluid than ever, with off-the-ball movements feeling very natural. And when you're on the ball, we noticed a lot more to like. This is where FIFA 23's new Hyper-motion 2 technology kicks in, bringing with it improved ball physics and new animations, which again gives FIFA 23 a more realistic feel, simulator feel. The improved physics also makes the game more unpredictable,



## MOAR!

### TESTED ON

PS5

### DEVELOPER

Electronic Arts, EA Vancouver, EA Canada & EA Romania, EA Romania

### PUBLISHER

Electronic Arts, EA Sports

### PLATFORMS

Xbox Series X and Series S, Google Stadia, PlayStation 4, PlayStation 5, Nintendo Switch, Xbox One, Microsoft Windows

with both on and off-the-ball clashes bringing to life situations that feel less scripted than ever before. Adding to the realism and feel of a simulator are difficult on-the-ball situations where players now end up taking an extra touch or two on the ball when a pass comes to them at pace. Apart from this what we've loved about the game is just how EA has reworked the passing mechanics of FIFA '23. Both short and long passes feel better

weighted, and these passes now have a good, closer-to-reality thump to them the moment you release or trap them. Well-played crosses are now more dangerous than ever, with through balls also capable of opening up the best of defences.

But EA just didn't stop at overhauling the passing mechanics of the game. In fact, they did the same to the shooting, dribbling and set-piece systems as well. Of these, the most important

change is the shooting system. While we were happy with what EA dished out with FIFA '22, the upgrades introduced with this new game just take it to the next level. Despite the goalkeepers now being more overpowered than ever, timed power shots can now blast through even from the most acute of angles. They also feel more accurate than last year. The same is the case for Finesse shots. These don't just nestle into the top corner if you haven't timed them right and added just the right amount of power required to make them perfect.

The revamped set-piece system has been our only gripe with the game, but that's only because we've still not mastered it. Having said that, in moments that we did get it under control, it proved to an absolute joy. Especially while taking corners. The new system makes mastering set pieces difficult, but it also makes it more rewarding than ever in a FIFA game.

Dribbling for us still remains an area where the game could still improve in. Using a skillful player, dribbles still feel very arcade-like, and not close to what you'd see in real life. But then, that's an element of the game franchise that's actually appreciated by a lot of loyal players.

## VERDICT

With FIFA 23, EA has definitely managed to bring a very satisfying football simulator to our homes. With its rich feature set and upgrades to almost all areas of the game, Fifa 23 now feels more real than ever, making it the perfect title for the franchise to come to an end with.

Yes, Ultimate Team is still not perfect, which honestly is the mode where most players will be spending the majority of their time within the game. Yet, it is true that outside Ultimate Team, and on the pixel-generated pitch, the game shines like no other game from the franchise has in recent years. Thus making Fifa 23 an easy title to recommend if you're in the market for a fun football simulator.\*



## A JRPG MASTERCLASS

By Manish "Trigger-Happy" Rajesh | feedback@skoar.in

**F**ull disclosure, I haven't played any Persona games before this one. I know I know, as an ardent RPG fan it's one of my biggest shames. There were many reasons the Persona franchise eluded me; for starters they were limited to consoles for the longest time, and second, I'm a bit of a stickler when it comes to chronology. All that being said, after playing Persona 5 Royal I'm seriously kicking myself for not picking the franchise up sooner. This is without a doubt, a masterclass in turn-based JRPG. So if you're a fan of the genre and the franchise in general, this is probably all you need to get your hands on Perso-

na 5 Royal. If not, well read on for the full review and I might just convince you.

### WHAT'S NEW?

We were initially confused about Persona 5 Royal, because we thought Persona 5 released back in 2017 (forgive us, first Persona game and all that). Turns out, Persona 5 Royal is an expansion to the existing game. The original Persona 5 was already pretty massive. Persona 5 Royal brings in even more content, including the addition of two new Confidants (two more companion NPCs that you can interact with). We'll avoid mentioning names here because, spoilers. Other than that, the majority of the con-

tent seems to have been added after the final dungeon of Persona 5. There's also a bunch of new activities that can be done to improve your teamwork and new ways to improve your stats. Even the Palaces (Persona's version of dungeons) have been revamped with new elements. These include a grappling hook for Joker (our protagonist) to get around, and the presence of Will Seeds in dungeons. Each Palace now has three Will Seeds in them, and if all three are found they can be combined to create powerful accessories. That about covers everything new here. There's also the Thieves Guild stuff but we didn't really spend a lot of time with that.

## PHANTOM THIEVES OF THE HEART

Persona 5 Royal features a fantastic plot coupled with an excellent cast of characters. Those of you who have already played Persona 5 will know the premise of the plot, but for those of you who have yet to play Persona 5 Royal, we'll keep this part of the review spoiler free.

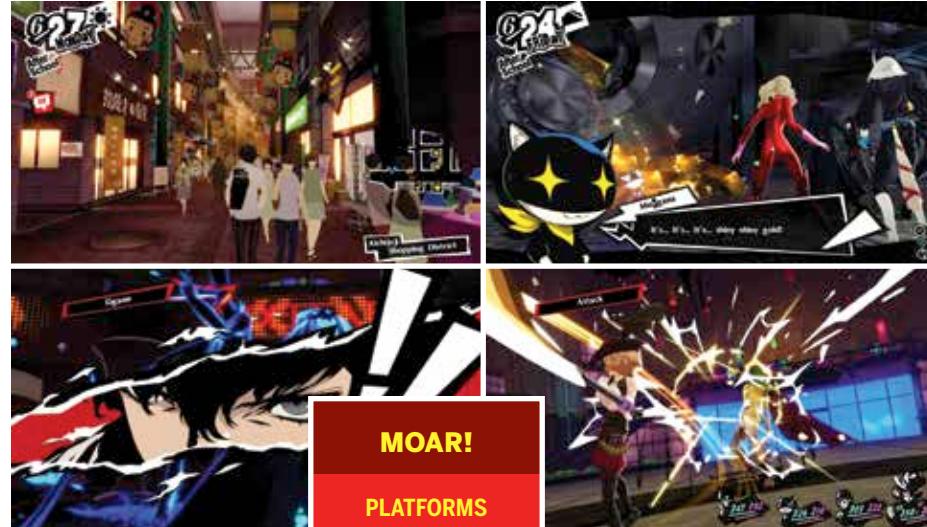
The world of Persona is dominated by two different worlds. The real world that we can observe and a distorted alternative world, which is shaped by the desires of people in the real world. When someone's desires, usually the twisted kind, become too twisted in the real world, it manifests itself as a Palace in the distorted world. This Palace is essentially how that person views the real world around them. For instance, the very first boss you face thinks of themselves as a king in a castle, so their Palace in the distorted world is a castle with the people around them as slaves.

This is where you come in. The Phantom Thieves who are able to break into distorted palaces and steal people's hearts (metaphorical for their desires). Doing so results in the person having a change of heart, and changing their ways. That's about the gist of Persona 5 Royal's plot. Changing the hearts of twisted individuals to help those around them. It's certainly an interesting premise and we got hooked pretty quickly. The writing is great and it makes the time invested in getting to know them really feel worth it.

## GAMEPLAY

You remember how in the intro we mentioned that the Persona games have been limited to consoles for the longest time? Well we certainly felt a bit of that when we played the game on PC. However, it's not a skill-based real-time game, so the controls aren't too much of an issue. This is turn-based combat at its very best.

Persona 5 Royal employs a rock paper scissor-esq system that's kinda like the Pokémon games but not really? You essentially capture Personas that you can use in combat, and each Persona has different strengths and weaknesses. They've added even more Per-



### MOAR!

#### PLATFORMS

Nintendo Switch,  
PlayStation 5, Xbox  
Series X and Series S,  
PlayStation 4, Xbox  
Cloud Gaming,  
Microsoft Windows

#### DEVELOPERS

Atlus, P Studio

#### PUBLISHERS

Atlus, Sega, SEGA of  
America

#### PRICE

₹3490 (Steam)

## VISUALS AND AUDIO

The art style and overall aesthetic in Persona 5 Royal is something else. The UI, the visuals, the combat, it's like you're tripping on acid; and I don't even know what that feels like! Whatever be the case, I can't get enough of it.

Paired with the amazing jazz-funk soundtrack the game has going for it, I can

understand why people have a hard time putting the game down once they've started. The voice acting is also great, and plays a role in adding personality to the well-written characters. Even some of the Personas are voice acted. Speaking of Personas, the designs are as whacky as they come, but I dig it. Zero complaints in this department from me.

## VERDICT

Persona 5 Royal sets the benchmark for JRPGs as far as I'm concerned. Great storytelling, characters, intuitive and deep combat, that aesthetic, and a cosmic boatload of things to do make it the complete JRPG package. Of course, the only downside is that it's a significant time investment. If you're a fan of the genre, it's a no-brainer. If you're a fan of the franchise, you've probably already finished it for the second time. And if you're itching to try out a new JRPG, well...\*

sonas and tweaked existing ones as well. You've also got usable and consumable items, and equipment that needs upgrading, etc etc; it's the definition of a JRPG. A damn good one at that.

Since we haven't played the original Persona 5, we didn't know these weren't a thing before, but in Persona 5 Royal your guns reload after every battle, which is fantastic. The Baton Pass feature during combat is also available right away, as opposed to requiring to be unlocked. Essentially, it allows you to chain combos with your teammates by exploiting enemy weaknesses. Hit a weak spot, pass the baton. It's pretty cool and allows you to breeze through some of the more grindier sections of the game. The Baton Pass can also be improved in Royal with the new minigames in the new explorable district.

Speaking of weak spots, abusing these is how you can actually acquire new Personas. Weaken a Persona you're fighting, and you will "Hold them up!". You can then open a dialogue with them and attempt to recruit them to your side, or grab extra cash or an item from them, OR all-out attack for a super stylish finish.

The gameplay gets even deeper when fusion comes into play, allowing you to fuse two Personas to create a new one. The new one's also able to inherit abilities from its parent!

**T**here is no doubt about the fact that one of the most effective ways to keep a player invested in the game is to show that their choices matter. And this is best done with the butterfly effect, wherein a small choice of yours could impact the game's story in a large way.

Allow us to break it down for you. For instance, you're in the middle of the game story and you're prompted with two options- you can either save player A from falling off a cliff or aid player B in defeating a monster. The option that you choose impacts the game and a related cutscene plays out. But this isn't the end of it. Your choice here will lead to a chain of effects that will impact the game's ending. It might change the climax entirely or change a small part of it. Called the Butterfly Effect, the idea behind this concept can be simply described as a small choice with huge effects.

Over the years, many games have successfully implemented the butterfly effect in their storylines and these narratives are incredibly fun to play. If you're someone who tends to get way too involved in a game's story and considers it the most important element, then the following games are a must-play for you.

So, without further ado, here are some games with butterfly effects that are simply unmissable.

## 1. The Dark Pictures Anthology: Man of Medan

With their compelling storylines,

# Five Games with Butterfly Effect

By D "Ninja Duck" S

feedback@skoar.in



stunning graphics and bone chilling sound effects, The Dark Pictures Anthology titles manage to score quite high on the awesomeness scale. The Man of Medan is the first game of the series and was launched in 2019. The game has two playing modes- Don't Play Alone (co-op gameplay) and Play Alone (single player mode). The first scene takes us to the time right after World War 2, at a market in China where two drunk men are getting ready to go back to their ship. When they do arrive, one of them is sent to the medical ward while the other is in the brig. After some time passes, we get to control the character who was in the medical ward and weird things start happening.

A little bit of trivia here: as per various reports, the SS Ourang Medan (which can be translated to Man of Medan) was a ship that had sunk in the sea with its crew dying under mysterious circumstances. It was said to be sailing from a small Chinese port to Costa Rica. However, the authenticity of the story remains a question till date. There have been many attempts to find out more about the ship but all of them have gone in vain.

Back to the game, after the events on the ship, the game enters first person mode and we meet the 'Curator', who warns us that every choice we make will affect the story's ending.

We then meet a group of five people who are on a diving trip that goes horribly wrong. They soon find themselves trapped in a ghost ship and your choices will affect their fate. If you are playing in multiplayer mode, each player gets to control

different characters. The Dark Pictures Anthology's other titles, Little Hope and House of Ashes are also unique adventures definitely worth embarking upon.

## 2. Detroit: Become Human

The beauty of the games having a butterfly effect is the possibility of re-runs. Once you finish the game, it isn't really the end. You've got to see what would've happened if you had played differently. And that's exactly what Detroit: Become Human promises. Welcome to the future! The year is 2036 and Androids (robots) and are



humans co-existing. But when the machines gain emotional intelligence and start acting more like humans, trouble ensues. You, as a player, can either bring about an apocalypse or can help the two achieve harmony.

We closely follow the stories of three protagonists- Kara, a house-maid, Marcus, an assistant to a renowned artist, and Connor, a specialized police investigation Android. The choices that we make on their behalf significantly impact their environment and the ending of the story. What's more? We don't only get to affect the fate of these characters, but also, of the entire city.

## 3. Until Dawn

The game that made the Butterfly Effect popular, Until Dawn was launched back in 2015 for the PlayStation 4. The same creators then made The Dark Pictures Anthology games.

Until Dawn, a survival horror drama game, takes us to a lodge in a remote mountain where a group of friends reunite after a year. Strange events

soon follow suit, and they all must survive till dawn, when they're rescued. Until Dawn has thrilling sound effects, a well-written storyline, well-rounded characters, and a balanced gameplay that is equal parts adventure and equal parts horror. Back in the day when the butterfly effect was not that common, Until Dawn stood out from the rest as it gave us a chance to fully experience the story of a game along with giving us an opportunity to impact how it is told. It won't be wrong to call it an interactive movie setting where you find yourself fully invested in the world.

## 4. Silent Hill: Shattered Memories

This has got to be the OG butterfly effect game. The 2009 game was launched for PlayStation 2 and was by the famous Konami Digital Entertainment. The game reimagined the first ever Silent Hill game and added a few more characters to it. Two settings drive the game forward: the first one



being where Henry Mason goes in search of his missing daughter and the second one being in first-person mode, at a therapist's office, where you get to play several games that point towards your personality. Throughout the game, there are various choices that a player must make. These might seem insignificant at the moment, but they are contributing towards the game's ending. No points for guessing that the game has multiple endings and the one you get depends entirely on your choices.

A message displayed before the start of the game reads, "This video game psychologically profiles you as you play. It gets to know who you really are then uses this information to change itself. It uses its knowledge against you, creating your own personal nightmare. This game plays you as much as you play it."

## 5. Assassin's Creed: Odyssey

Assassin's Creed's 2018 release, Odyssey, also touched upon the butterfly effect. From one of the many features that the game introduced, a prominent one was the ability to choose between dialogues in the middle of a cut scene and certain choices that impacted the story of the game. One of the most important choices was when it is upto the player to kill the protagonist's father or spare his life. There are multiple possible endings for the game and the one that you arrive at depends on the choices you make along the way. The game's world also responds



based on the choices that you make, adding to the overall entertainment quotient of the game. \*

# GAMING ON A LAPTOP

A guide that will walk you through  
all about that portable life

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



IMAGING BY ANIL VK

**W**hen you think of gaming, traditionally, one's mind goes to a full-fledged PC setup that costs an arm and a leg. It is also of no help that the PC components market, due to the influx of scalpers, has seen a momentous rise in prices, especially when it comes to graphics cards.

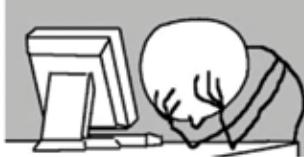
In this scenario, both the consumers and manufacturers turned to laptops. For the companies, it was a chance to make up for the lost sales on components, and for the consumers, who are loyal to the PCMR, it was a chance to get a taste of the gaming performance that PCs offer.

However, one problem arose during this migratory phase. A lot of our brethren ended up buying laptops which looked decent on paper but ended up being a boiling hot pile of garbage. We could not stand that happen to our fellow gamers who, despite all odds, did not cross the line over the world of consoles.

While consoles make for a decent purchase if one's looking for a decent gaming experience. But for anything more than that, laptops make more sense. At the end of the day, you have to get those bucks in to pay the bills!

So, we bring to you a short laptop guide that will help you make the best decisions when you are out in the market looking for a gaming laptop. And if you already have one, we

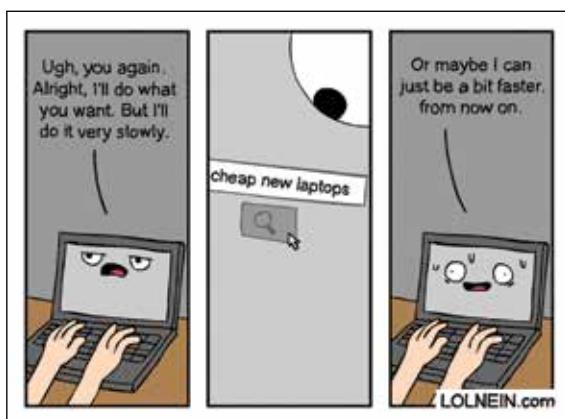
### Gamers look at the prices of PC parts:



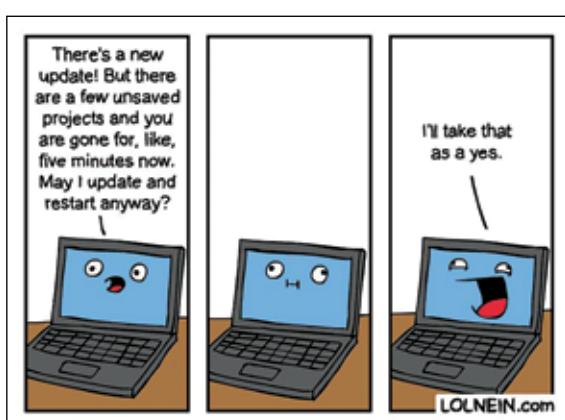
also have something in store for you too!

### What to look for in your dream battlestation

If you are out in the market and looking to buy a gaming laptop, then the time is right. Almost all the major players in the market, like MSI, HP, and Lenovo, are pumping out some great machines that too at reasonable prices.



SOURCE: LOLNEIN



### We all hate that, don't we?

The question that remains is what to look for when buying a gaming laptop. Well, we have you covered. When buying a gaming laptop, you should pay special attention to the following things:

Your use case: Just go to the PCMR subreddit, and you will see hundreds of posts with users buying hardware that is too overpowered for their use case. We recently did a cover story about how geeks should

manage their money, and one of the highlights was that you should keep your spending in check. If all you are going to do is play occasional games of CS:GO and type out word documents, then spending a ton of money over buying a top-of-the-line gaming laptop does not make sense at all. So, when you set out to buy your laptop, your first step should be to factor in what games you will play and what other things you will be doing.

Do you need an upgrade: Once you have charted out what you are going to do with your shiny new laptop, take a step back. Ask yourself and your old machine – Is there a need to get an upgrade? If you are planning to buy your first system, then skip this part. Run some basic benchmarks and test out the performance of your machine. Some benchmarks that we use at SKOAR! to gauge the capabilities of the machines that we get are:

3D Mark: It is one of the most comprehensive gaming benchmarks out there. There are different variations of the benchmark that are used for different use cases targeting different classes of hardware. You can find a complete guide to the benchmarks here: <https://dgit.in/3DMarkBM>. The benchmarks that we primarily use are –

PCMark 10: PCMark 10 tests almost everything apart from gaming performance of your system. PCMark 10 Applications benchmark includes the following tests: Word test, Excel test, PowerPoint test, and Edge test. The scores from this benchmark will help you gauge what your system is capable of in terms of day-to-day non-gaming use.

Once you are through with running the benchmarks, compare the scores of your old machine with that of the current-gen laptops that are available in your target budget. If the difference

in scores is within 30-40 per cent of the laptop that you could get for the money that you are willing to spend, then we'd recommend you hold off on your purchase.

It simply does not make sense to get your hands on a new machine at this point. What you could do is get your machine fully serviced and remove all the gunk that might have built up and would be blocking the cooling vents. A thermal paste replacement should also go a long long way.

Now, if you were from the other side and had to buy your first gaming machine, then for starters, read the words of our SKOAR! Legend, Trigger-Happy's words carefully -

"A good processor can make a difference when it comes to gaming performance. Many games assign certain

tasks to the CPU and are not entirely reliant on the GPU for performance. In situations such as these, the weaker (and older) CPU becomes the bottleneck as the GPU is certainly capable of pulling more frames..."

... As newer generations of gaming laptops are released to the market, gaming laptops with older GPUs and hardware naturally become a lot more pocket friendly."

Take that in. If you are looking for a new machine, while its specs may



**Not bad at all!!**

look excellent on paper, the real-world performance might not be up to the mark due to several factors. So, ensure that all your needs are being met with the configuration and that that particular SKU that you are planning to spend your hard-earned money on does actually make sense.

Also, unlike earlier, when you had to spend a considerable amount of money to get decent performance out of laptops. For gamers who are starting out, a budget of about ₹80,000 should be sufficient. In the market right now, the 80k mark is the sweet spot. After that, the bump that you get for the money that you spend is very low.

Focus on getting the most for your money. The ideal specs that you should look for in a laptop to game on and one that would last you a while are:

\*If your laptop comes with 8GB of RAM with expandability available, with the rest of the specs being what you desire, then you can go for it and add another stick of RAM later.

\*\*\*When looking at storage, ideally, look for a laptop that has a standard expandability slot available for use.

\*\*\*A thunderbolt port will come in handy to connect an eGPU to your laptop or provide extra display outputs using a hub.

We hope that this short guide will help you get your laptop-buying-related queries sorted. However, if questions still arise, then drop an email to Agent001, and he'd be happy to help! \*

Benchmark	Use
FireStrike Ultra	4K gaming with DirectX 11
FireStrike Extreme	DirectX 11 gaming PCs
FireStrike	DirectX 11 gaming PCs
TimeSpy Extreme	4K gaming with DirectX 12
TimeSpy	DirectX 12 gaming PCs

Component	Ideal Specs
Processor	AMD Ryzen 7 4000 series or Intel Core i5 12th Gen or above
Screen	144Hz FHD display
RAM *	16GB
Storage **	512GB NVMe SSD
Ports ***	2x USB 3.0 ports, 1x HDMI out, 1x Ethernet jack, 1x Thunderbolt port
GPU	NVIDIA RTX 3050 or above



# MOBILE MADNESS

You have to try these games out on your smartphone!

Team Digit

## Time Defenders

**A**s Time Defenders introduces you to its highly anime-like, steadily paced tale, this tower defence anime game has a range of characters. Comparatively speaking, it is a more specialised genre than the generic RPGs. The 30 chances to cheer for a team you prefer are worth checking out, and it reminds us of Epic Seven while also being reminiscent of Arknights. The game, unusually, uses both 3D models and fully narrated story beats. They do make use of this, with the additional motions expressing the situation much more effectively than a flashing screen and modified 2D sprites as in other games of this genre.

The objectives to be protected also change as the tale progresses through the mission phases. The objective's HP has a health metre, unlike Arknights, giving you greater room for error. The placement of units is done on designated hex-



2.5

agons, with melee and ranged units having different markings. A radius surrounding a unit represents their area of effect, and talents are often only usable inside this radius even if they have an AOE impact. You can just drag their symbol from the bottom of the screen up if a unit can use it without needing to be targeted.

The basic basics aren't particularly thrilling: deploy units, prevent enemies from reaching the goal, trigger Melantha's skill and cry about not having enough deployment points. Character rarity ranges from N, R, SR, and SSR;

the higher the rarity, the finer the talents and other attributes. But to us it seems excessive to have so many factors in character development, from the equipment gacha to the requirement for several copies for an awakening is just unnecessary complications in our opinion. Although you can still progress quite far even with free, low rarity troops with more effort, we just did not find the story gripping enough to make us continue.

## Nova: Iron Galaxy

**S**TONE3's Nova: Iron Galaxy is a casual sci fi strategy title where players are given access to their own space station, which they can defend and upgrade. While guiding you into a game with gorgeous graphics that regrettably never takes the time to explain its game mechanics, the booming voice-over in the opening cinematic underlines the significance of your role in the galaxy. Following a short cinematic, the game introduces you to a group of characters. You can now begin assembling your first fleet. These fleets eliminate extraterrestrial dangers, gather resources for constructing and enhancing ships, and generate the money required to upgrade your space station further. The game also has a storyline that is gradually being revealed. You learn that in the past, a struggle caused you to lose some of your memories. There is a tiny cast of characters, primarily galactic generals and

others of comparable rank to the character. They primarily serve as exposition and have no bearing at all on gameplay. The majority of the game is composed of repeating gameplay cycles where you send your fleet into war, then upgrade with the loot earned. You keep repeating for more loot until you get enough for a specific upgrade. And then do it again once more for another. We did not notice much differences between continuous battles either as we advanced in the game, making it

feel more like a repetitive struggle. The player is neither informed of nor displayed the most crucial features that are required for advancement. Even after about 20 stages, only half of the available menu is described; which is more than enough time for games to cover crucial game mechanics. Hence the world-building and lavish aesthetics are just overshadowed by the monotonous gameplay and mysterious mechanics, which boils down to you just idly watching the same actions play out over and over again.



3

## Mythic Legends

**W**ith its fascinating blend of RPG features and auto chess arena battlers, Outfit7's Mythic Legends made its global iOS and Android debut this year. It aims to keep the competition brief and focused. Mythic Legends is a free-to-play mobile challenger that might resemble other on-the-go games you might be familiar with at first glance. The short form automated tactical skirmishes at the heart of this vibrantly coloured hero battler take place in the limited limits of a barren arena. Players must gather a group of warriors, combine them into a powerful squad, and destroy rival players while advancing through the main campaign or fighting in a PvP-style ranked mode. It appears suspiciously similar to Clash Royale or Brawl Stars, and although the similarities between the two games are primarily superficial, it would be hypocritical to claim that they don't exist. It's a basic enough concept with many faces and appealing ideas to suit your personal preference, whether



you want Nordic hordes, Egyptian warriors, or the acid green of the undead. Although the cartoonish exterior may not appeal to most post-apocalyptic epic admirers, this mobile game is unmistakably more populist. There are plenty of things to do in this game, even though the main fight in Mythic Legends can be enjoyable enough to just sit and watch. Mythic Legends puts players into a series of arena-based battles over the course of numerous stages spread out across a protracted and winding journey through an animated overworld. Players build their teams by selecting members from a deck of stern-looking characters after starting with only a few Champions. The broad appeal of these aesthetics, the humorous caricatures, and the large, bright buttons that make up the in-game user

interface make it so intuitive that practically anyone can comprehend what's happening straight away. So

while it might not enlist the most innovative narrative or be on the cutting edge of action adventure, the combat is interesting enough and easy going without being a steam-rolling exercise.

## Chinese Parents

In this casual yet realistic life sim with a Chinese authenticity, you step into the shoes of an average kid from the first day of life towards the end of your high school days. After you know their gender, you may give them a name. You will influence their lives over the course of 48 turns, which will take them from infancy to senior high school and culminate in the 'Gaokao,' China's infamous version of the SATs. Two key areas make up shaping your child for each turn. You can tap various colour pieces on a board in a mind map that resembles a match-3 type mini-game to improve your child's IQ, EQ, Constitution, Imagination, and Memory metrics. Knowledge points and missing pieces are needed to open new learning opportunities for your child. These resources then factor into your calendar for that turn as you provide your child a specific amount of activities split between leisure and academic pursuits. It quickly becomes clear that you must strike a balance between these activities because if you spend all of your time studying, your stress levels will go into overdrive and your parents' contentment with you will suffer. The entire game casts a little sardonic eye on Chinese parenting practices, recognising both the positive and



negative aspects without criticising anyone and instead encouraging group support through shared tears and laughter. It walks a fine line between being honest without being exploitative and delightfully satirical. Your world starts to open up as you get older; you gain access to more school subjects to study, more ways to chat, new experiences that liven up your daily life, and finally diagnostic exams to determine how well you've been keeping up with your studies. It also blends

chance, secret information, and free will. The icons that players add to their characters can be chosen based on

each stat, so they are continually determining what they believe to be significant. Special tiles provide players extra energy or more effective cognitive growth, adding a level of strategy to the minigame. Most crucial, though, is the fact that it is highly easy to play this game sub-optimally but not brilliantly. It's a system that demands talent but never produces perfection since it imposes choices, decisions, and trade-offs. Chinese Parents is a rather forgiving game, despite the fact that it plays on the tiger parent stereotype, even if you frequently fail those mock tests for which you frequently feel unprepared. It is an approachable sim for everyone to enjoy thanks to its casual mobile visual novel graphics and calm music.

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