

TINKER TIMES™

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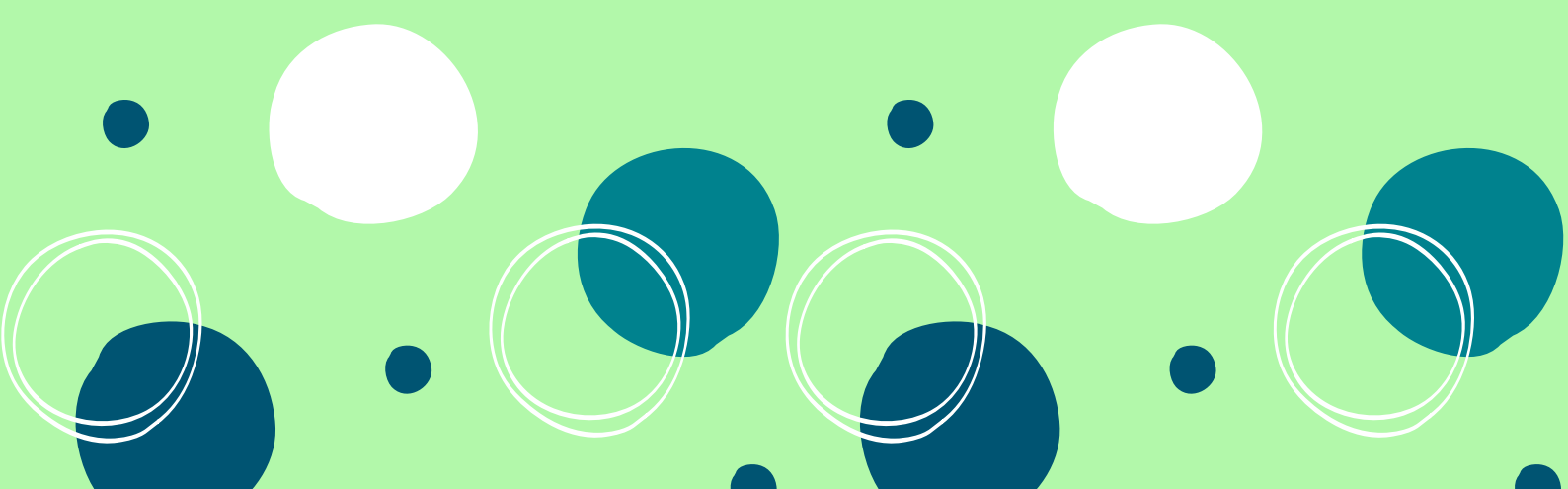
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The top of the page is decorated with several overlapping circles in teal and white. Some are solid teal, while others are white outlines. They are scattered across the top edge.

HAPPENINGS @ SSA

The Srians have participated in the National Coding Olympiad 2021 Hackathon, organized by Codingal. They had to upload their projects based on either an application (web/Android) or build their website. The topics were mentioned based on the age and group category based on which the projects were framed. Around 15 students participated in this challenge and 9 of them have been recognized for their hard work with an appreciation certificate.

Students across all levels are now planning to participate in even bigger challenges on the row-SmartIndia Hackathon 2022, Asia's biggest Hackathon platform. The students also aim to participate in the ATL Marathon 2022, organized by NITI Aayog, Govt. of India.

The bottom of the page features a similar decorative pattern of overlapping teal and white circles, mirroring the header design.

METaverse. IS IT A VIRTUAL ECSTASY OR A DYSTOPIAN FUTURE?



Sourab Ghosh
Steam Educator, Robotics Evangelist

Understanding the metaverse is complicated, especially because it doesn't exist yet. Since Big Tech companies like Epic Games, Nvidia, Microsoft, Intel, and Facebook (I mean, "Meta"), won't stop talking about it, there's an evolving lexicon to describe the next iteration of the internet.

Let us understand the definition first.

If the contemporary internet experience is two-dimensional—meaning you browse and scroll through it on a screen—the metaverse is 3D. You'll be "walking" through it via connected headsets or glasses.

It is unclear whether there will be one metaverse or many different separate metaverses (or any metaverse at all, really), but this seems to be the one constant: The metaverse is an immersive next-generation version of the internet, likely rendered by virtual or augmented reality technology.

The venture capitalist Matthew Ball, whose writing on the metaverse has influenced Mark Zuckerberg, describes the metaverse as a "successor state to the mobile internet" and a "platform for human leisure, labor, and existence at large."

Meet your digital twin



Mirrorworld: A mirror world is a digitally rendered version of the real world where there are virtual counterparts of real-life people, places, and things. Mirror Worlds are often found in sci-fi, including Netflix's *Stranger Things*, *The Matrix* film series, the novel, and the film *Ready Player One*. The metaverse could be a mirror world designed to precisely reflect the physical world, or could resemble an entirely invented world one might encounter in a video game.



Skeuomorphic design: The wonky term essentially means that virtual objects will be made to closely resemble real-world ones. The metaverse could resemble the physical world, in that it will often appear tethered to the physics and designs of our reality, but it doesn't have to be identical to it.



Digital twin: A digital twin is a virtual version of a real-life object or structure. The term was first introduced in the 1991 book *Mirror Worlds* by David Gelernter, digital twin technology was first used by NASA to run simulations of space capsules in 2010. Microsoft, in particular, has emphasized the need for digital twin technology in building the metaverse.

What's the difference between VR and AR?

Virtual reality (VR): VR is an immersive experience where one puts on a headset and sees, and can operate within, a digital world. VR currently uses full headsets rather than glasses, immersing the user in a 360° virtual world that they can move around in—as long as they don't bump into physical walls.

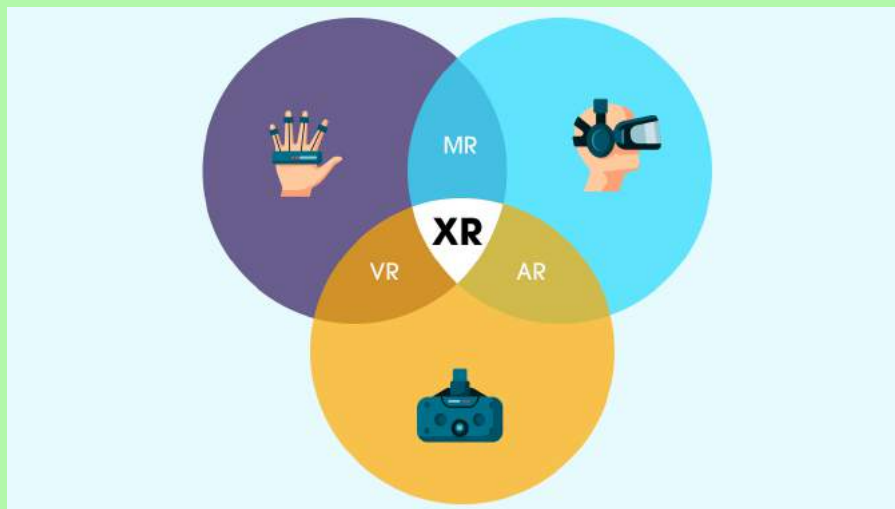


Augmented reality (AR): AR is a digital overlay projected on the real world. Think of Niantic's Pokemon Go, Snapchat's dancing hot dog, or even wearables like Google Glass. While Google Glass never took off, we could soon be peering through AR-connected glasses like Facebook's Ray-Ban Stories or Snapchat Spectacles.



Mixed reality (MR): Mixed reality incorporates elements of VR and AR, but the exact definition is murky. A person can interact with virtual and real-world objects, and virtual objects can interact with real-world ones. For example, the Snapchat hot dog can dance across a table without falling off the edges.

Extended reality (XR): Extended reality is a catch-all term for VR, AR, and MR, concepts that often overlap. Eventually, the lines between VR, AR, and MR might blur as the metaverse becomes a reality—making XR a more appropriate term.



Navigating the many metaverses

Neal Stephenson: Stephenson is a science fiction writer who coined the term “metaverse” in his popular 1994 novel Snow Crash. In the novel, the metaverse is a persistent virtual world navigated by the aptly-named protagonist Hiro Protagonist.

Massively multiplayer online role-playing game (MMORPG): MMORPGs are interactive games that form the basis of what many feels will be the metaverse. Millions of people interact in shared spaces—playing games, building things, visiting virtual shops, and even going to concerts. Examples include Fortnite, Roblox, Minecraft, or the NFT-based Axie Infinity.

Oculus and Horizon Workrooms: Social media company Facebook bought Oculus for \$2.3 billion in 2014. While it's been a leading VR platform for years, Oculus may now be the portal for many hoping to peek at Facebook's vision for the metaverse. Facebook has already introduced a virtual work experience called Horizon Workrooms, a sort-of VR version of Zoom with legless avatars.

Second Life: An online virtual world, introduced in 2003, Second Life is an early example of social experiences in the metaverse. Although not quite an MMORPG (it's not designed for game-play), Second Life remains an open-world social network with avatars. The metaverse might resemble a VR version of Second Life.

Non Fungible Tokens (NFTs): Blockchain-based certificates of authentication for digital objects, which could allow proof of ownership of goods in the metaverse.



Challenges for Metaverse:

Just as the internet created challenges for safety, privacy and security, the metaverse will add even more challenges. Safety experts worry about stalking, bullying and uncivil behavior in virtual or mixed reality worlds. The metaverse could provide forums for misinformation and manipulation.

How to prepare:

Both Pearlman and Benoit-Kurtz agreed that in order to protect their data and their employees' privacy, companies will need more than just a few policy changes.

Enterprises will need to plan ahead how they will ensure their AR and VR platforms are not being abused either externally by hackers or internally by unethical managers intent on violating the privacy of their colleagues and subordinates.



"Adopting this type of technology by an organization is much bigger than IT and HR. This step into the metaverse will transform organizations significantly over the next five to 10 years," Benoit-Kurtz advised.

"Rather than waiting for the technology to be knocking on the door, organizations should take a proactive approach to the topic by starting to address the conversations at the organizational level now."

A DEEP DIVE INTO IOT

Have you ever heard about what is the Internet of Things or IoT, it is a very advanced technology that we are going to use in our daily life very soon. I want to ask you a question that who brings vegetables to your house, the answer is probably you or any of your family members.

How would you feel if I were to tell you why not your fridge automatically checks the availability of vegetables and places the order for the vegetables themselves. Isn't this a wonderful technology?

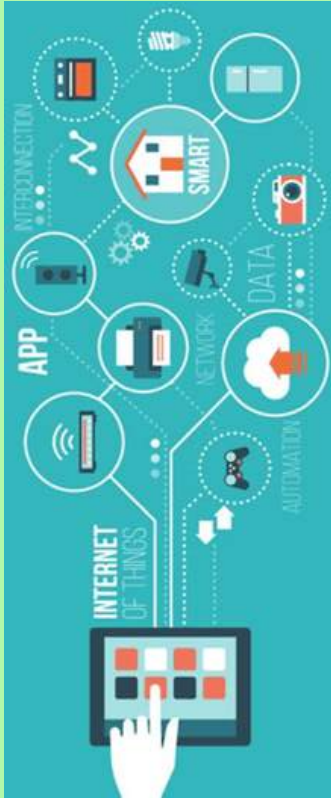
I am going to tell you today about this on the bus and how the Internet of Things is going to make our life even easier. Internet of Things is such a concept with the help of which all our work will go in automatic mode. We don't need to worry anymore about them. With this, we do not need to reduce our daily.



What is IoT?

The full name of IOT is Internet of Things, in which all the things used in daily life, which are controlled by Switch's On and Off, are all connected to each other through the Internet. These devices used in your daily life can be your Smart Phone, Coffee Makers, Washing Machine, Headphones, and Wearable Device and many more.

How does IoT work?



If a person wants that his AC should be turned on before reaching home and his room becomes cold by the time he reaches home, then it can happen that you can turn on the AC with the help of IOT and also turn off the AC that is on.

Any person can connect their home devices together with the help of Internet with the help of IOT, so that you can handle those devices from anywhere, you can take advantage of this technology only when your mobile and device's IP.

These devices are connected with the address. It is such a platform that accurately detects which information is useful and which is not. Where the customer stays for a long time, you can use the IOT sensor to find out all this information.

Characteristics of IoT

Intelligence

IOT comes with a combination of Algorithm and Calculation, Hardware and Software which makes it smart. It enhances its capabilities in the environment which helps things to respond intelligently to a particular situation and to perform a particular task. Supports them.



Connectivity

Connectivity provides the power of the Internet of Things by bringing the objects of Daily Life together. IOT enables network access to things, creating new opportunities to market smart things and applications to the Internet.



IOT IN AGRICULTURAL SECTOR



Smart agriculture is a broad term that collects ag and food production practices powered by the Internet of Things, big data and advanced analytics technology. When we talk about IoT, we generally refer to adding sensing, automation and analytics technology to modern agricultural processes. The most common IoT applications in smart agriculture are:

1. Storage facilities, or basically any important factor that influences the production.
2. Smart agriculture vehicles, drones, autonomous robots and actuators.
3. Connected agriculture spaces such as smart greenhouses or hydroponics.
4. Data analytics, visualization and management systems.
5. Predictive modelling and planning.



The Benefits of smart farming: How's IoT shaping agriculture

Technologies and IoT have the potential to transform agriculture in many aspects. Namely, there are 5 ways IoT can improve agriculture:

Data, tons of data, collected by smart agriculture sensors, e.g. weather conditions, soil quality, crop growth progress or cattle's health. This data can be used to track the state of your business in general as well as staff performance, equipment efficiency, etc.



Better control over the internal processes and, as a result, lower production risks. The ability to foresee the output of your production allows you to plan for better product distribution. If you know exactly how many crops you are going to harvest, you can make sure your product won't lie around unsold.



Cost management and waste reduction thanks to the increased control over the production. Being able to see any anomalies in the crop growth or livestock health, you will be able to mitigate the risks of losing your yield.



Increased business efficiency through process automation. By using smart devices, you can automate multiple processes across your production cycle, e.g. irrigation, fertilizing, or pest control.



Enhanced product quality and volumes. Achieve better control over the production process and maintain higher standards of crop quality and growth capacity through automation.



IoT use cases in Agriculture

Monitoring of climate conditions

Probably the most popular smart agriculture gadgets are weather stations, combining various smart farming sensors. Located across the field, they collect various data from the environment and send it to the cloud. The provided measurements can be used to map the climate conditions, choose the appropriate crops, and take the required measures to improve their capacity (i.e. precision farming).



Agricultural drones:

Perhaps one of the most promising agri-tech advancements is the use of agricultural drones in smart farming. Also known as UAVs (unmanned aerial vehicles), drones are better equipped than airplanes and satellites to collect agricultural data. Apart from surveillance capabilities, drones can also perform a vast number of tasks that previously required human labour: planting crops, fighting pests and infections, agriculture spraying, crop monitoring, etc.

Predictive analytics for smart farming:

Precision agriculture and predictive data analytics go hand in hand. While IoT and smart sensor technology are a goldmine for highly relevant real-time data, the use of data analytics helps farmers make sense of it and come up with important predictions: crop harvesting time, the risks of diseases and infestations, yield volume, etc.

Data analytics tools help make farming, which is inherently highly dependent on weather conditions, more manageable, and predictable. For example, the crop performance platform helps farmers access the volume and quality of yields in advance, as well as their vulnerability to unfavourable weather conditions, such as floods and drought. It also enables farmers to optimize the supply of water and nutrients for each crop and even select yield traits to improve quality.



ACTIVITY TIME - MAKE YOUR OWN FILTER!

We all know that potable water is getting hard to find with the decreasing level of underground water. Hence, it is essential that we make our own filter that is viable and cheap. Here's a DIY filter-making activity:

Materials Required: Plastic bottle, ground charcoal, washed sand, cotton, two medium-sized containers, plastic tap, glue gun.

Procedure

Step 1: Take one plastic bottle and make holes at the back using a drilling machine. (*please take help from your parents or carpenter)

Step 2: Remove the plastic wrapper



Step 3: Put cotton inside the bottle at the base like this:



Step 4: Now put ground charcoal inside the bottle over the cotton. Now put dry washed sand inside the bottle forming another layer above charcoal



Step 5: Now put another layer of cotton on the space left. Take one medium-sized container and make one hole at the back so that the neck of the bottle can easily glide through.

Step 6: Now make holes on the cap of the bottle. Now fix the bottle and the container in the way shown below and also attach the cap of the bottle from inside of the container.



Step 7: Seal the outside neck of the bottle using a glue gun. Now make one hole at the lower side of another medium-sized container.



Step 8: Now fix a plastic tap to the hole at the side of the other container taken.



Step 8: Now make a hole on the lid of this container.



Step 9: Now fix the bottle attached container to this and then put some glue at the joining point to avoid any leakage of water.



Step 10: Now take some muddy dirty water and measure the number of suspended impurities using a turbidity sensor pen. Note the number displayed.

Step 11: Now add this water to the filter and leave it as it is for at least 3 hours.



Step 12: Now take some filtered water from the tap and again put the turbidity sensor pen to find out the amount displayed. Any amount below 50 states it's allowed for drinking.



Voila! Your DIY Filter works like any other commercial filter. However, now its time for you all to access and find out the answer about the science playing behind the addition of cotton, charcoal and sand. Can you think about making your filter a smart one? Well, smart means incorporating sensors! Find out, discuss with your teacher how you can do so and make your own version of a Smart filter!

QUIZ TIME

Scan QR code to participate



ABOUT US

Rabvik Innovations aims to train and prepare the next generation of roboticists, scientists, and engineers capable enough to unwrap the envelope of innovation. The mission is to empower their creativity to achieve the impossible in the field of technology. Rabvik Labs are highly equipped to prepare these newbie for a toe-dip in the pool of smart technology. This will allow them to get real-life experience before hand in the world of robotics, automation, AI and IoT. No doubt all these fields will going to become an ocean in a few years for career development and self advancement.

For more details



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