

Volume-10
(Year 2021-22)

DIGITAL MINDS



Bunts Sangha's
S.M. Shetty College Of Science, Commerce &
Management Studies, Powai, Mumbai- 76
Permanently Affiliated to University of Mumbai

NAAC Accredited 'A' Grade
IMC RBNQ CERTIFICATE OF MERIT 2019
ISO 21001:2018 Certified



**Department of
Information Technology**

In

Collaboration with IT association

Presents

“Digital Minds”

Volume – 10 (2021-22)

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Principal's Desk

The Bunts Sangha's S.M.Shetty College believes in all round development of students through holistic education. The Vision of the college, '**Personality Development for Nation Building**' is the guiding principle of all our activities and efforts.

The Innovations and Best Practices implemented in the college are aligned with the Vision and Mission which has given an identity to the college. One such innovative and best practice is '**Sharpening Skills in Teaching and Research.**' In the pursuit of Mission of the college, various co-curricular, extra-curricular activities and extension and outreach programs have been designed and implemented for the benefit of students. A separate Research Cell has been started for students to encourage and develop research bent of mind among them. Each program brings out magazines by motivating students to write articles in them.

"Digital Minds" is a platform where young minds can participate, discuss, explore, analyze and contribute something resourceful in the progressive domain of technology. It is a yearly student's magazine publishing study and research articles on varied aspects of technology.

I wish that our students will come forward to learn, go forth to serve and excel into the world with great strength, not only to do job but to remain beautiful human beings.

Dr. Sridhara Shetty

Principal

Coordinator`s Message

Congratulations to the students and faculty associated to magazine committee for successfully publishing the Tenth issue of departmental technical magazine Digital Minds. Digital Minds is creating platform which provides an opportunity to the students and staff to express their original thoughts on technical topics.

The magazine plays an instrumental role in providing exposure to the students to develop written communication skills and command over the language. It is a step towards building professional and ethical attitude in them. The entire journey of creating Digital Minds is an outcome of rigorous effort made by students and faculty. Students not only gain the knowledge about the latest technological developments and advancements through reading and writing articles but they also develop verbal and written communication skills.

This issue has expanded its scope by introducing articles by major stakeholders. Apart from students and faculty, inputs have been collected from alumni, parents and industry experts.

This has been an exciting year for the students, for the teaching staff, and more importantly for the Department of information Technology as a whole. We have undergone many changes to the way we operate and have re-evaluated all our activities and priorities.

It has been a year in which our overarching principle has been to renew our commitment of being a team led by and for its members, to seek the involvement of all, and to provide even more value to the entire college.

In practical terms, this means that we are taking definite steps to address the technical challenges that have evolved in recent years. Although the entire department contributed, and I was privileged to lead the effort, much credit should go to the Teachers members and Students.

In Information Technology you will study and apply your knowledge in understanding what computers are, as how to program them, tools to write a program, the rules when converting the written program understandable by the computers, the interface between the computer and the user, the computer graphics, computer networking, managing the software database, software engineering and testing them efficiently and more.

On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish all the best for their bright future.

Dr. Tushar Sambare

Co-ordinator

Department of Information Technology

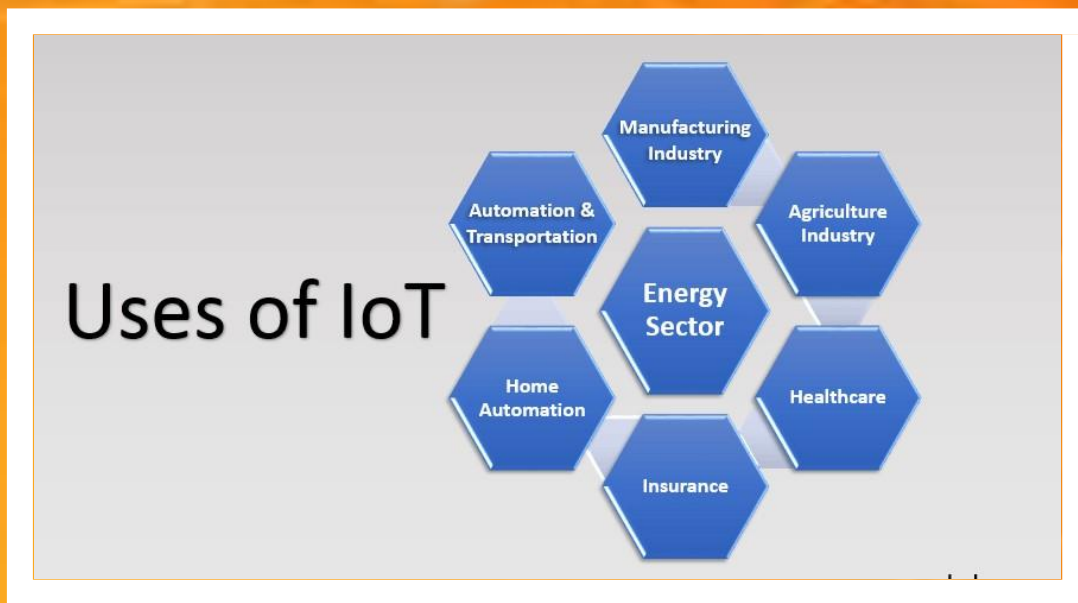
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I.T. USES AND THREATS

Information Technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store secure and exchange all forms of electronic data.

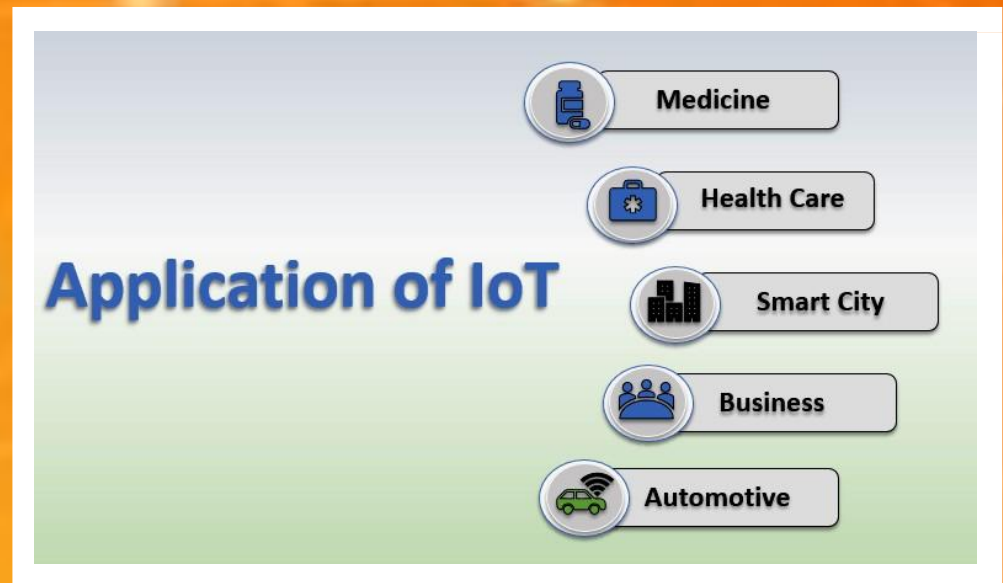
The IT department ensures that the organization's systems, networks, data and applications all connect and function properly.



- Deploys and maintains business applications, services and infrastructure (servers, networks, storage) ;
- Monitors, optimizers and troubleshoots the performance of applications, services and infrastructure ; and
- Oversees the security and governance of applications, services and infrastructure.



It's been said that data is what powers industries worldwide. That may be hyperbole, but few businesses (large or small) can remain competitive without the ability to collect data and turn it into useful information. IT provides the means to develop, process, analyse, exchange, store and secure information.

Virtually all these devices, many of which are part of the IoT, tap into the internet, which interconnects billions of devices worldwide. Its a complex and, potentially, perilous environment that requires IT expertise for management, security, maintenance and reliability.

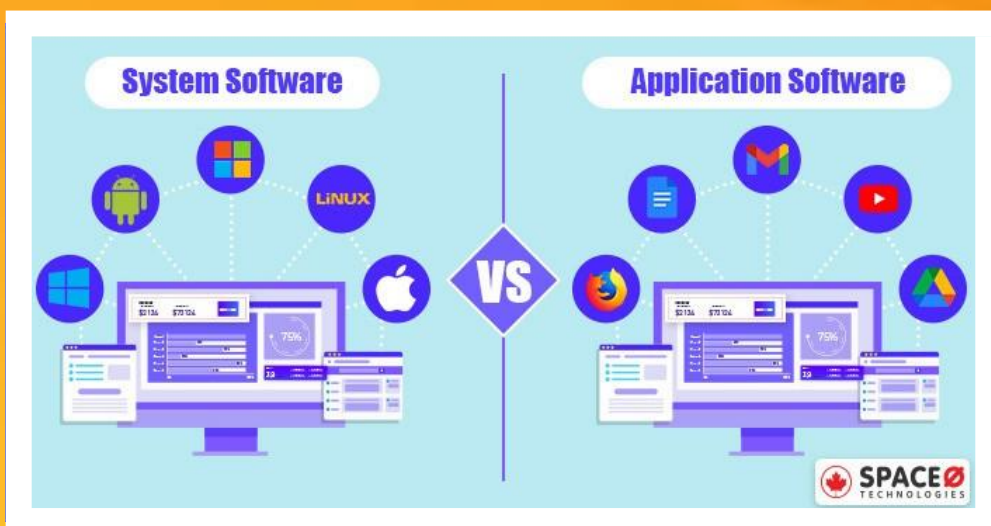


Information Technology Security or cyber security is a field within information technology involving the protection of computer systems and the prevention of

IT includes several layers of physical equipment (hardware), virtualization, management systems, automation tools, operating systems, other system software and applications used to perform essential functions. User devices, peripherals and software can be included in the IT domain. It can also refer to the architectures, methodologies and regulations governing the use and storage of data.

Physical machine	Virtual machine
Difficult to move or copy Bound to a specific set of hardware components Often has a short lifecycle Requires personal contact to upgrade hardware	Easy to move and copy: <ul style="list-style-type: none">Encapsulated into filesIndependent of physical hardware Easy to manage: <ul style="list-style-type: none">Isolated from other virtual machinesInsulated from hardware changes Provides the ability to support legacy applications Allows servers to be consolidated
	

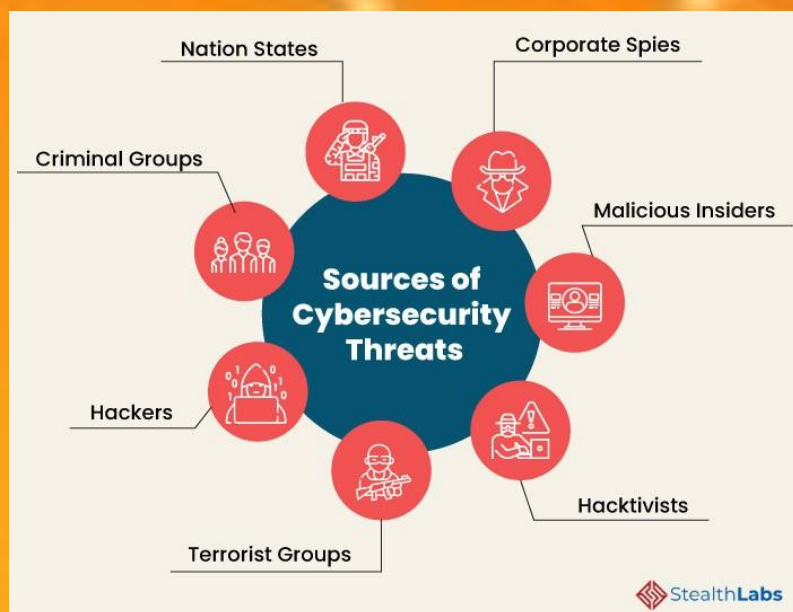
IT architectures have evolved to include virtualization and cloud computing, where physical resources are abstracted and pooled in different configurations to meet application requirements. Clouds may be distributed across locations and shared with IT users, or they can be contained within a corporate data center, or some combination of both deployments.



Types of Cyber Threats

The threats countered by cyber-security are three – fold

1. Cyber crime includes single actors or groups targeting systems for financial gain or to cause disruption.
2. Cyber-attack often involves politically motivated information gathering.
3. Cyber terrorism is intended to undermine electronic systems to cause panic or fear.



CYBER SAFETY TIPS – PROTECT YOURSELF AGAINST CYBER ATTACKS.

3. **Use strong passwords** : Ensure your passwords are not easily guessable.

4. **Do not open email attachments from unknown senders** : These could be infected with malware.

5. **Avoid using unsecure WiFi networks on public places** : Unsecure networks leave you vulnerable to man-in-the-middle attacks.

1. **Update your software and operating system** : This means you benefit from the latest security patches.

2. **Use anti-virus software** : Security solutions like Kas persky Total Security will detect and removes threats. Keep your software updated for the best level of protection.

More than 11.5 lakh incidents of Cyber attacks were tracked and reported to India's Computer Emergency Response Team (Cert-In) in 2021. According to official estimates, ransomware attacks have increased by 120 per cent in India.

Indian IT needs to go back to the drawing board and chalk up comprehensive solutions that work multi-device and across major technology platforms. It doesn't guarantee that you won't be attacked by hackers, but at least you will sleep a little easier knowing you did everything you could.

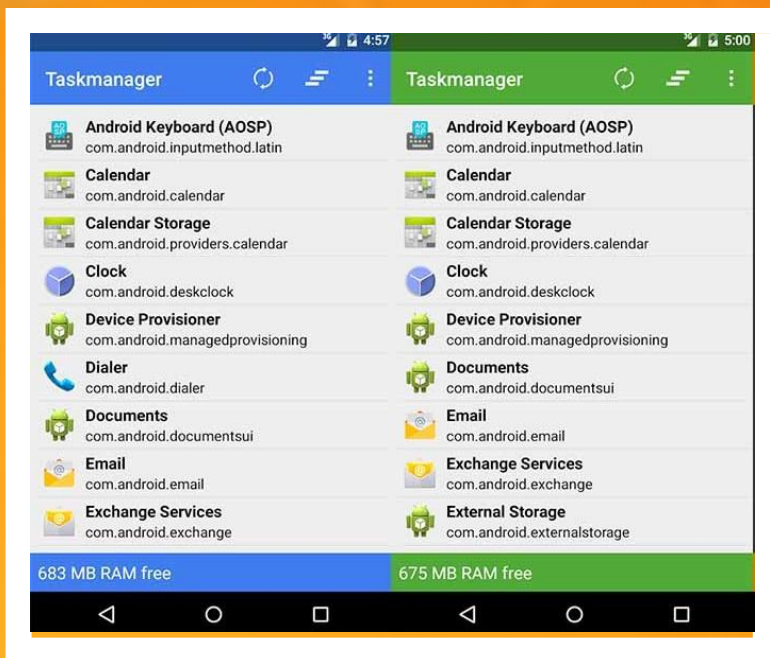
Dipti Das
F.Y.B.Sc.I.T.



ANDROID TASK MANAGEMENT

Task management is the process of monitoring your project's tasks through their various stages from start to finish.

This involves actively making decisions for your tasks to accommodate changes that can occur real-time, with your end goal being the successful completion of your tasks.



Modern day-to-day life of people in major cities is very demanding and the schedules are equally hectic. In such times, it is practically impossible to keep a track of all the activities/ appointments.

Many a times, it happens that we may miss an important task; for example: taking medicines, attending a meeting, returning library books, paying the bills etc. And this cycle can keep going on endlessly. The human mind is not designed to multitask; it needs to work things out one at a time.

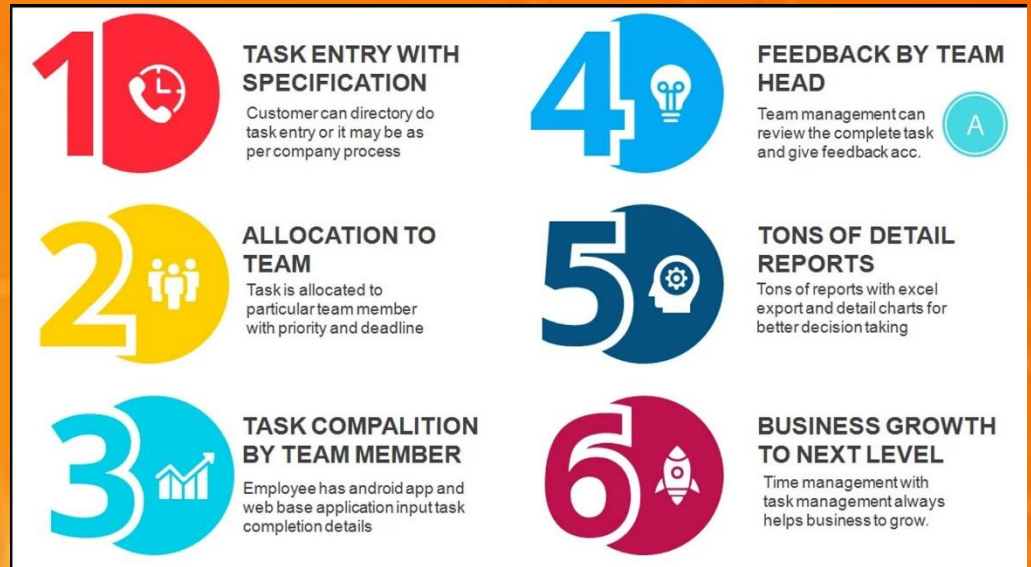
This requires us to maintain our focus on the task at hand, and as a result other important things take a backstage and some may even slip out of our minds.

In order to address this problem, we have come up with a Weekly Task Alerting System.

This system is designed to alert the user of all the important tasks that are due on a specific day, every week. So now, the user can carry on with

his/her life without any worries. The

developed project is a tasks reminder app, with AI-powered Chatbot that will make user enjoy productivity.



Whether your goal is to make good habits or get rid of bad ones. This application helps you to

make sure that the tasks you set actually get done, with the help of its AI assistant. It monitors your android phone, pings you at times you're likely to see a notification and makes sure you don't forget about items on your to-do list. With this, which is one of the bot characters, this app brings you not only your tasks reminder but also a free productivity assistant that engages you throughout the day to create a more productive version of yourself.

Advantages :

- Task monitoring help user to stay notified about their upcoming task.
- Time-to-Time notification will be received.
- System provide notification as per required.
- Auto answering query reminder based on user's preferences.

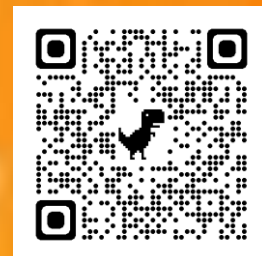
Disadvantages :

- Application only compatible with android devices.
- Active internet connection is required.
- Application may provide inaccurate results if data entered incorrectly.

CONCLUSION :

- 1 - Manage Everything from A Single Place.
- 2 - Make Task Prioritization Easier.
- 3 - Keep an Eye across All Tasks.
- 4 - Boost your Productivity.
- 5 - Make Task Delegation Easy.

Abuzar Khan
F.Y.B.Sc.I.T.



ONLINE BANKING & UPI

As we know that, for netbanking to work, you need to know your User ID and password to log into your internet banking account. This User ID is different from your bank account number, which serves as the primary identity of your bank account. But netbanking takes some amount of time for payment.



To consume time UPI comes into the market. Now, what is UPI? - Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application.

example,







paytm, google pay, phone pay etc; UPI works on four pillars: push-pull, interoperable model where there will be remitter/beneficiary front end PSP (payment service provider) and remitter/beneficiary back end bank that settles the monetary transaction for the users.

As per CEO of Netmagic Solutions(company of Japanese telecommunication), UPI became one of the most successful deep-tech innovation coming out of India. UPI is a smartphone application that allows users to transfer money between bank accounts. It is a single-window mobile payment system developed by the National Payments Corporation of India (NPCI).

In the case of UPI payment, the money is transferred from the issuing/sender's bank account to the acquiring (merchant/receiver's) bank account. The issuing bank has to debit money on NPCI's request and send a debit response to NPCI. Once the debit is successfully done.

Pawan Maurya
F.Y.B.Sc.I.T.

Benefits of UPI

	Complete Privacy No need to share your bank account details		No need to wait Funds are transferred within seconds
	No beneficiary required Just enter the VPA or scan QR code		Perfect for Small or large transfers Can transfer up to Rs. 1 lakh at a time
	Available 24 x 7 Transfers can be made anytime, weekends included		Rewards & cashback Apps like Amazon Pay and Paytm

The app will send an OTP to your registered mobile number to make sure that you are an authorised person. Once you enter the OTP, you will be prompted to create a PIN for the UPI ID. Upon completing the registration, you can choose any mobile number from your contacts and send money.



5G is coming soon!

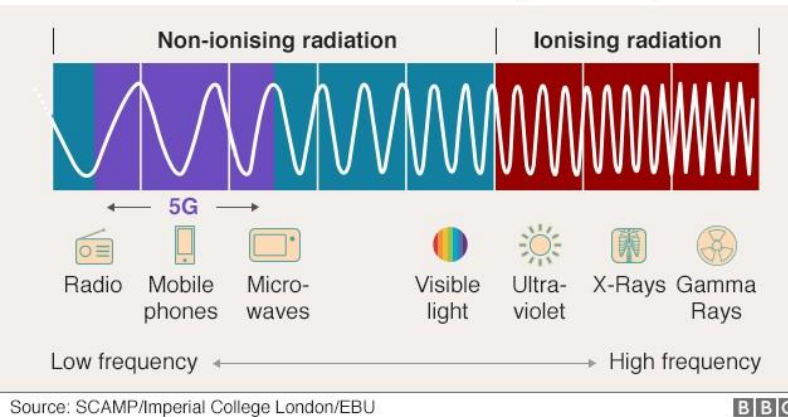
Should we be worried???

5G is the fifth-generation technology standard for broadband cellular networks, which cellular phone companies began deploying worldwide in 2019, and is the planned successor to the 4G networks which provide connectivity to most current cell phones

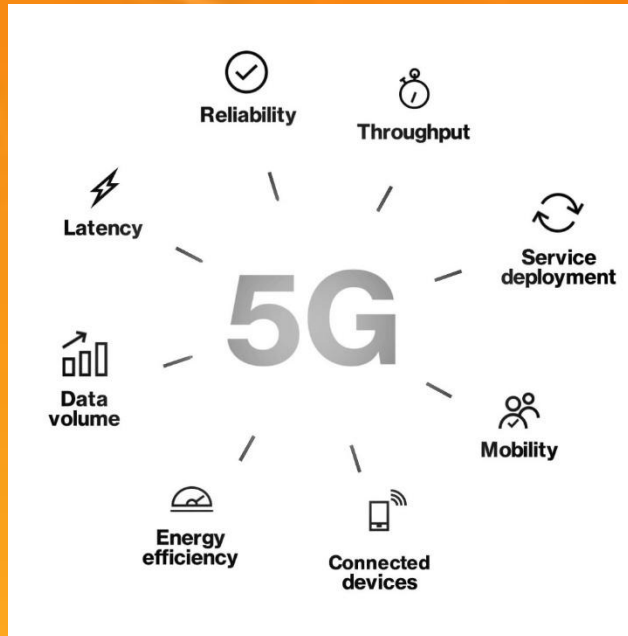


5G networks are predicted to have more than 1.7 billion subscribers worldwide by 2025. 5G runs on the same radio frequencies that are currently being used for your smartphone, on Wi-Fi networks and in satellite communications, but it enables technology to go a lot further.

Where 5G fits in the electromagnetic spectrum



Beyond being able to download a full-length HD movie to your phone in seconds (even from a crowded stadium), 5G is really about connecting things everywhere – reliably, without lag – so people can measure, understand and manage things in real time. This has enormous potential – and together, we will take it to the next level.



5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. Higher performance and improved efficiency empower new user experiences and connects new industries.

5G technology will not only usher in a new era of improved network performance and speed but also new connected experiences for users.

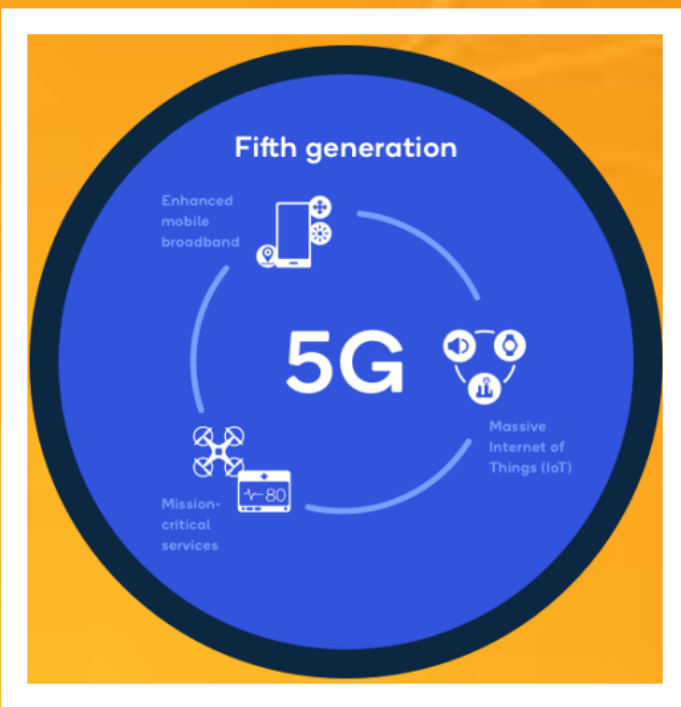
5G will impact every industry, making safer transportation, remote healthcare, precision agriculture, digitized logistics etc. In healthcare, 5G technology will enable patients to be monitored via connected devices that constantly deliver

data on key health indicators, such as heart rate and blood pressure.

In the auto industry, 5G combined with ML-driven algorithms will provide information on traffic, accidents, and more; vehicles will be able to share information with other vehicles and entities on roadways, such as traffic lights. These are just two industry applications of 5G technology that can enable better, safer experiences for users.

APPLICATION AREAS

1. **Enhanced Mobile Broadband (eMBB)** uses 5G as a progression from 4G LTE mobile broadband services, with faster connections, higher throughput, and more capacity. This will benefit areas of higher traffic such as stadiums, cities, and concert venues.



2. **Ultra-Reliable Low-Latency Communications (URLLC)** refer to using the network for mission critical applications that require uninterrupted and robust data exchange. The short-packet data transmission is used to meet both reliability and latency requirements of the wireless communication networks.

3. Massive Machine-Type Communications (mMTC) would be used to connect to a large number of devices. 5G technology will connect some of the 50 billion connected IoT devices. Most will use the less expensive Wi-Fi. Drones, transmitting via 4G or 5G, will aid in disaster recovery efforts, providing real-time data for emergency responders. Most cars will have a 4G or 5G cellular connection for many services. Autonomous cars do not require 5G, as they have to be able to operate where they do not have a network connection.

However, most autonomous vehicles also feature teleoperations for mission accomplishment, and these greatly benefit from 5G technology.

EFFECT OF GLOBAL ECONOMY

5G's full economic effect will likely be realized across the globe by 2035—supporting a wide range of industries and potentially enabling up to \$13.1 trillion worth of goods and services. The study also revealed that the 5G value chain (including OEMs, operators, content creators, app developers, and consumers) could alone support up to 22.8 million jobs. And there are many emerging and new applications that will still be defined in the future. Only time will tell what the full “5G effect” on the economy is going to be.



1991 2G	1998 3G	2008 4G	2020? 5G
Texting	Texting Internet access	Texting Internet access Video	Texting Internet access Ultra HD & 3-D video Smart home
2G Frequencies	3G Frequencies	4G Frequencies	5G Frequencies
GSM 2G Upto 1.9 Ghz	HSDPA 3G Upto 2.1 Ghz	LTE 4G Upto 2.5 Ghz	IoT 5G Upto 95 Ghz

5G is already here today, and global operators started launching new 5G networks in early 2019. Also, all major phone manufacturers are commercializing 5G phones. And soon, even more people may be able to access 5G.

Wireless network operators in four countries -- the United States, Japan, South Korea and China -- are largely driving the first 5G buildouts. Network operators are expected to spend billions of dollars on 5G capital expenses through 2030, according to Technology Business Research (TBC) Inc.

Mann Diwani
F.Y.B.Sc.I.T



ANTIVIRUS

1. What is Antivirus?

Antivirus software is a program or set of programs that are designed to prevent, search for, detect, and remove software viruses, and other malicious software like worms, trojans, adware, and more.

2. What Does Antivirus Software Do?

Several different companies build antivirus software and what each offer can vary but all perform some essential functions:

- Scan specific files or directories for any malware or known malicious patterns
- Allow you to schedule scans to automatically run for you
- Remove any malicious code detected –sometimes you will be notified of an infection and asked if you want to clean the file, other programs will automatically do this behind the scenes.
- Show you the ‘health’ of your computer



Always be sure you have the best, up-to-date security software installed to protect your computers, laptops, tablets, and smartphones.

3. What Are the Benefits of Antivirus Software?

Antivirus solutions protect more than just laptops, office, computers, smartphones and tablets. They protect precious memories, music and photo libraries, and important documents from destruction by malware. Make sure your protection is up to the challenge of defending against the latest threats.

Benefits of Antivirus

- The key benefit to installing antivirus software is quite simply that it prevents a virus damaging your PC or network.
- Protects your PC or network from viruses and other forms of malware.
- Prevents downtime, i.e. valuable working time could be wasted if you can not access your PC due to a virus infection.
- Protects valuable information on your PC.

- Scanning the Dark Web to find if an email address has been compromised
- Keeping online accounts protected with secure password encryption

Modern antivirus solutions are capable of:

- Detecting, blocking, and removing viruses, malware, and ransomware
- Preventing identity theft and block phishing and fraud
- Warning about dangerous websites and links before you click

- Providing simple training to teach you and your family how to be even safer online
- Tuning up your computer to keep it running smoothly, just like new

4. How Does Antivirus Software Work?

Many antivirus software programs still download malware definitions straight to your device and scan your files in search of matches. But since, as we mentioned, most malware regularly morphs in appearance to avoid detection, Webroot works differently. .



Instead of storing examples of recognized malware on your device, it stores malware definitions in the cloud. This allows us to take up less space, scan faster, and maintain a more robust threat library



5. Free vs Paid Antivirus Software

Your protection, your way	Free Antivirus	Premium Security
Block viruses and other malware Detect viruses, ransomware, and other threats in real-time.	✓	✓
Scan for Wi-Fi security weaknesses Find intruders and security weaknesses in your network.	✓	✓
Get an extra layer of ransomware security Protect personal photos and files from being encrypted by hackers.	✓	✓
Avoid fake sites for safer shopping Stop criminals from stealing your passwords and banking info.	✗	✓
Safely run suspicious apps Sandbox any app to test if it's safe before running it on your computer.	✗	✓
Lock out hackers with an advanced firewall Keep hackers from sneaking onto your PC and stealing your data.	✗	✓
Stop webcam spying Prevent strangers from watching you via your webcam.	✗	✓
Permanently shred sensitive files Securely delete files to ensure that no one recovers.	✗	✓

From banking to baby photos, so much of our business and personal data live on our devices. If it were stored physically, paying for a security solution would be a no-brainer. Unfortunately, we often expect our online data to remain secure without lifting a finger or spending a cent.

Companies claiming to do it for free are partly responsible for the confusion, to be sure. But consumers should insist on features like identity theft protection, mobile security, and support options when it comes to their data security, too—features usually lacking with free solutions. Free is not always better.

Rohan Maurya
F.Y.B.Sc.I.T



Electronic disposal

Electronic waste or e-waste describes discarded electrical or electronic devices. Used electronic which are destined for refurbishment, reuse, resale, salvage recycling through material recovery, or disposal are also considered e-waste.



Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date.

Growth in the IT and communication sectors has enhanced the usage of the electronic equipment exponentially. Faster upgradation of electronic product is forcing consumers to discard old electronic products very quickly, which, in turn, adds to e-waste to the solid waste stream.

The growing problem of e-waste calls for greater emphasis on recycling e-waste and better e-waste management.

Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines,

battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

These electronic equipments get fast replaced with newer models due to the rapid technology advancements and production of newer electronic equipment. This has led to an exponential increase in e-waste generation. People tend to switch over to the newer models and the life of products has also decreased.



E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel,

polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment.

The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities. In general, both manual labor and automation are involved during the electronic waste recycling process. The use of automated equipment during the recycling process helps to efficiently recover reusable materials, eliminates hazardous waste, and protects workers and the environment .



Step 1: Manual sorting and separation Electronic items are manually sorted, and components that should not be shredded or crushed are removed by hand, such as batteries, UPS battery systems, toner cartridges, and fluorescent lights

Step 2: Shredding An Initial Size Reduction step shreds the electronic items into small 100mm size pieces, and a Secondary Size Reduction step further breaks down materials into even smaller fragments that are well suited for the separation process. Any dust extracted during this process is disposed of using environmentally-friendly method

Step 3: Magnetic removal Steel and iron fragments are removed by magnets.

Step 4: Metallic and nonmetallic separation Other metals, such as aluminum, copper, and brass are separated from non-metallic materials, such as glass and plastic. Separation occurs through Eddy currents, optical identification, and magnets.

Step 5: Separation by water Plastic and glass are separated by using water . Lead-containing glass may be sent to lead smelters to be used to make new products such as batteries, new CRTs, and x-ray shields.

Mansi Maurya

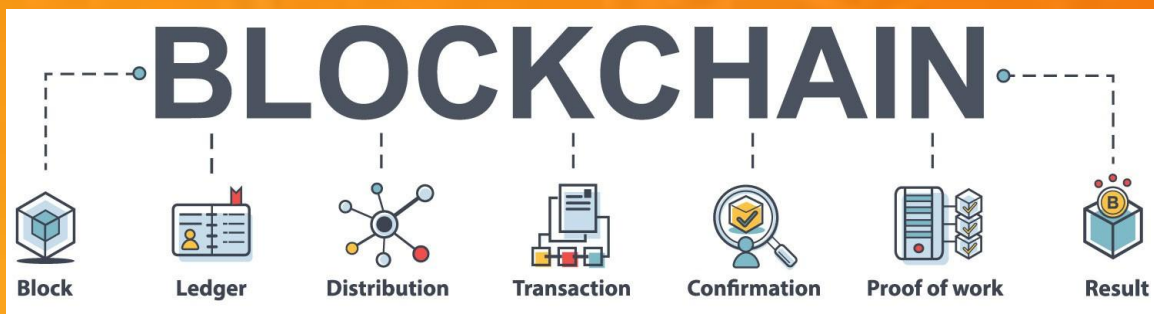
F.Y.B.Sc.I.T



Blockchain Technology

What is Blockchain?

A blockchain is a data record that is distributed across a network of computers, meaning there is no single point of failure. What makes it unique is that there is no central authority in charge of the blockchain file or the data it contains. Instead, each computer keeps its own copy of the file, and any update requires the approval of a majority of machines in the network.

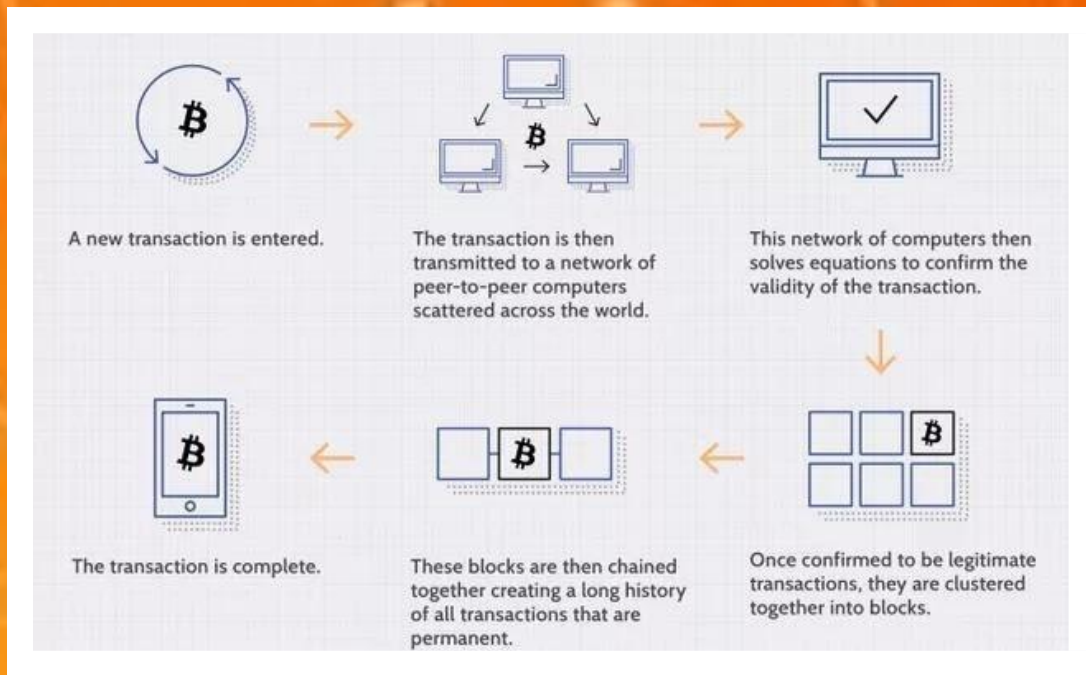


The blockchain is made up of 'blocks', which each contain a section of data. The most recent data is always added at the top of the chain, while the oldest lives at the bottom in what is known as the 'genesis block'.

How does Block-Chain work's?

The goal of blockchain is to allow digital information to be recorded and distributed, but not edited. In this way, a blockchain is the foundation for immutable ledgers, or records of transactions that cannot be altered, deleted, or destroyed. This is why blockchains are also known as a distributed ledger technology (DLT).

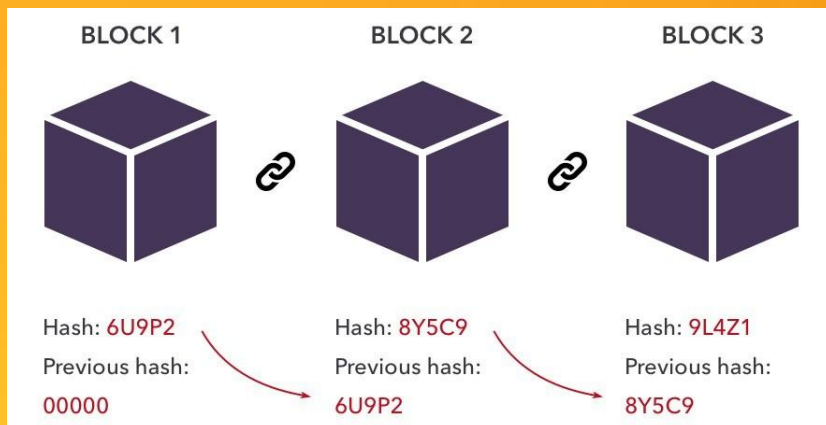
Transaction Process:



The Blockchain structure:

Each block in the chain contains some data and a 'hash' – a digital fingerprint that is generated from the data contained within the block using cryptography.

Every block also includes the hash from the previous block. This becomes part of the data set used to create the newer block's hash, which is how the chain is linked together.



Even the smallest of changes to a block's data will invalidate its hash, and the hashes of any blocks that follow, which alerts the network to any attempted changes. This helps to keep the blockchain secure.

How new blocks are added

Because blockchain files are distributed across a network of computers (nodes), updating the file is not simple – new blocks must be approved by a majority of machines in the network. Computers compete with each other to create new blocks in a process known as ‘mining’. This involves collating new data into a block, along with the hash of the previous block, and attempting to generate a new hash. This competition can be run in two ways:



1. Proof of work: Under this system, all the computers in the network compete to create the hash. The difficulty of generating hashes is adjusted as the network expands, so that new blocks are created and approved at a constant rate as the computing power in the network changes. The difficulty of generating bitcoin hashes, for example, is adjusted by changing the number of zeroes they must start with, ensuring that a new hash is found only once every ten minutes or so by the entire network.

2. Proof of stake: Under this system, nodes are selected via a lottery that takes their 'stake' in the system into account. This is usually how much of a cryptocurrency they own, with this stake held in the system to demonstrate that the node has a vested interest in the reliability of the blockchain. This system was created to deal with some inherent problems with the proof of work method, particularly high energy usage. Once a computer has generated a hash, it adds the block to its version of the blockchain file and broadcasts the update across the network. The maths involved means that hashes are difficult to generate, but easy for other computers to verify. Consensus is achieved when a majority of computers have verified the new block and updated their copy of the blockchain file.

Aditya Sharma
F.Y.B.Sc.I.T



Use of A.I in Agriculture

Use Of Artificial Intelligence in Agriculture

Agriculture is the primary source of livelihood for about 58% of India's population. Gross Value Added by agriculture, forestry, and fishing was estimated at Rs. 19.48 lakh crore. Indian food and grocery market is the world's sixth largest, with retail contributing 70% of the sales. Agriculture is divided in 5 parts: Preparation of soil, Sowing of seeds, adding fertilizers, Irrigation, Weed protection, Harvesting and Storage.

Challenges faced by farmers by using traditional methods of farming

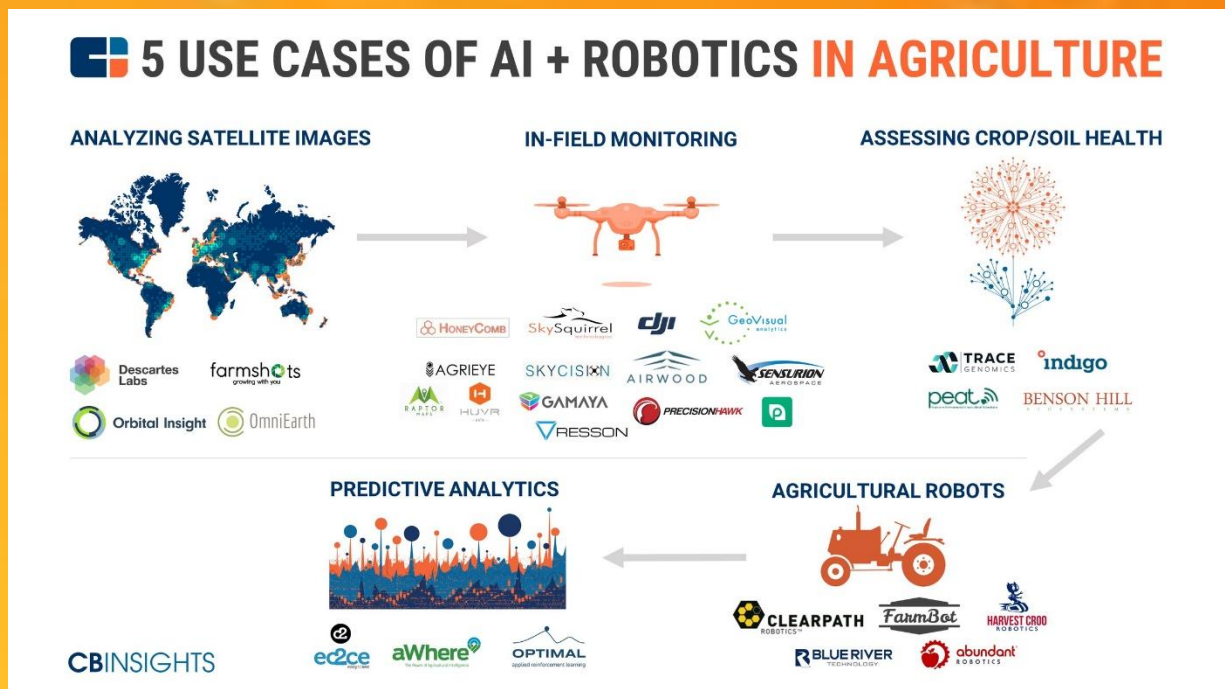


In farming climatic factors such as rainfall, temperature and humidity play an important role in the agriculture lifecycle. Increasing deforestation and pollution result in climatic changes, so it's difficult for farmers to take decisions to prepare the soil, sow seeds, and harvest. Every crop requires specific nutrition in the soil.

There are 3 main nutrients nitrogen(N), phosphorous(P) and potassium(K) required in soil. The deficiency of nutrients can lead to poor quality of crops. As we can see from the agriculture lifecycle that weed protection plays an important role. If not controlled it can lead to an increase in production cost and also it absorbs nutrients from the soil which can cause nutrition deficiency in the soil.

What is Artificial Intelligence ?

Artificial intelligence is based on the principle that human intelligence can be defined in a way that a machine can easily mimic it and execute tasks, from the simplest to those that are more complex. The goals of artificial intelligence include learning, reasoning, and perception. Every industry looking to automate certain jobs through the use of intelligent machinery.

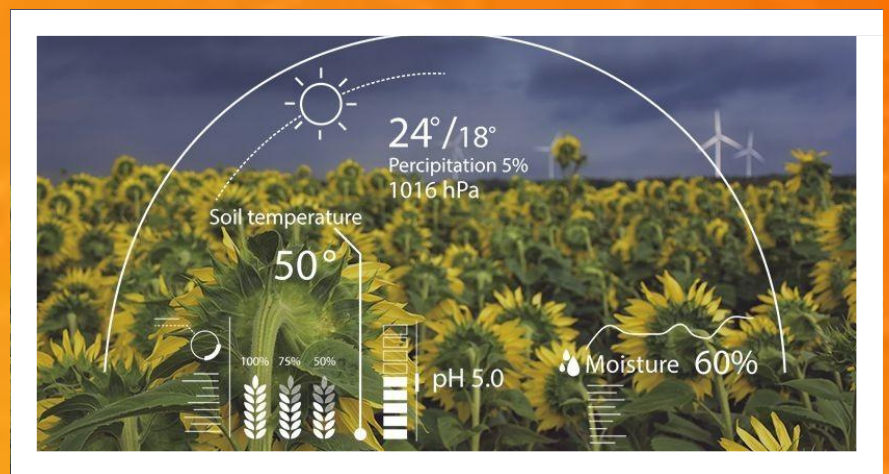


How can we use modern day AI to solve traditional farming problems ?

Applications of Artificial Intelligence in Agriculture: The industry is turning to Artificial Intelligence technologies to help yield healthier crops, control pests, monitor soil, and growing conditions, organize data for farmers, help with the workload, and improve a wide range of agriculture-related tasks in the entire food supply chain.

Use of weather

forecasting: with help of AI farmers can analyze weather conditions by using weather forecasting which helps they plan the type of crop can be grown and when should seeds be sown.



Soil and crop health monitoring system: Trace Genomics is a machine learning-based company that helps farmers to do soil analysis to farmers. This app helps farmers to monitor soil and crop's health conditions and produce healthy crops with a higher level of productivity.

Analyzing crop health by drones: SkySquirrel Technologies has brought drone-based Ariel imaging solutions for monitoring crop health. In this technique, the drone captures data from fields and then data is transferred via a USB drive from the drone to a computer and analysed by experts.



Conclusion:

Artificial Intelligence in agriculture not only helping farmers to automate their farming but also shifts to precise cultivation for higher crop yield and better quality while using fewer resources.



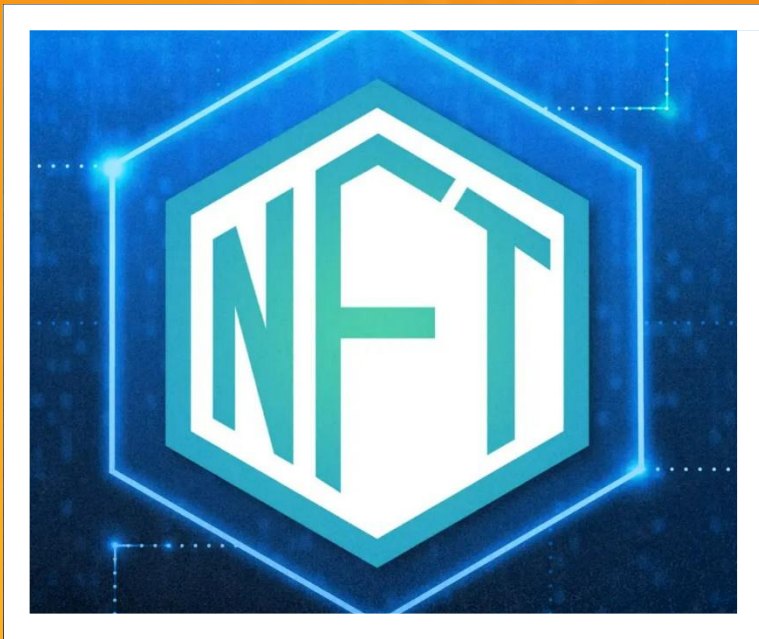
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Non-fungible token (NFT)

NFTs are taking over the world at a record pace as the number of digital art collectors and creators increases.

The popularity of NFTs has resulted in the development of a huge community that is active on various social media, forums, and blogs.



NFT stands for non-fungible token. It's generally built using the same kind of programming as cryptocurrency, like Bitcoin or Ethereum, but that's where the similarity ends. Physical money and cryptocurrencies are “fungible,” meaning they can be traded or exchanged for one another

NFTs are unique cryptographic tokens that exist on a blockchain and cannot be replicated. NFTs can be used to represent real-world items like artwork and real-estate. "Tokenizing" these real-world tangible assets allows them to be bought, sold, and traded more efficiently while reducing the probability of fraud.

NFTs' unique data makes it easy to verify and validate their ownership and the transfer of tokens between owners

For example, Bitcoin is not an NFT. But a one-of-a-kind piece of art is non-fungible. You cannot replace it. If you trade it with another piece of art you will have something completely different



For investors betting on a long-term increase in the value of Ethereum, more people buying ether for NFTs has potential to be a very good thing. But a big downside is the fees to purchase NFTs, says Yang.

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outERnEt

This trend is quite similar to the “connected world.” It describes how our two realities are merging into only one. It’s mindblowing how the internet became our reality. Like can we still walk a couple of hours without our mobile devices in nature? Internet is seemingly transferring into an “outernet.” Maybe in a couple of years, we won’t even distinguish between reality and virtual reality.

The outernet has made the digital world as important to us as oxygen and we now take it for granted to such an extent that we hardly notice it any more.



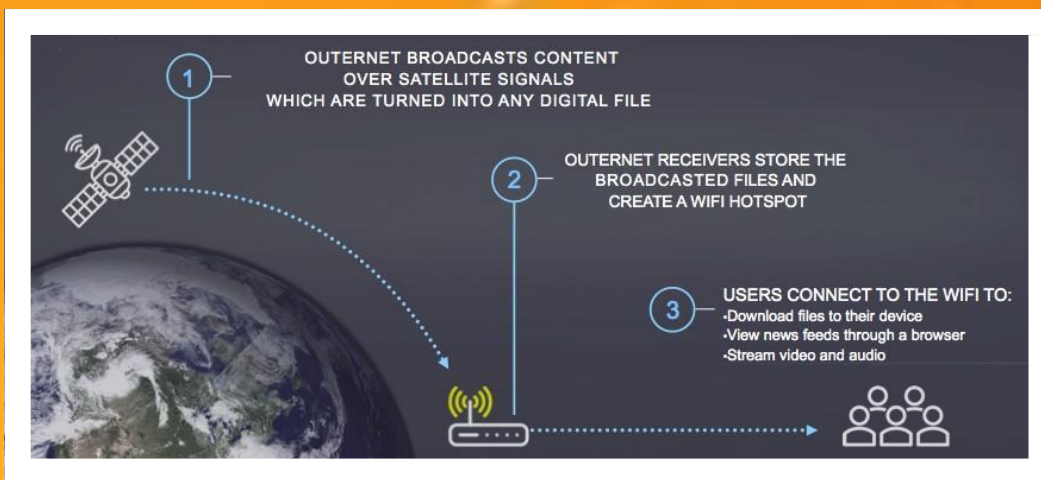
Syed Karim is the founder and CEO of Outernet February 1, 2014, in New York, USA. He oversees all operations, directs the activities of the team, and leads the development of Outernet's physical and digital products.

It is supported by Media Development Invest Fund, an impact investment fund that provides finance to ventures involved in news and debates. The fund has invested almost US\$ 130 million in around 105 different companies in more than 36 countries

“For 60 per cent of the world’s population, regular Internet access is about as common as flying cars but where the Internet has failed, the Outernet hopes to succeed,” according to Gizmodo.

Outernet aims to provide data to the net unconnected.

“Imagine if: Information was free for everyone” says the homepage of Outernet — a service that is changing the way the Internet is accessed around the world. Using a satellite receiver and a tuner, users in Africa, North America and Europe can now access Outernet’s content, and founder Syed Karim hopes to take it further with a mobile service set for a hopeful release in July.



Outernet is a service that offers a one-way communication of digital content that would normally be found online.

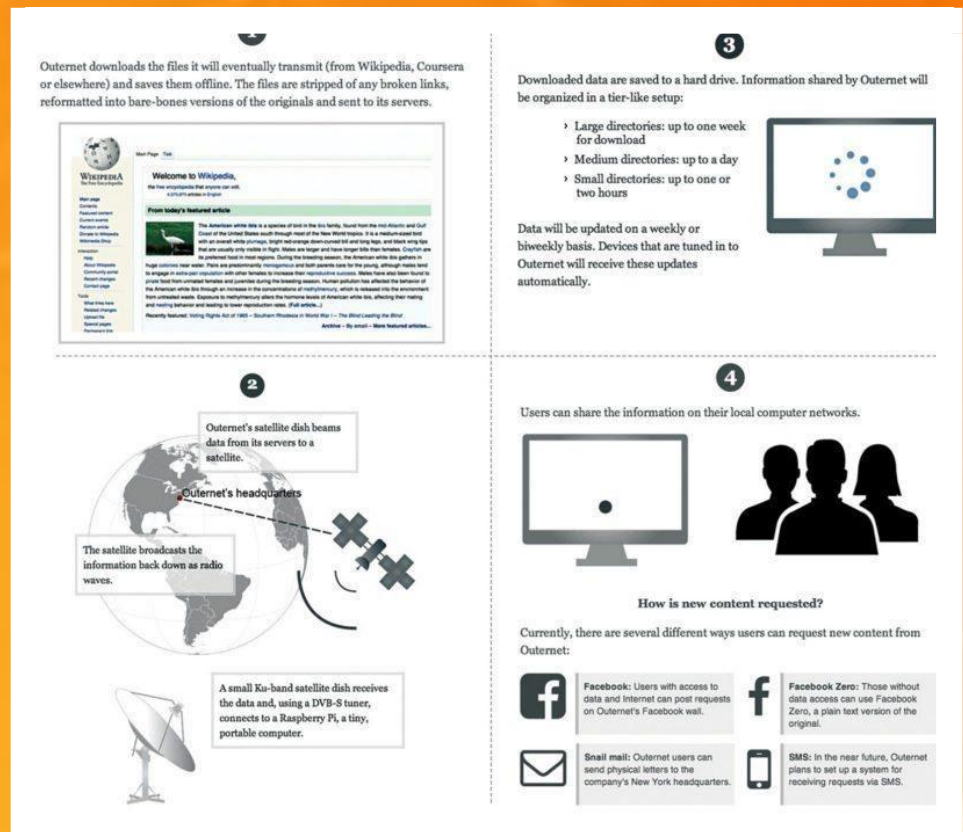
However, Outernet’s main business is the receivers (L-band hardware solutions). Outernet provides other hardware solution aside from Lantern (turn-key solution) and previously offered the modular Lighthouse (requires a dish and low noise block) and the Tuner for Raspberry Pi (requires a Raspberry Pi, dish and low noise block).

At the moment they only offer **DIY RECEIVER** which is do-It-Yourself RTL-SDR radio hardware used in Outernet Lantern. Outernet is based out of Chicago, Illinois, USA

How the Outernet works?

The Outernet downloads files from various sources like Khan Academy, Wikipedia, MIT open courseware and the like, and sends it to its servers. The satellite dish sends this data to the satellites. The satellite broadcasts information back to Earth all over the world. Ku/C-band dish antenna receives the information and sends it to the receiver, which decodes and saves it to its memory.

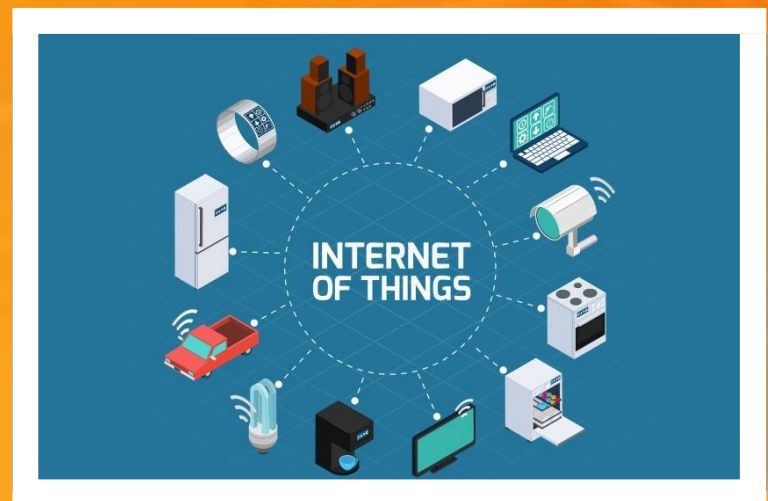
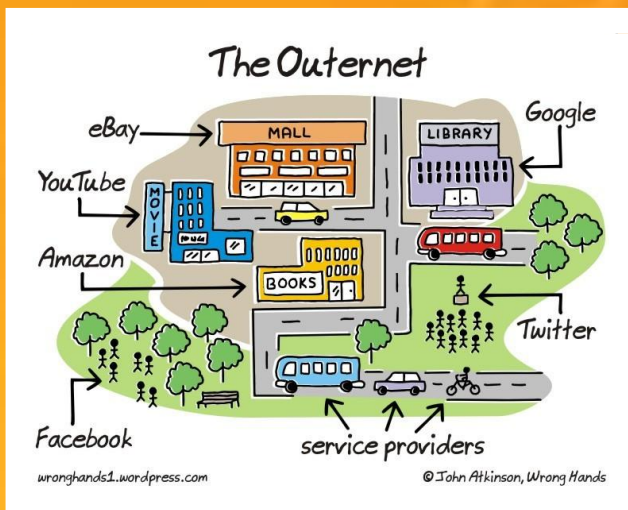
According to Outernet's website, the creators are currently working on a receiver build that is based on Raspberry Pi — a Linux-running single-board computer the size of a credit card that is armed with one or two USB ports and an ARM processor.



Raspberry Pi has become increasingly prevalent recently, especially amongst small-scale developers due to its somewhat limited specifications — which makes it perfect for Outernet's purpose, as it's not only portable and cheap but consumes less power as compared to a conventional computer.

DIFFERENCE BETWEEN OUTERNET & INTERNET

The core difference between the Internet and Outernet is that an internet connection is bidirectional — that is, a device both sends and receives data. In the case of Outernet's receivers, they will be able to receive data from satellites but unable to transmit anything in return.



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Google AdSense pros and cons



You have that site on-line for quite a while, its generating a good number of hits every day and you're thinking whether or not to use AdSense advertising on it to make it generate some form of income.

Description: -

Well, this is a description of the pros and cons of this approach to Internet advertising. AdSense has definitely hit the Internet like something from another planet and people are very excited about it everywhere. There are negative aspects to AdSense and alternatives to consider.

How AdSense work?

1. AdSense pros

AdSense is generally a great tool for webmasters. Whereas, they would use to worry about how to raise enough money to keep their sites profitable, or at least keep them on-line those worries are gone.

AdSense allows webmasters to forget about those worries and concentrate on creating good content for their sites. In fact, the emphasis is now on creating quality content (often associated with the top-paying words) which will bring you many visitors.

AdSense can also very well integrated with your website, it's easily customizable in terms of colours, size and position which means you can experiment with it in any way you like to maximize your income.

AdSense is a very good means of generating a constant revenue on your site. All you need to do is create some quality content and keep it updated constantly and you can literally live off your website.

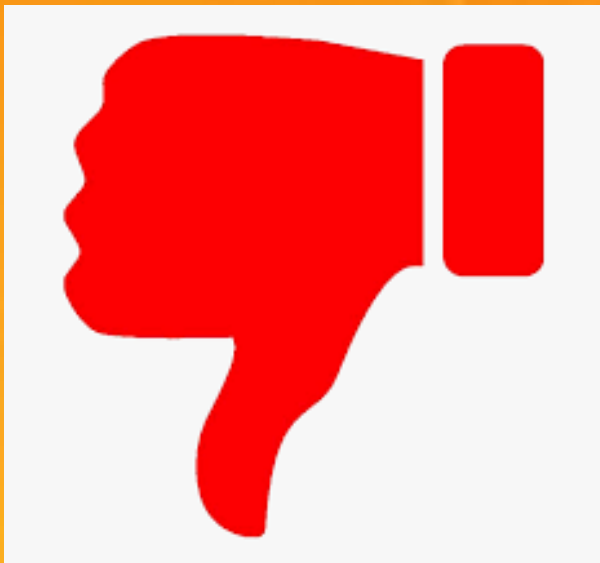


A lot of people are doing just that nowadays with AdSense, so it's become sort of a business in itself.

It's also a great program because you can have the same account advertising on all your pages. This is great for webmasters with a lot of content because it means they don't have to create many accounts unnecessarily.

2. AdSense's cons

But as stated, above, there are some negative aspects to advertising with AdSense and here's a small list of such cons.



Clearly the largest negative impact the AdSense program can have on you is through Google closing your accounts. Most of the time this happens because of so called 'click fraud', which means somebody would be producing artificial clicks on your page.

There's one really nasty side to that. It doesn't have to be you making those artificial clicks. It could very well be your competition doing this in order to shut you down, or the competitor of whoever is advertising on your page, looking to drive their marketing costs up.

The earning AdSense brings you are by no means constant. In fact, they're not even close to that. Anything you do to your site could end up being a big mistake costing you a great deal of money. It's that kind of pressure that has a negative impact on you.

First of all, you constantly need to make sure your site is in the spotlight of search engines when people are searching for whatever it is your site is about.

If you fail to do that you won't have any visitors, and that of course means you won't have any AdSense revenue. In a way this is nothing new, as any form of generating revenue on the Internet with advertising has such a drawback.

Relevant content

And finally, another major problem is that you constantly have to feed your site with better and better content. Now, of course, certain sites are very well geared towards doing this but with some types of content this is rather hard to achieve. This is often why the services of a copywriter are employed to generate more and more content.

When writing original content, the best thing a website owner can do is research a topic thoroughly and then return to writing with lots of information they can put in their own words, and show their own opinion on.

So there are the pros and cons of using the AdSense network for generating profits through advertising. Now the choice of whether or not these work for you is yours.

Conclusion:

Ads can be a useful means of monetizing your website. However, their effectiveness will depend on factors such as traffic levels, your target audience, and more. Additionally, although an ad network such as AdSense can come in handy, it's important to consider alternatives and ensure you're using the method that's the best fit for you.

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cloud computing

What is cloud computing?

Cloud computing is the on-demand delivery of IT resources through the internet with pay-to-use charges.

Instead of buying and maintaining computer products and services, you can pay to use a cloud computing service. It saves you the time, effort, and cost of doing it all by yourself!



- Types of cloud computing
- Not all clouds are the same and not one type of cloud computing is right for everyone. Several different models, types, and services have evolved to help offer the right solution for your needs.



- **Public cloud**

Public clouds are owned and operated by a third-party cloud service provider, which deliver their computing resources, like servers and storage, over the Internet. Microsoft Azure is an example of a public cloud.

- **Private cloud**

A private cloud refers to cloud computing resources used exclusively by a single business or organization. A private cloud can be physically located on the company's on-site datacenter

- **Hybrid cloud**

Hybrid clouds combine public and private clouds, bound together by technology that allows data and applications to be shared between them.

- **Types of cloud services**

- 1. Infrastructure as a service (IaaS)**

The most basic category of cloud computing services. With IaaS, you rent IT infrastructure—servers and virtual machines (VMs), storage, networks, operating systems—from a cloud provider on a pay-as-you-go basis.

- 2. Platform as a service (PaaS)**

Platform as a service refers to cloud computing services that supply an on-demand environment for developing, testing, delivering, and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps



3. Serverless computing

Overlapping with PaaS, serverless computing focuses on building app functionality without spending time continually managing the servers and infrastructure required to do so.

4. Software as a service (SaaS)

Software as a service is a method for delivering software applications over the Internet, on demand and typically on a subscription basis.

- **Top benefits of cloud computing**

Cloud computing is a big shift from the traditional way businesses think about IT resources. Here are seven common reasons organizations are turning to cloud computing services:

- **Cost** 

Cloud computing eliminates the capital expense of buying hardware and software and setting up and running on-site datacenters—the racks of servers,

the round-the-clock electricity for power and cooling, and the IT experts for managing the infrastructure. It adds up fast.

- **Speed** 

Most cloud computing services are provided self service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks, giving businesses a lot of flexibility and taking the pressure off capacity planning.

- **Global scale** 

The benefits of cloud computing services include the ability to scale elastically. In cloud speak, that means delivering the right amount of IT resources—for example, more or less computing power, storage, bandwidth—right when they're needed, and from the right geographic location.

- **Productivity** 

On-site datacenters typically require a lot of “racking and stacking” —hardware setup, software patching, and other time-consuming IT management chores. Cloud computing removes the need for many of these tasks, so IT teams can spend time on achieving more important business goals.

- **Performance** 

The biggest cloud computing services run on a worldwide network of secure datacenters, which are regularly upgraded to the latest generation of fast and efficient computing hardware. This offers several benefits over a single corporate datacenter, including reduced network latency for applications and greater economies of scale.

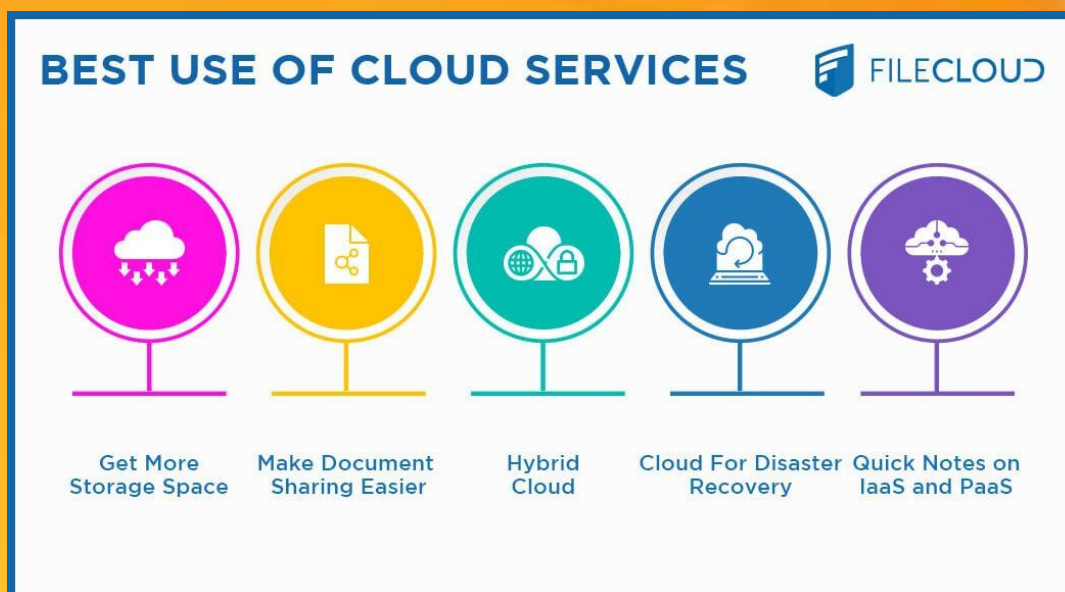


• **Reliability**

Cloud computing makes data backup, disaster recovery, and business continuity easier and less expensive because data can be mirrored at multiple redundant sites on the cloud provider’s network.

• **Security**

Many cloud providers offer a broad set of policies, technologies, and controls that strengthen your security posture overall, helping protect your data, apps, and infrastructure from potential threats.



- **Uses of cloud computing**

You're probably using cloud computing right now, even if you don't realize it. If you use an online service to send email, edit documents, watch movies or TV, listen to music, play games, or store pictures and other files, it's likely that cloud computing is making it all possible behind the scenes. The first cloud computing services are barely a decade old, but already a variety of organizations—from tiny startups to global corporations, government agencies to non-profits—are embracing the technology for all sorts of reasons.

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A message from our Prime Minister

I see the role of IT as a change agent – it empowers, it connects, it can bind –isolated parts of our country, it can bring harmony in society, it can join people with governments, it can encourage programmes, and reduce the gap between demand and supply.

Going to vision for India, after eight years, India will be celebrating the diamond jubilee of Independence – by that time, we must be a different nation. Information technology can be the growth engine of this new India. My vision is that India should become digital, a knowledge-based society – in all aspects.

Focus areas should be manufacturing, software, hardware, cyber security, social media and CSR towards inclusive growth taking technology to the masses.

Technology is used to reach out to the masses via e-governance tools that can bring minimum government and maximum governance. It is easy, effective and economic governance. E-governance is one of the greatest instruments of problem-solving power to the people as well the most effective forms of governance, bringing about people-empowerment. IT brings empowerment, equity and efficiency to the economy. It is a very useful field that can be the greatest problem solver of people.

IT also helps in getting quality education. Online libraries will help students all over different geographical regions. Youth belonging to the IT profession have paved the way for establishing India's new identity in the world. Digital India is our dream for the nation. That is why I keep saying IT+IT=IT or Indian talent + Information technology is equal to India tomorrow. The IT sector can be the shining light of Brand India.



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