IT KALEIDOSCOPE

**jims** Sector-5, Rohini, Delhi

TURNING DATA INTO ACTION

INTRODUCTUCTION TO IOT

World is evolving with every passing second , in the present scenario , almost every being shares an impeccable relationship with their devices , let us dive deep into this.Right now you see your smart watch as a simple device that records your heart rate and the total number of steps you may have walked in the day , but in reality it is a full blown device that is embedded with sensors that can easily track your heart rate and maybe set an alarm too and give a result about how your body functions,

whether it is healthy or not , astonishing isn't it?. In our surroundings we see many things but observe very few. "Alexa , play music " is a very common phrase , but it takes substantial amount of algorithms , sensors , searching , fetching and so forth to complete just a simple demand of the end user. In today's time every thing is connected with a sensor , which in return can measure temperature , humidity , pressure , proximity , gas , infrared waves , optical , and most importantly your location.We are indulged in wool gathering , but in reality a whole new world exist out there. What if we integrate every aspect of our tech save life together ? , it gives rise to an eminent part of our lives : internet of things. Internet of things refers to a collection of devices embedded with sensors , ability to monitor , process and control , and how these devices communicate with each other. The sensors continuously emit data and this data is continuously stored for the end user in a very complex yet systematic ways.But , we all know data is an exquisite luxury and every individual is dependent on the data , here , internet of things provides a common platform to enable these devices to communicate with each other. All the data is stored in the common platform produced by internet of things and in that collected data we perform various analytics to predict the future in many aspects through calculations and to produce exact statistical data to support hypothesis. All the analysed data is further refined to extract compact valuable information which is in the end provided to the end user. We have smartphones , smart farming , smart retails , smart cars , smart homes , smart cities , smart appliances which reevaluates the way we process information which mutate our relationship with our devices and how we communicate , live and exist inside this virtual world.Internet of things is remodelling our approach to the hidden virtual world and our course of actions to tackle various things.World is changing and so are we , with each step we leap further into exploring this virtual world which facilitates our lives and makes It easier for each and every being. It is a step into the future which will lead us onto a long journey of exploration and wonders.
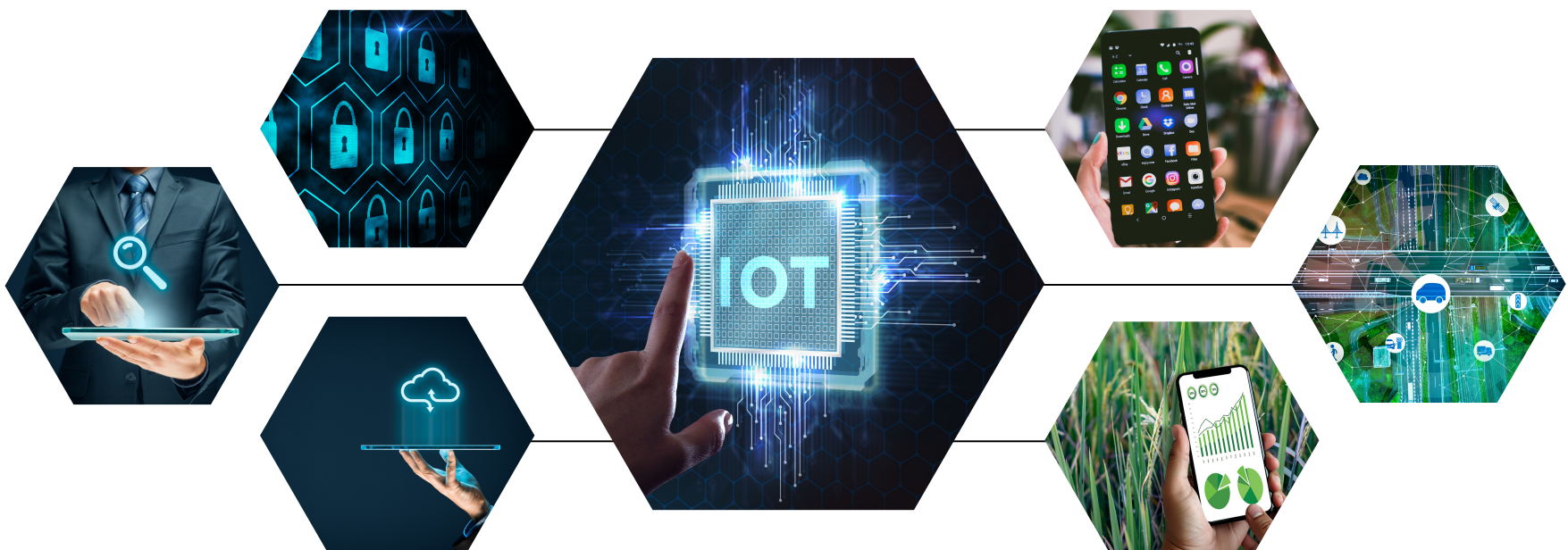
IMPLEMENTATION OF IOT

IOT IN SMART HOMES

A home can be made a smart home by equipping it with a number of smart devices that use the concept of Internet of Things (IOT). For example, nowadays you can turn off the lights of your house even if you are far away from your home. Also, you can watch the footage of your security cameras on your TV or smartphones.

Taking a tour of imagination world, so consider this - When your car leaves your parking space your room air conditioner automatically starts cooling your room, so that after a hot and hectic day you can experience a pleasantly cool environment when you enter your home.This all is made possible due to a perfect internet access provided by the concept of IoT which broadens the possibilities of such astonishing home networks. Use of this concept makes the control and monitoring easy, facilitates energy savings and enhances security and comfort levels of users.


HOME SMART HOME

IOT IN PERSONAL ASSISTANCE

In modern day busy life everyone needs an assistant that reminds you of your schedule so you do not forget any of your important scheduled meetings or works.

To revolutionise this scenario, the concept of personal assistances is brought up. Presently there is a war going on between Apple's Siri, Google Assistant and Microsoft's infamous Cortana. Also Amazon's girl Alexa is the new addition in the competitor's list of being the best digital personal assistant.There is a long list of works that these personal assistants can do apart from just reminding you of your schedule. They have a major contribution in making "Home Sweet Home" as "Home Smart Home". They can turn your lights off, search for some information for you on google, play music on demand and what not.?

So to make these assistants connect to your daily works we use IoT. Internet of Things is the concept that is providing the network to connect these devices.


One Assistant, Available Everywhere
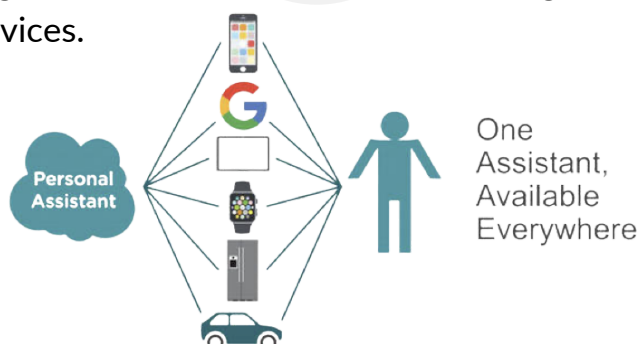
IOT IN AGRICULTURE

"Mom, I'm hungry, please give me something to eat". These are the first words of everyone when they reach home after a hectic day, after all food is the basic necessity of a human being. Agriculture is the most ancient sector of any country's development. Now development in modern technologies has also reformed this primitive sector to repute agriculture as a smart sector.IoT has contributed in making smart-greenhouses that are equipped with many intelligent devices like sensors, climate control devices, soil testing devices and even artificial sunlight devices.

These devices analyse the normal environmental factors and if needed regulate the environment inside the greenhouses when outside environment is not favourable for the crops and plants. All devices being connected with a perfect network communicate with each other to work efficiently.

Development in above sectors show how IoT has reformed the major industries to modernise the world and connect everything with a perfect network to make the working of sectors very efficient.
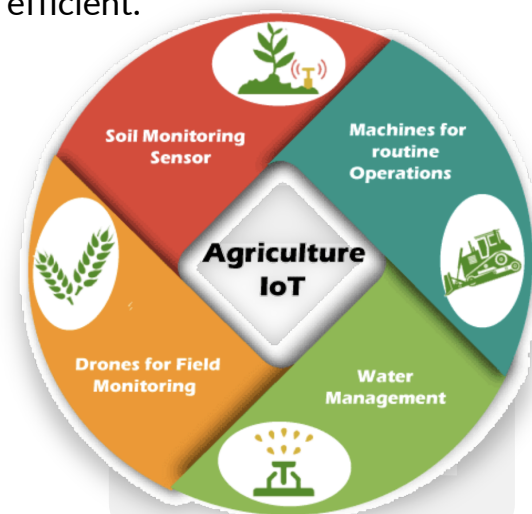

IOT IN TRAFFIC MONITORING

In modern, well-developed metro cities, the most annoying thing is the traffic in these cities. Be it the traffic of Delhi NCR, Mumbai, Kolkata or as you know the most traffic affected metropolitan of India - Bangalore. The only way to get rid of humongous traffic jams is better traffic management.

Smart traffic infrastructure is an integral component of smart city because traffic congestion is a major and annoying issue that flourishes along with city development. Smart traffic monitoring includes intelligent transport systems with embedded components like adaptive traffic signal controls, freeway management, emergency management services, and roadside units. Such systems gather real-time traffic data and take efficient steps to avoid or reduce any social issue arouse as part road congestions. For example, being able to track real-time traffic maps will help the people in selecting less congested route to save time and effort.The commonly used

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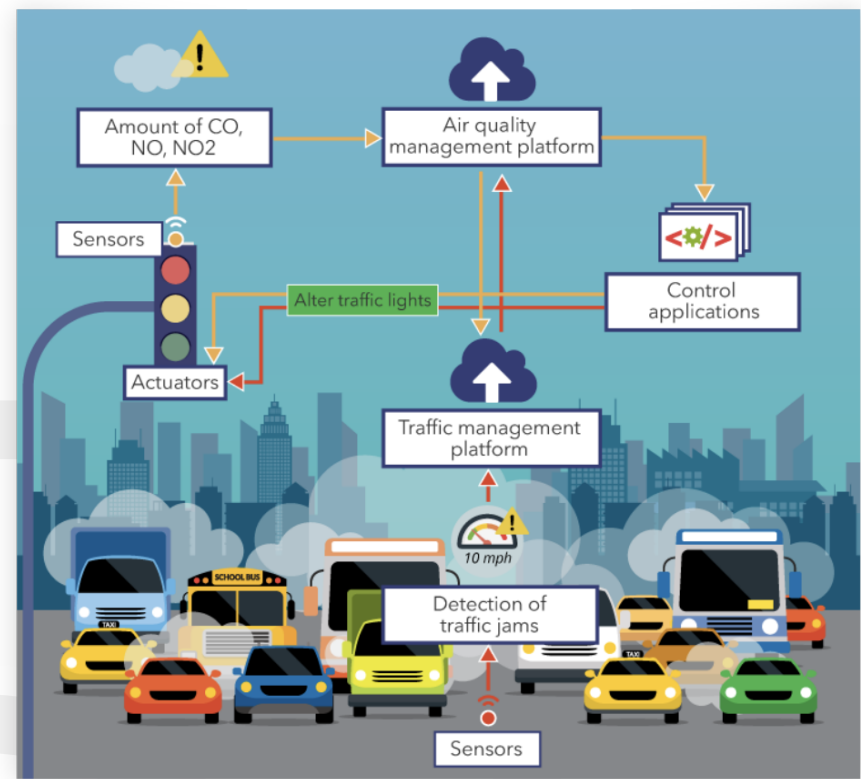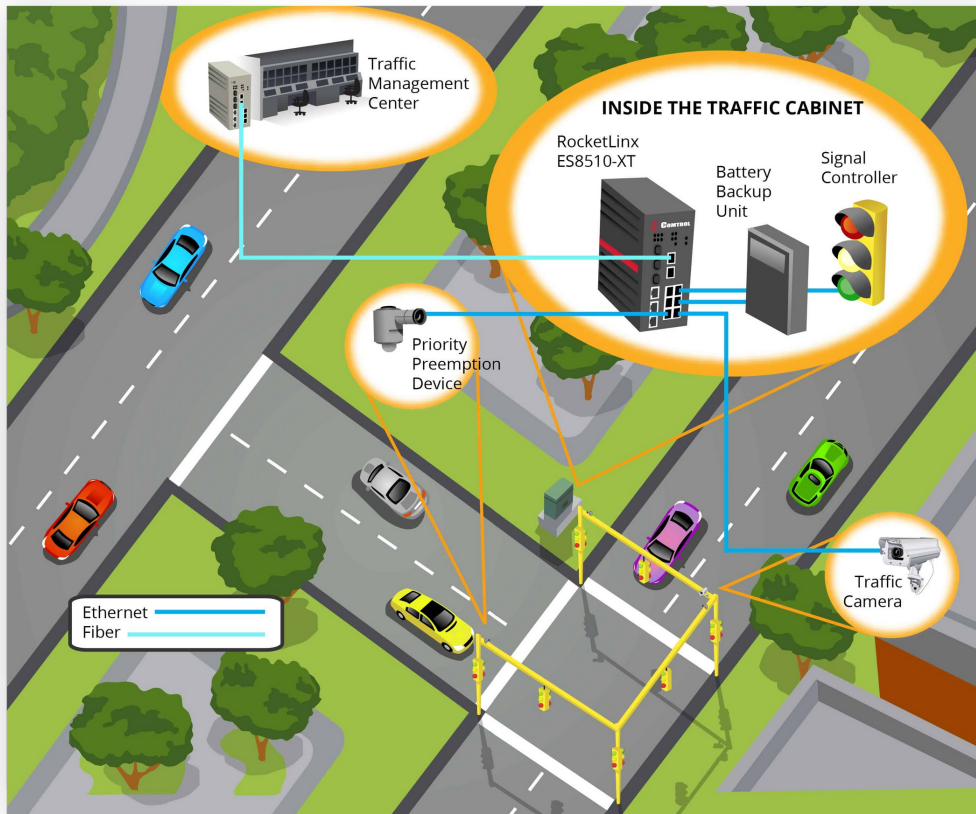
mobile apps like Google Maps or Apple Maps efficiently predict traffic congestion for city roads based on the sensor information from managing devices equipped on highways or town roads.These app providers bring in partnerships with various transportation bodies to gather traffic data. The transportation government entities mostly equip the traffic managing devices on city roads, hence such application providers (e.g. Google application programming interface) show updates on city traffic congestion. Also, such apps also use crowdsourcing with location-based assistance to improve traffic congestion prediction. They do expect smart technologies like the concept of IoT within the vehicle or any smart mobile device with the driver of the vehicle to receive real-time road congestion updates. The issue here is that the people require smart devices to use these applications and mostly the assistance is limited to city roads.These app providers bring in partnerships with various transportation bodies to gather traffic data. The transportation government entities mostly equip the traffic managing devices on city roads, hence such application providers (e.g. Google application programming interface) show updates on city traffic congestion. Also, such apps also use crowdsourcing with location-based assistance to improve traffic congestion prediction. They do expect smart technologies like the concept of IoT within the vehicle or any smart mobile device with the driver of the vehicle to receive real-time road congestion updates. The issue here is that the people require smart devices to use these applications and mostly the assistance is limited to city roads.

IOT IN AUTOMOTIVE INDUSTRY

Fast developing world challenges you to move fast, and what can help you in moving fast than a super car. To make it more fascinating IoT brought us with the concept of automotive cars. Tesla, the ultimate tech giant in the world of cars has already brought these automotive cars in the market. These cars do not require driver to reach their destination.

Now to make these cars work without human handling is a tough mountain to be conquered, but IoT has made it easy as a board game. With IoT devices being installed in these cars, they connect directly to the servers to get the data as instructions to know where to stop, overtake, or whether to take a right or a left turn. You can even turn on your car's air conditioner from far away, so that when you enter the car it is already heavenly cool. Tesla Cyber Truck is the one in the list of these automotive cars. Now Google has also announced to make its cars automotive by using the concept of Android Operating System supported by IoT. Morris Garages better known as MG is also an auto giant which has made the cars – Smart Cars.

TURNING DATA INTO ACTION

FUN FACTS
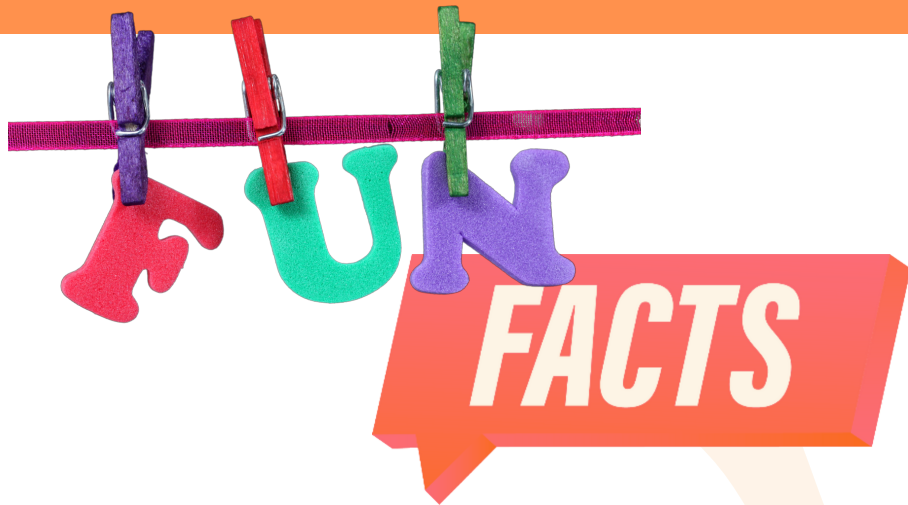
1. The first-ever connected device was ATM in the UK in 1974
2. According to Forbes, 17 years later,87% of people actually have no idea of what the IoT means.
3. By 2008, the number of devices connected to the internet exceeded the number of human beings on the planet. In 2003, the ratio of connected devices to living human beings was .8 : 1. As of 2018 that ratio is nearly 6 : 1.
4. For some scientists IoT is the fourth Industrial revolution
5. According to Grand View Research Inc, the healthcare IoT market is expected to be worth 534.3 billion by 2025.
6. There is so much IoT data that it is measured in Zettabytes
7. In UK, construction for the first digital factory has begun known as Factory 2050.
8. In Germany, 91% of industrial/manufacturing businesses invest in "digital factories" that include IoT solutions

First ATM in the UK

Digital factory
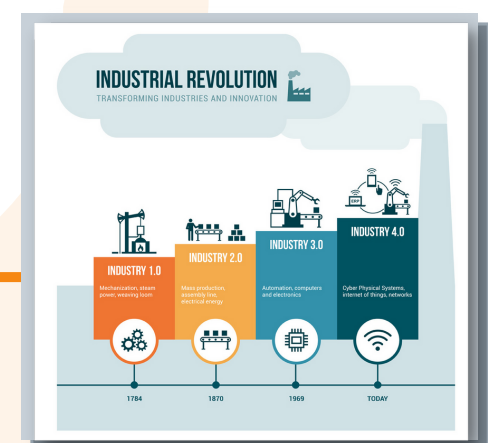
IOT as fourth industrial revolution

ROLES & RESPOSIBILITIES

PROGRAM INCHAREGE
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HARDIK MUGIL
(BCA 2ND YEAR 1ST SHIFT)

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STUDENT'S INNOVATION

INTERNSHIPS AND WORK EXPERIENCE

I tried learning Website Designing and Development during the pandemic, and I started liking it more I got into it. Learning new things and leading the team towards success motivates me a lot. I have also worked as a web developer intern during pandemic, where I learned new tools and worked upon different modules. - **Naman Gupta, BCA 3rd Year 2nd shift**

During the lockdown when everyone was experiencing the sudden hike in technology, I decided to sharpen my skills and also to explore the new evolving technologies. During the pandemic, I enrolled myself in an internship in a non-profitable organisation where I got the experience of working as a graphic designer and content in various domains. Also, I got the chance to interact and work with people throughout the globe and also it helped me to make new connections. - **Ankit Singhal, BCA 3rd Year 1st shift**

I have been working as a Graphic Design Intern at Humanitive Retail Pvt. Ltd. I have always been a creative person which motivated me to pursue my career in design. I love to communicate my ideas & thoughts to others with my designs. I am currently working on social media designing, website designing, and packaging design but believe that knowledge and skills are never perfect. So, I'll keep working towards expanding my knowledge of Motion Graphics and Animation. - **Sakshi, BCA 3rd Year 2nd shift**

"Every adventure requires a first step" I decided to dive into the world of the Data Science and Machine Learning during pandemic and landed up with an internship opportunity from DRDO in the beginning of this year 2021. Where I have worked upon algorithm to prevent DDoS attacks using Python3 and Machine Learning concepts.- **Abhishek Kumar, BCA 3rd Year 1st shift**

Practical knowledge and experience which is a very important for an individual and internship is one way to get it. I was offered an opportunity by Course Connect a start-up, where I worked upon Cause Connect App which will act as a bridge between NGOs and Volunteers, I was assigned with Front-end Task and Later I also got a change to lead the team. - **Ankit Singh, BCA 3rd Year 1st shift**

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STUDENT'S INNOVATION

PROJECTS AND RESEARCH EXPERIENCE

During the lockdown I enrolled for 21 days workshop of Japanese language. It was fun to learn a new language and get to know about a different culture. I started getting the hang of it in after just 5 days of the workshop which made me eager to learn more. You can learn any language if you find the joy in it.
- **Kabir Kakaria, BCA 3rd year 1st Shift**

I have developed a News Application using Android and java where my motive is spread awareness around the world about what is happening. I have attached database to it like firebase and MongoDB to provide more security for the login and signup and also added the feature to add and share the article the user like.
-**Raghav Khanna, BCA 3rd Year 1st Shift**

Our project Organ Donation is an app acts as an interface between the user and the hospitals. Any person who wants to donate any organ or blood donation can install our app; our app will provide nearby hospitals according to the donation requirements.
-**Ankit Singh and Manas, BCA 3rd Year 1st Shift**

I have made various projects related to cryptography and steganography. These projects include secure android applications, system softwares & web apps. Also, I have published my research work which was based on wearable technology in ICICC 2021 & also working on papers related to Data Analysis and Data Security.
- **Ankit Singhal, BCA 3rd Year 1st Shift**

I have published my research work about smart road technologies in a UGC indexed journal name "Shodh Sanchar Bulletin". In the paper, I have done a comparative analysis on various smart road architectures including automatic charging roads, smart road monitoring, and smart parking systems.
-**Abhishek Kumar, BCA 3rd Year 1st Shift**

I always got my motivation from my big sister so, this year I decided to create an app named "Creative Stree" for my sister. I build it on android using java and tools. The motive of the app to create a platform where my sister could showcase her work and get few clients.
- **Shruti Saxena, BCA 3rd Year 1st Shift**

I have made a project named 'Hardware Hub' on IBM Digital App Builder with Watson Assistant, Cloudant Service.
The project main objective is to develop an app for GPU Hardware component to let the users know the best hardware GPU for them in their budget.
- **Varun Kaushik, BCA 3rd Year 1st Shift**

I have developed a Toolkit Website named "Tooly" using HTML, CSS and JS in which there are 24 Modules. User can perform many tasks as well there are 6 games which user can play. The main purpose of the project is to provide them with all the tools at a single platform.
-**Adarsh, BCA 3rd Year 1st Shift**