ROLE OF IOT AND ITS IMPACT ON VARIOUS INDUSTRIES IN INDIA

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Abstract

With increasing popularity of the IoT (Internet of Things) and devices getting smarter day by day, this paper presents an idea to reform the role of internet of things on various industries in India. The Internet of Things (IoT) refers to the use of intelligently connected devices and systems to leverage data gathered by embedded sensors and actuators in machines and other physical objects. IoT is expected to spread rapidly over the coming years and this convergence will unleash a new dimension of services that improve the quality of life of consumers and productivity of enterprises, showing the impact of the internet of things on industries. While IoT has a promising future, its large-scale adoption would require a strong ecosystem of technologists, academicians, OEMS working together with a lot of push from government, regulatory bodies, industrial consortiums, and venture capitalist to ensure sustainable business models and the right atmosphere for growth is developed In many different ways, and it encompasses many aspects of life from connected homes and cities to connected cars and roads, roads to devices that track an individual s behavior and use the data collected for push services. Some mention one trillion Internet-connected devices by 2025 and define mobile phones as the eyes and ears of the applications connecting all of those connected things.

Keywords: IOT, M2M, Agricultural IOT, GSMA,IOT Ecosystem, Smart Cities, Wireless Sensor

1.   Introduction

As we know that IOT has a major impact on various sectors in different countries and will continue to change the world and technology around it for centuries to come. IOT has given us the opportunity to create a handy gadget of our choice or need, it has revolutionized the automation industry around the globe, for instance automatic ignition of lights on detecting motion and switching of the light when theirs's no motion at all is a great use of IOT and an impact full way to save electricity.

Now, Internet itself is a revolution in its own rights, there's no denying that, but imagines almost every device near you is connected to internet and performs a specific function without a delay or without any effort, it would be amazing. Internet of Things opens the doors to heaven in this context.

As India is developing at a rapid rate its technology needs to be developed at the same rate, IOT not just gives us the scope to improve our current technology but also helps us to develop new and more advanced tools or gizmos that will easily take up our load and help us work on complicated projects. Furthermore, we can employ these IOT devices in our various industries which will be fruitful, as tech is growing or evolving so do industries. Now, these industries are the backbone of India, so a positive impact on industries is a positive impact on any country.

2.   Role of Iot In Indian Industries

Since we're living in a global mesh where everything is connected to everything and IOT's are also connected to internet, so IOT employed in Indian Industries will help reduce the time to render services to the consumers, in some cases it could be in seconds. Now think of the number of tasks one can perform in the saved time. As far as the role of Internet of things in Indian industries is concerned not only it will help the industries to automate their tasks or save their valuable time, but it will also help the industries to dive into research and development of new devices that can ease up the life of their customers and bring down some of the work load of their employees.

The Industrial revolution brought by the introduction of IOT technology in India is termed as Industry 4.0. Linking of IOT tech to Indian Industries will help "Digital India" achieve more and develop faster than the world around.

By using IOT industries can adapt to a day by day increasing customer base, managing their needs, their demands or their queries has become a cake walk since all the data is processed in real time and there are no errors or corrections in that data. The Service provider find it easy to reach out to their customers and give then new advice or products based on their interests and their previous data. Quality control is a big issue in India nowadays, utilizing IOT in product-based companies can even check the quality of the products using different sensors.

3.   Impact of Iot on Various Industries In India

3.1 Health Care Industry

Indian healthcare system is constantly changing and evolving, IOT's are applied in various machines to ease their usage and to properly monitor the data recorded in those machines. When we talk about IOT we talk about smart devices that are connected with each other, IOT's use will take us to the point where we can remotely access the hospital, this smart use of IOT will surely lead us to consult a doctor from the comforts of our home.

Further development in IOT is taking us from 'machine to machine'(M2M) to 'person to machine'(P2M) which will ensure us the best of health facilities at affordable costs. Real time trackers like Fit bit that are connected through an app with internet analyse your daily activity for instance steps taken, calories burnt, and heart rate and gives you a feasible advice to meet your fitness goals.

We can use IOT devices to reduce the time taken by the hospital or ambulances to reach the needy by locating their exact location. IOT embedded Glucometer will help the doctors get the real time data of the diabetic patient remotely and give them relevant advice.

As per the Medical Council of India there are 1674 patients per doctor and IOT will come handy in this situation. Many start-ups are there in health care industry employing IOT's at its fullest like Bagmo Pvt Ltd, which aims to eradicate the lack of blood availability in remote areas of India, they have developed a blood bag monitoring device which monitors the shortage of blood in different blood banks.

In accordance with a survey by Invest India, the market size of Indian medical devices employing IOT's will reach $50 million by 2025.

3.2 Manufacturing Industry

There are a lot of things to do in manufacturing industry, this industry manufactures day and night. The problem here is not just the quality control but many other factors like employ management, waste management, product management, customer management and many more. IOT plays a major role in managing all of this in real time.

IOT implementation will lead to the better products and provides the manufacturer the real time data of the needs and requirements of their customers. IOT's embedded in the manufactured products is another story they will help the consumer to understand the product and the initiative of the manufacturer. A manufacturer can also track the waste management of his company so as the waste is dumped as per the rules and regulations of the Government. The biggest challenge is to track the harmful or nuclear waste that has been discharged in Indian waters, with the help of IOT we can reduce this waste to hamper the lifestyle of the humans as well as the animals surrounding us.

The Internet of Things Ecosystem
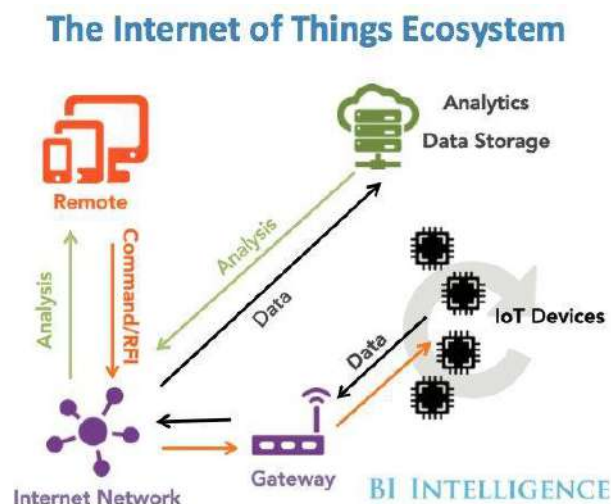
Tech Sci Research report states that by the Financial Year 2027 the Indian IOT market will grow at the rate of 13.81% to reach $11573.16 million. Karan Chechi, the Research Director of TechSci Research stated that "accelerated adoption of 5G that will increase the internet speed up to 100 gigabits per second is expected to act as a catalyst for the India IoT in manufacturing market."

3.3 Automobile Industry

Embedded IOT's in vehicles is an easy and convenient way to make the vehicle smart and more intelligent and safer to drive. According to the Road Accident Report for 2019, nearly 4.5 lakh accidents took place in India which led to nearly 1.5 lakh deaths. Now, IOT's can help prevent accidents from happening and even in case of some unfortunate events the IOT will provide the information to the authorities in real time to tender the wounded.

IOT's devices can help us to minimize the traffic congestion as every vehicle is connected to another and will exchange data in the real time which in turns will reduce the jams during rush hours specially in big cities like Delhi, Mumbai, and Bangalore etc.

Employing IOTs we can attain automation or autopilot like mode where the smart and self-governing vehicle will judge the traffic and will drive safely to an already programmed destination, since the vehicle is connected to internet and has all the previous data. Features like centre lock, remote access to the camera of the vehicle, and surveillance are some of the applications of the IOT's.

3.4 Power and Gas Industry

As we know, all the industries are inter dependent and they depend on each other for different reasons, but every industry is dependent on the Power industry to keep their operations running. So, it's safe to say that Power industry is the king of all the industries.

It is important to save power and gas to reduce the carbon footprint left by any industry or even an individual to ultimately reduce the carbon emission in the atmosphere. IOT based motion detectors that lights up on sensing motion are a very smart way to reduce power wastage.

IOT's will help us to keep track of our energy needs or consumption and even parameters like voltage and intensity of the current. India's demand for power and electricity has increased in a huge amount and it will gradually increase every year as the population is rising day by day and their needs are to be fulfilled, so here, we need an alternative from traditional hydal electric projects, and that alternative is Solar and Wind energy.

Recently, India has built the largest solar farm in the world and the Government of India is advising the citizens to install solar panels on their rooftops to minimize their dependency on hydal power. IOTs play a very necessary role in this as they analyse the temperature and other aspects in real time and store that data for further use.

3.5 Agriculture Industry

India is an agriculturally based country; more than 50% of the population is engaged in the primary sector. Farmers lose their crops to bad weather or unexpected arrival of monsoon or even no monsoon at all. Connected IOTs will collect the real time data of weather and predicting the possibility of floods can be fruitful in many ways.

Agricultural drones embedded with IOTs are globally used to maintain the quality of the crop and to access other aspects like irrigation and spraying fertilizers, and even soil and field analysis to maximize the yield.

IOTS can even predict the selling margin to the farmer in order to gain maximum profit from his yield. It will also guide the farmer about the possible need or pesticides or weedicides that are required for healthy crops.

Figure 1: The evolution of (precision) agriculture
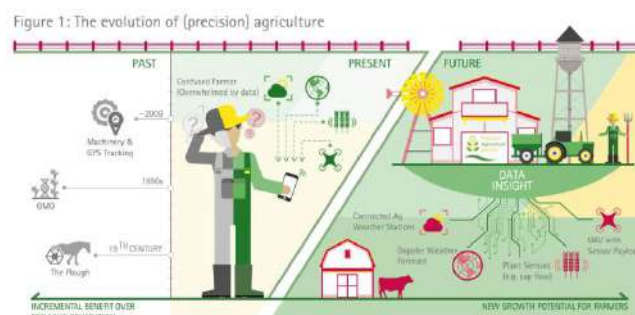
United Nations said that the population of the world will rise up to 9.7 billion by the year 2050, which will rise the demand of food by 69% which is quite concerning.

Smart greenhouses installed with IOT devices will automatically adjust parameters like temperature, light and humidity according to the need of the crop. It will also give the farmers a predator free environment.

4. Conclusion

The Internet of Things promises to deliver a step change in individuals' quality of life and enterprises' productivity. Through a widely distributed, locally intelligent network of smart devices, the IoT has the potential to enable extensions and enhancements to fundamental services in transportation, logistics, security, utilities, education, healthcare and other areas, while providing a new ecosystem for application development. A concerted effort is required to move the industry beyond the early stages of market development towards maturity, driven by common understanding of the distinct nature of the opportunity. This market has distinct characteristics in the areas of service distribution, business and charging models, capabilities required to deliver IoT services, and the differing demands these services will place on mobile networks. GSMA's Connected Living Programme is an industry initiative which seeks to expedite the development of mobile-enabled IoT services. It is hoped that a common understanding of the characteristics of IoT will enable industry stakeholders to collaborate more effectively in order to propel the market forward for the benefit of consumers and society.

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