

IOT –The Smarter Way to Life

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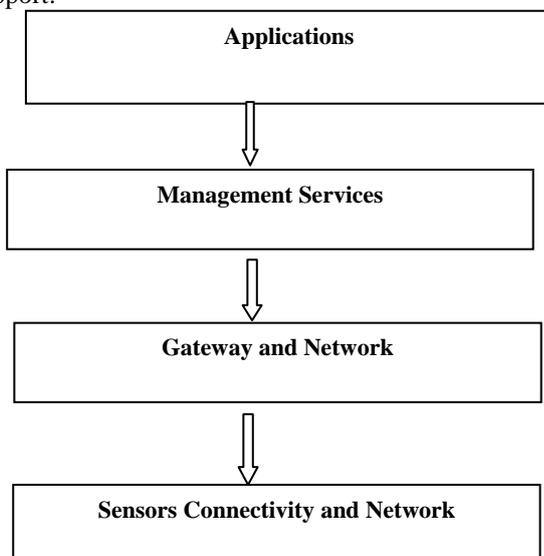
Abstract: Today era is based on sensor based technologies where information is travelling from one point to another point using public and private networks. This flow of information can be seen while we are using over TV remote control to control TV, Using GPS on our Mobile phone, Transferring data using Bluetooth and Wi-Fi connections NFC Payment and many more. IOT also called Internet of Things is step towards the smarter life, sensor based world full of information travelling between communications devices over communication network public and private for the purpose of better management of our day to day life and various services. In other words we can say that internet of things deals with the inclusion of non-computing things in the world of information technology. Because now a day it is possible to manage your body activities using smart pills, one can trace elder persons and small children of the family using the smart sensors. This research paper deals with functioning of the internet of things and how it contributing to the smart world. The paper also deals with Indian concept of the smart cities, and how these upcoming smart cities may have smart features with the help of internet of things.

Keywords—IOT, Sensors Network, Big Data, ICT etc

INTRODUCTION:

Internet of Things is a step towards a smarter internet where billions of objects sensing, communicated and sharing information with each other over interconnected public and private network for the purpose of providing help mankind in management, planning and decision making. This concept was coined by a member of Radio Frequency Identification (RFID) development community in 1999, and now a day becoming more and more practical because of huge growth in communication technologies and mobile devices.

MODULAR APPROACH OF INTERNET OF THINGS:
This Model for IOT consists of various technologies of its support:



Application Layer: This includes the service areas where internet of things may be implemented for the betterment. These areas include environmental (air pollution calculations, in advance earthquake warnings etc), Energy (chemical and nuclear reaction), Transportation (Traffic management), Healthcare (Smart pills), People Tracking (GPS applications) etc.

Management Service Layer: This layer is responsible for processing of information through analytics, modeling and security controls. As sensor layer consist of billions of sensor producing huge amount of data every second (Big Data). This data needs to be needs to process for information generation. Here comes the role of management layer which is responsible of management of this data, by differentiating between useful and unwanted data. Some data needs to be process instantly and some at intervals, this data management is responsibility of this layer.

Gateways and Networks: The output from the sensor layer is massive volume of data that needs to transfer over the high speed network. This network includes WiFi, Ethernet, GSM/UMTS, LTE and LTE-A. So solution to the problem is provided by integration of disparate networks into a single network platform. This single network may be shared by number of organizations without losing their privacy, security and performance.

Sensors Connectivity and Network: The model of Internet of Things consists of four layers. Sensor connectivity and network is the lowest layer of the model. This layer made up of smart objects with sensors. These sensors are responsible of establishing relationship between physical world and digital world. Sensors may be of different types, such as body sensors, environmental sensors, home appliance sensors etc responsible for measurement of various types data such as temperature, air pressure etc. Some sensors are connected with sensor gateways in form of LAN, WiFi even Bluetooth and others are directly connected to backend server with the help of WAN such as GSM, GPRS, LTE etc for the purpose of data transfer.

State of Art of Internet of Things:

1. RFID: Radio frequency identification is to use identifies and tracks the data of things. The RFID refers to small electronic devices consisting small chip and an antenna, capable of carrying 2,000 bytes of data or less.

2. **Sensor:** In internet of Things sensor is use to collect and process the data to detect the changes in the physical status of the things.
 3. **Smart Technology:** Smart technologies like LTE is us to enhance the power of the network by devolving processing capabilities of the network.
 4. **Nanotechnology:** Nanotechnology is use to make the smaller things with the ability to connect and interact with each other.
- Minimizing the gap between Government and citizen via e-governance.
 - Fibre optics based metropolitan internet connectivity.
 - E-waste management, smart water management, smart energy management etc.
 - Use of modern technologies like Internet of Things, Cloud Based Services, Sensors and RFIDs etc.
 - Combining human intelligence, collective intelligence and artificial intelligence within the city.

Applications of Internet of Things:

Smart Shopping: With Internet of Things we will have smart shopping places i.e. goods will introduce themselves. The technology will take care of everything from security at the doors to inventory management.

Smart Health Care: With Internet of Things health care will become easier i.e. sensor will be use to manage and monitor the body pressure, blood pressure, blood glucose, heartbeat, pulse etc.

Smart Homes: Internet of Things will introduce the concept of intelligent homes, i.e. smart houses with smart rooms and smart appliances monitoring and controlling everything automatically.

Smart Transportation: With smart transportation vehicle will be able to interact with its surroundings to provide valuable feedback on various driving conditions such as road conditions, weather and traffic etc.

Smart Environment Monitoring: Smart technologies will help in monitoring and prediction of the environmental changes such as rain, snow, earthquakes etc.

In short we can say that with the introduction of Internet of Things everything will become smart and intelligent from home to office, from small thing to large things etc.

IOT and Smart City: Smart city means smart solution to every day to day problem, using modern techniques of information communication and technologies (ICT). In short we can say that smart city is city with smart (intelligent) infrastructure.

When broadly define smart city is a place where everything is smart i.e. smart houses, smart e-governance, smart waste management, smart disposal, smart traffic system, smart health care, smart tracking and many more. Where the word smart mean "intelligent guidance". Many cities in the world including Milton Keynes, Southampton, Amsterdam, Barcelona and Stockholm have already implemented the many programs being world smart cities.

FEATURES PEOPLE OF SMART CITIES WILL HAVE:

- Use of latest technologies for the better utilization of available infrastructures.
- Transforming Citizens life with use of information communication and technologies.

Indian Smart City: Since last year or so, our Central Government is very much concerned about the development of 100 smart cities in India, and the work is in full swing for the first 20 selected cities out of 100 previously selected cities.

Some Features that Indian Smart Cities will have: Our smart cities will have following features:

- E-Governance and citizen services which includes public information and grievance redressal, citizen engagement, video crime monitoring etc.
- Waste Management which includes waste water management, recycling and reduction of Construction & Demolition waste etc.
- Water Management which includes smart meter, quality check on water, leakage identification etc.
- Energy Management which includes smart meters, green buildings, renewable sources of energy etc.
- Smart Urban mobility which includes smart parking, intelligent traffic control & transportation facilities etc.
- Other features these cities will have tele medicine and tele education, skill development centres etc.
- Improved Government and citizen contact.

CONCLUSION:

Smart cities are the dream cities for the most of us. As India is country of diverse population these cities will give boost to our citizens day to day life needs. But it is also very important to empower the people of the country with the knowledge of latest technology so that they can avail the facilities independently. In short I can say that IOT will be new way to life in India that will change to day to day life of people of this country.

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