

A Survey of Concept of IOT

Arjun K P

Department of Computer Science Engineering, Galgotias University, Yamuna Expressway Greater Noida, Uttar Pradesh,
India

E-mail: arjun.p@galgotiasuniversity.edu.in

Abstract---- In the IoT, things are expected to become active participants where they can interact and communicate with each other by exchanging environmentally friendly sensed data or information. Some mention one trillion Internet-connected devices by 2025 and describe mobile phones as the eyes and ears of all those connected things. Through the internet of things billions of objects will interact globally through a public, private internet protocol network. In 2010, the number of physical objects and devices connected to the internet was around 12.5 billion. IoT Ecosystem has given the highest aim for future protection to smart cities, smart cars, public safety, smart industries and environmental protection. For instance, the European, Asian and American governments have found that the Internet of Things has an area of innovation and growth. This paper offers a completely intelligent environment monitoring of the condition of different sensors (Temperature, Humidity, Light and Level) to provide the necessary data to automatically adjust the level of comfort in homes by optimizing energy usage.

Keywords--- Internet of Things, SMS, Smart home, Home automation, Ecosystem, Innovation

I. INTRODUCTION

The word "Internet of Things" has come to describe many technologies and disciplines of science that allow the Internet to reach out into the real world of physical objects. The phrase internet of things refers to general use of things in are day to day life such as reading, recognising, locating, addressing, and/or controlling with the Internet [1]. Hospitals are turning to remote self-monitoring for patients because of internet of things. This allows the patient more freedom and independence for their safety due to self-monitoring and free the emergency equipment provided to patients [2].

can organize and administer themselves [3]. Everyone from anywhere can connect with IOT. Object can communicate with each other using radio frequency identification (RFID), wireless sensor network (WSN) etc. RFID is a technology which is more secure for identification and for tracking/locating objects, things, vehicles etc. Some examples of IOT are: Smart microwaves which automatically cook your food for the right length of time. Self-driving cars which automatically detect the objects in their path using complex sensors, A wearable fitness devices that can measure your heart rate and the number of steps taken in a day, then use that information to suggest exercise plans [4].

**Fig. 1: IOT**

II. INTERNET OF THING (IOT)

IOT is a new revolution of the Internet. It provides a communication platform between objects where objects



Fig. 2: Example of IOT

III. HOW DOES IOT WORK

Devices and objects with built-in sensors are linked to an Internet of Things network, which incorporates data from the various devices and uses analytics to share the most valuable information with applications designed to address specific needs. IOT platform is very powerful as it automatically pinpoint what data is useful and what to be ignored. Such knowledge can be used to detect patterns, possible problems, and make recommendations before they occur [5].

Internet of Things can perform various operation such as Using sensors to detect which areas are most common in a showroom, and where customers last for the longest, Align sales data automatically with the supply, so that popular items don't go out of stock [6]. IOT used in various places such as in home alarm clock is the best example as its job is waking the person in the early morning, in transport also IOT is used when person forgot to wear the seat belt or when people exceed the limit car alarm automatically start to inform. Many examples are there [7].

IV. ADVANTAGES OF IOT

Many technologies are available today but no technology has achieved 100% capability. In a nation, IOT is a significant technology that can also help other technologies to achieve their accuracy and complete 100 % capability as well.

- **Efficiency resource allocation:** knowing the functionality and the way how each device work will definitely increase the efficient resource utilization as well as monitor natural resources.
- **Minimize human effort:** IOT devices interact and communicate with each other and do lot of task for human.
- **Save time:** Time is primary factor which can saves time using IOT platform. It reduces human efforts then it automatically saves time.
- **Enhance data collection:** Data collection can be enhanced using data collection.
- **Improve security:** To make the system more secure and efficient then interconnect it with IOT devices [8].



Fig. 3: Advantages and Disadvantages of IOT

V. DISADVANTAGES OF IOT

IOT facilitates a set of benefits as well as set of challenges.

- **Security:** IOT systems are interconnected and communicate over the internet. Despite any security measures the system offers little control, and it can lead the different kinds of network attacks.
- **Privacy:** The IOT system provides extensive personal data in maximum detail, even without the active participation on the individual.
- **Complexity:** Designing, developing, maintaining and enabling the large technology with IOT system is quite complicated.



Fig. 4: RFID and NFC

VI. IOT TECHNOLOGY AND PROTOCOLS

Various protocols and technology are used in IOT.

- **RFID and NFC**
RFID means Radio frequency identification and NFC means near field communication. These technologies are low energy, simple, and versatile options for identity and access tokens, connection bootstrapping, and payments.[9] RFID technology used 2 way radio transmitters to identify and tract tags associated with objects. NFC is a communication protocol used in electronic devices

especially in standard device and a mobile phone.

- **Low-Energy Bluetooth**

This technology uses low power, long use need to IOT perform operations.



Fig. 5: Low Energy Bluetooth

- **Low-Energy Wireless**



Fig. 6: Low energy wireless

A low energy device not only reduces consumptions it also extends the life of the device through less use. It replaces the most power hungry aspect of an IOT system [10].

- **Radio Protocols**



Fig. 7: Radio protocols

Radio protocols are used creating low-rate private area networks. E.g. of radio protocols are Z-Wave, Thread etc. These technologies are low-power, but offer high throughput unlike many similar options. It increases the power of small local device networks without the typical costs [11].

VII. CONCLUSION

Efficient, flexible system are needed which detect the fault in the devices automatically and generate a recovery process to resolve the detected problem. In many cases people are not able to move from one place so it is essential for them to develop a system which requires less human interaction. To improve standard of living it is needed to change the atmosphere or conditions of home according to the mood of the user without interruption. Smart system is the best option to opt because it provides all facilities in low cost and less energy consumption. Important features of IOT include artificial intelligence, connectivity, sensors, active engagement, and small device use. Using artificial intelligence, IOT makes virtually everything smart means it enhances the standard of living with the power of data collection, AI algorithms, networks. Without sensors IOT loses its distinction. Small Devices are predicted, have become smaller, cheaper, and more powerful over time.

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**International Journal of Engineering Research in Computer Science and Engineering
(IJERCSE)****Vol 4, Issue 3, March 2017**

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