

A Survey on Evolution of Internet of Things

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Abstract— In the recent era of advanced technology, everyone is coming across many new paradigms of technology. IoT is one of the most talked-about among them in the industry. Internet of Things is attracting the lifestyle and is becoming the most growing technology. IoT is one of the characters of a “universal global neural network” whose prime concern is to associate with numerous things. The IoT consists of smart machines that communicate with other instruments and the Radio Frequency Identification (RFID) and sensor network technologies will accelerate to match and overcome the new confrontations. This research article comprises of the meaning of IoT, characteristics, and applications. The main objective of this paper is to provide an overview of the evolution and the management of the Internet of Things (IoT).

Index Terms— Internet of things, Smart devices, Radio frequency identification, Architecture, web services

1 INTRODUCTION

In early times to handle machines and other automation, simple manual methods were used. Although with the change in time and new technologies advanced methods came into existence to control mechanization. With the increase in the availability of computers and the internet a huge amount of data can be accessed. In recent times with the touch of a button, everyone wants an economical and protected method to manage the machines with the Internet.

The abbreviation IoT is one of the most commonly used technology in the field of education and industrialization. Generically it epitomizes the scope of network appliances to sense and regularly gather data from numerous sources around the globe and then transmit and receive information over the internet [1]. The information that has been shared is then further revised and being used for other effective objectives. The IoT is a catalog of smart machines interacting with more smart automation, gadgets, environments, and framework as shown in figure 1.

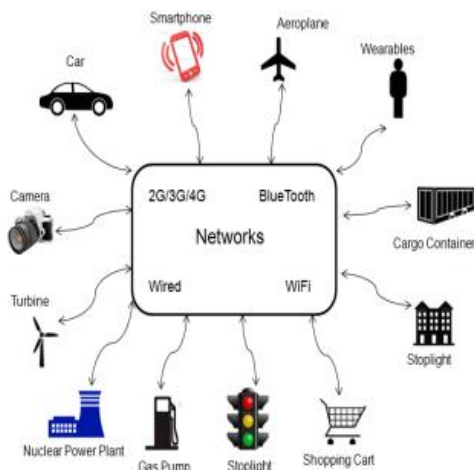


Fig. 1 IOT in various fields

The advancement in the internet of things (IoT) permits various articles like sensor nodes, embedded systems, and intermediate devices to gather and interchange the information to accomplish the objectives of the entire connected world, in the upcoming future as shown in figure 2. Commonly, the architecture of an IoT architecture comprised of different sensor and RFID nodes to form large-scale distributed embedded systems for various applications based on real-time like smart health-care [2], [3], intelligent transportation systems [4], and smart energy systems [5]–[7].



Fig. 2 Internet of Things

2 ARCHITECTURAL ARRANGEMENT

The security issue correlated with several devices being connected is the prime concern in the continuous development of the internet of things. Figure 3 shows the architectural arrangement of an IoT wireless device with the destination host. In the diagram, the cellular device is associated with the local serving unit tower through encoded radio access hobnobs. The tower shown in the figure is actively linked to the mobility data center of the home.

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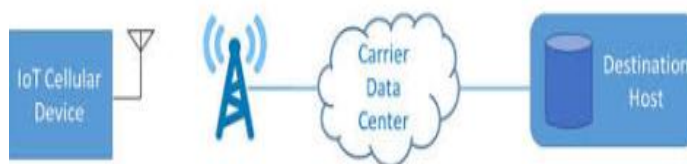


Fig.3 Architectural arrangement of an Iot wireless device with the destination host

Leveraging standard-based element and end to end security are the two major advantages of using the architectural arrangement of IoT based cellular device. The diagram described here gives the covert security with acquiring increased information change in security aspects.

3. LITERATURE REVIEW

The term ‘Internet of Things’ was given by a British technological pioneer named, Kevin Ashton, to foothold the idea of supply chain management in 1999. Although, in the past few years the term has become more all-inclusive and thus involves a broader spectrum of objectives such as Healthcare, Transport, Utilities, consumer goods, etc [8].

In today’s world, one can smart devices all around and this because of the term IoT. The field of IoT is influencing numerous researchers and the same work has been performed by many people around the globe. The significance of the word “Things” has modified because of the day to day manipulation in technology but the aim and objective of computer sensing data without any human aid have remained similar.

Li Da Xu, et al. [9] paper gives the study on the recent research in this field, permissive technologies; prime utilization in the field of education and industries, and also the everyday challenges have been described in the paper. The major concern of the paper is to give the idea of the recent condition and contribution of technology in various fields.

Kemal Akkaya et al. [10] analyzed the current performance on holding and controlling the multi-modal information amalgam method for smart commercial infrastructure. The paper aimed to unwind a scheme for future aspects and also to exploit the Spatio-temporal data achieved from one or more different IoT equipment like temperature sensors, surveillance cameras, and RFID tags that are being previously used in the infrastructure.

Major advantages of this technology:

- i. Access Information - data can be accessed from remote locations.
- ii. Communication - effective communication is possible via connected devices.
- iii. Automation – task is done without human intervention.

Major disadvantages

- i. Complexity- A diverse device connected to a network single loophole can affect the entire network.

- ii. Privacy/Security - In today's tech world where all the devices are connected to the internet, Loss of data is possible.
- iii. Loss of Jobs-automation leads to loss of jobs

4. APPLICATION

As the Internet of Things (IoT) in 2019 is all set to rule the entire globe, its cost-efficient feature has enabled new business models. There are various areas where IoT is being used and some of them have been listed in figure 4.

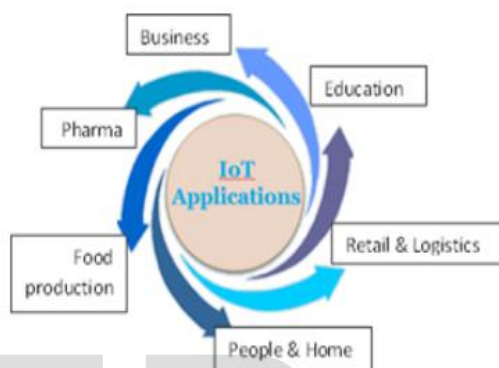


Fig 4 Various applications on IOT

5. CONCLUSION

In the recent era of advanced technology, everyone is coming across many new paradigms of technology. IoT is one of the most talked- about among them in the industry. Internet of Things is attracting the lifestyle and is becoming the most growing technology. IoT is one of the characters of a “universal global neural network” whose prime concern is to associate with numerous things. The IoT consists of smart machines that communicate with other instruments and the Radio Frequency Identification (RFID) and sensor network technologies will accelerate to match and overcome the new confrontations. This research article comprises of the meaning of IoT, characteristics, and applications. The main objective of this paper is to provide an overview of the evolution and the management of the Internet of Things (IoT).

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