WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Internet of Things (IoT) and It's Applications: A Literature Review

K Sonmung Paite

Uttaranchal Institute of Management, Uttaranchal University,Dehradun, Uttarakhand.
ksmatoz@gmail.com

ABSTRACT

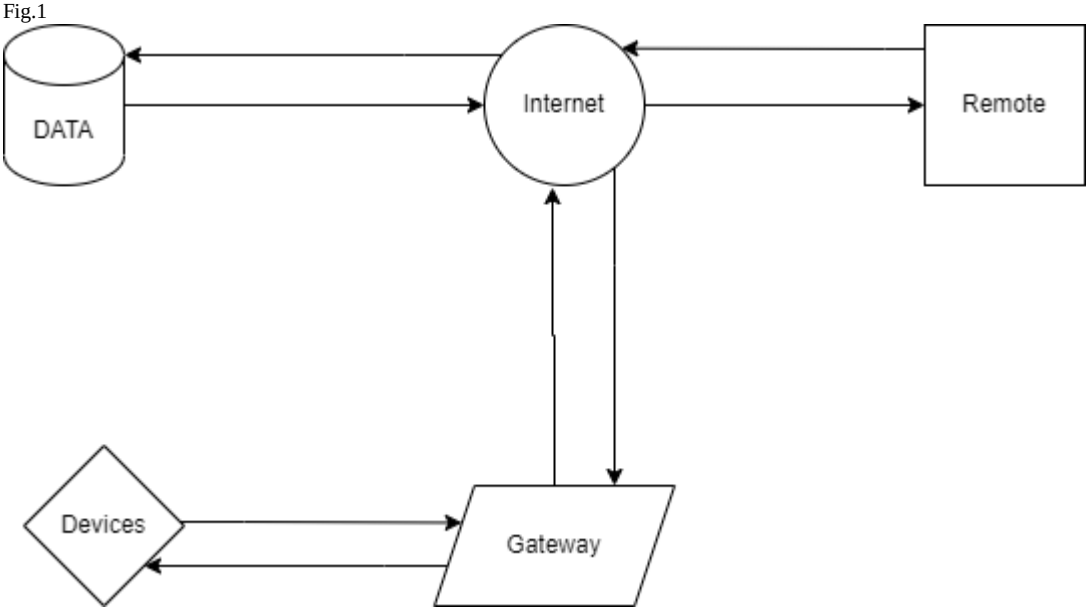
Internet of Things (IoT) is a beautiful force which elevated and is elevating the lifestyle of humanity. The old and slow ways of living have been succeeded by smart lifestyle. Internet of Things is created to unite different needs of our daily lives to function under a common infrastructure. IoT has given us the power to control and not just control but to control with finesse. This study focuses on reviewing IoT Applications through already researched literature and online sources. The main objective of this study is to provide a basic grasp on the vast subject of Internet of Things and its Applications. I believe this study will be influential to new blood, who are interested in Internet of Things.

Keywords:Internet of Things (IoT), Sensors, Smart Wearables, Smart City, Traffic Monitoring

1. INTRODUCTION

Internet of Things is the present which will take us into the future, it's like a beautiful formation which sets everything around us in harmony(Fig 1).IoT is an Emerging paradigm that enables communications between electronic devices and sensors by the internet [1].IoT includes various sensors which measures our surroundings and act accordingly by actuators.We have seen many innovations through IoT such as Security and Surveillance, agriculture. Researchers, software engineers, and business executives who are driving the research, improvement, and establishment of new companies must be able to effectively implement the innovations they have discovered and developed.[2].

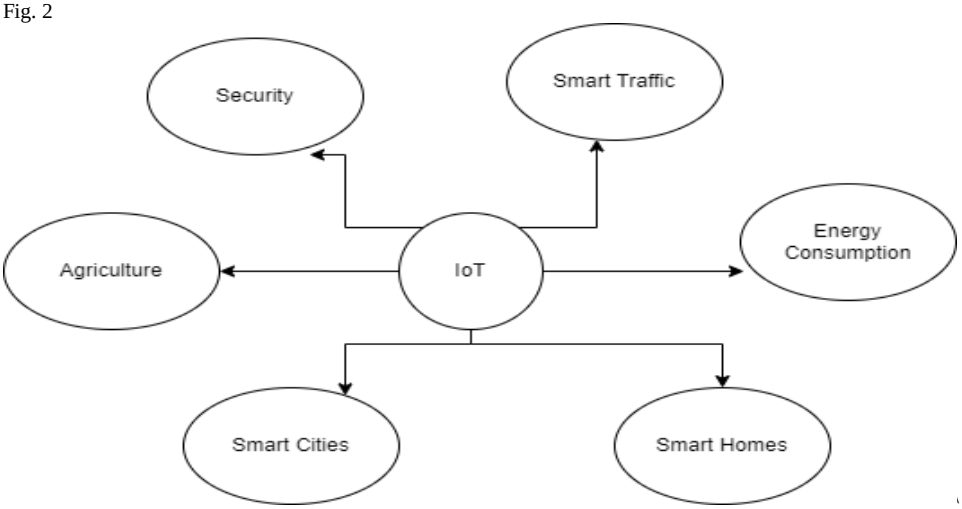
Fig.1



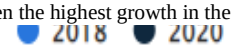
IoT has shown immense potential and growth in major fields, and its growth is every increasing. Even in the trade and stock exchange market IoT is considered a furious bull.

2. METHODOLOGY

IoT has variety of visions to provide its resources to different aspects of society such as environmental, public, medical, transport etc.
The potential of IoT in different domains is shown in Figure 2
Fig. 2



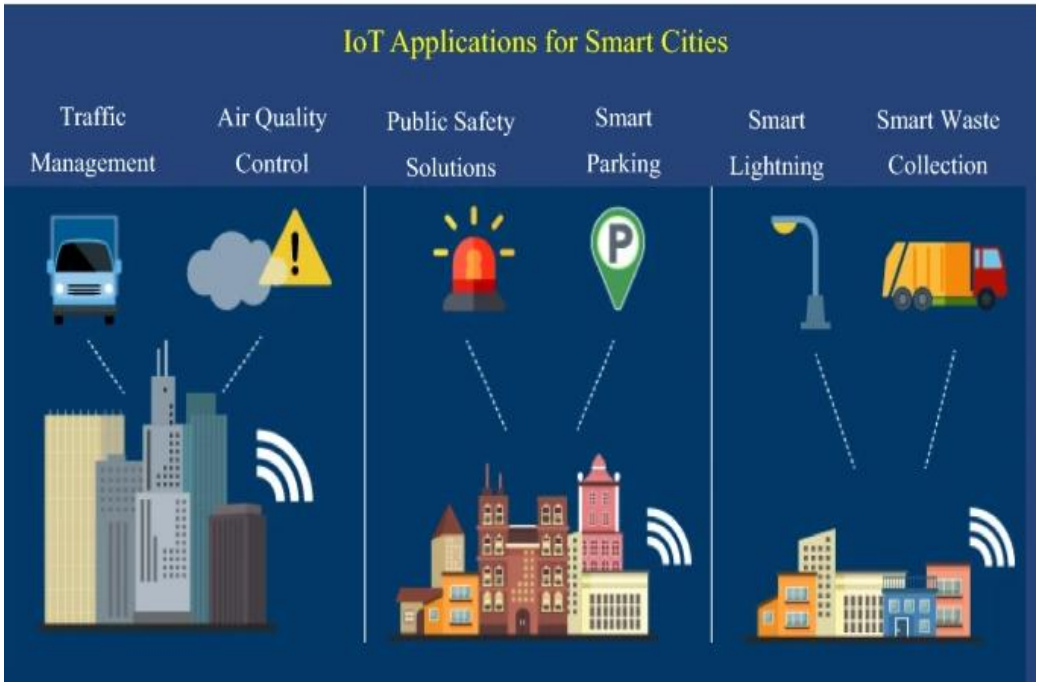
The market has seen increase in IoT projects by a significant margin in the previous years. The global distribution of IoT projects shows us (Fig.3) that Buildings, Cities, Retail and Manufacturing industries have seen the highest growth in the shares.



Its very clear that smart cities are the area which is seeing the most growth. Smart cities incorporate smarts homes under it. Smart homes have many IoT devices such as air system, smart fridge, security systems. The smart home business economy is about to cross the 100 billion dollars by 2022 [3].

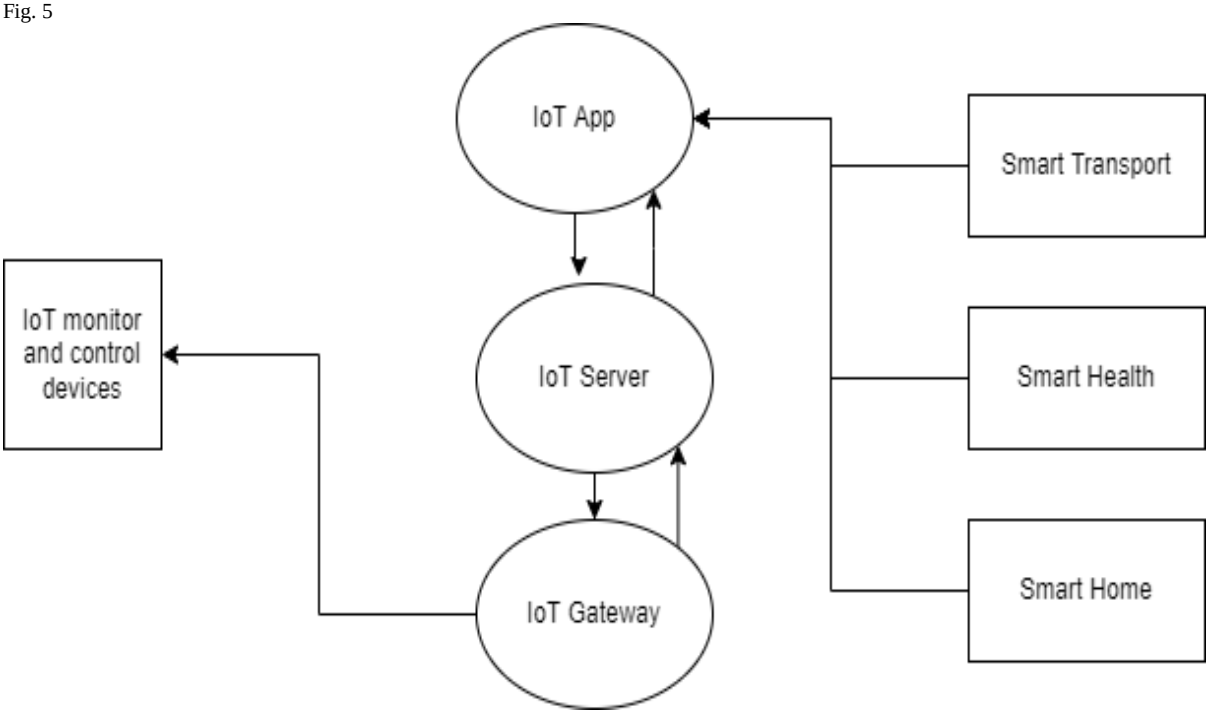
More and more people are moving into urban areas which is resulting in rapid growth in population. Which raises the urgent need to produce better, smarter solutions for the cities and work infrastructures.
Smart City has the perfect solutions for the problem. Traffic Management, Air Quality Control, Public Safety, Smart Parking, Smart Lightning, Smart Waste. All these Applications of IoT are implemented to make a smart city.

Fig. 4



IoT gateways play a crucial role in Internet of Things communication because they enable connectivity between IoT servers and IoT devices that are used in a variety of applications.[4]. The current working structure of IoT (Fig 5)

Fig. 5



3. REVIEWING IOT

3.1 Person-Centric

A person can get a lot of data about his body through IoT devices, these devices can track a human movement. The amount of data that is tracked is enormous but through Smart data it is now so much easier to track down the important actions. These devices lead you to have a healthier life by connecting different methodology. Because of a deeper awareness of the persisting's extraordinary way of life and history, such information will provide general benefits as well as the ability to provide more personalized social insurance.[2].

3.2 Home-Centric

Home-based devices were invented to stay and function in the homes. They collect information about the surrounding and the house itself. An example is Home Security. It is made to detect any anomaly occurring and acting through actuators upon it.

3.3 Challenges and Drawbacks of IoT

Bringing IoT into our day-to-day life results in various kinds of data being transferred between devices at an astonishing rate made it into a breach of privacy.There is a huge fear of cyber attacks in the IoT scene. Security mechanisms must be embedded at every layer of IoT architecture to prevent security threats and attacks [5]. Huge portion of IoT is based on wireless connections which generates even bigger risks.

In terms of ethics IoT has been questioned to it. We as a working human of society are bound to follow the Law set by the government, but the rise of IoT has also given birth to ethical questions. Lack of trust in IoT among people.

3.4 Quality of Service (QoS)

Quality of Service can be defined as a measurement of the efficiency shown by the IoT devices. Firstly, QoS must be defined in order to get the smartest version of IoT ecosystem. There are certain good quality models available in literature such as ISO/IEC25010 [6]. The model is sufficient to recognized a good IoT service.

4.CONCLUSION

IoT is getting innovations everyday which is luring more developers and researchers to work and create at the highest possible level.However, the shortcomings are there, specially in the privacy section.

When it comes to innovation, it is vital that the researchers, software engineers, and business people who are driving the research, improvement, and establishment of new businesses be able to effectively implement their ideas.

IoT deals with a lot of data so the utilization of big data is needed in every possible area.

By reviewing a duration of IoT's lifetime in this review I believe it will be beneficial for the researchers and developers looking into this.

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