



Short Communication

A REVIEW ON THE APPLICATIONS AND SECURITY CONCERNS OF THE INTERNET OF THINGS

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ABSTRACT

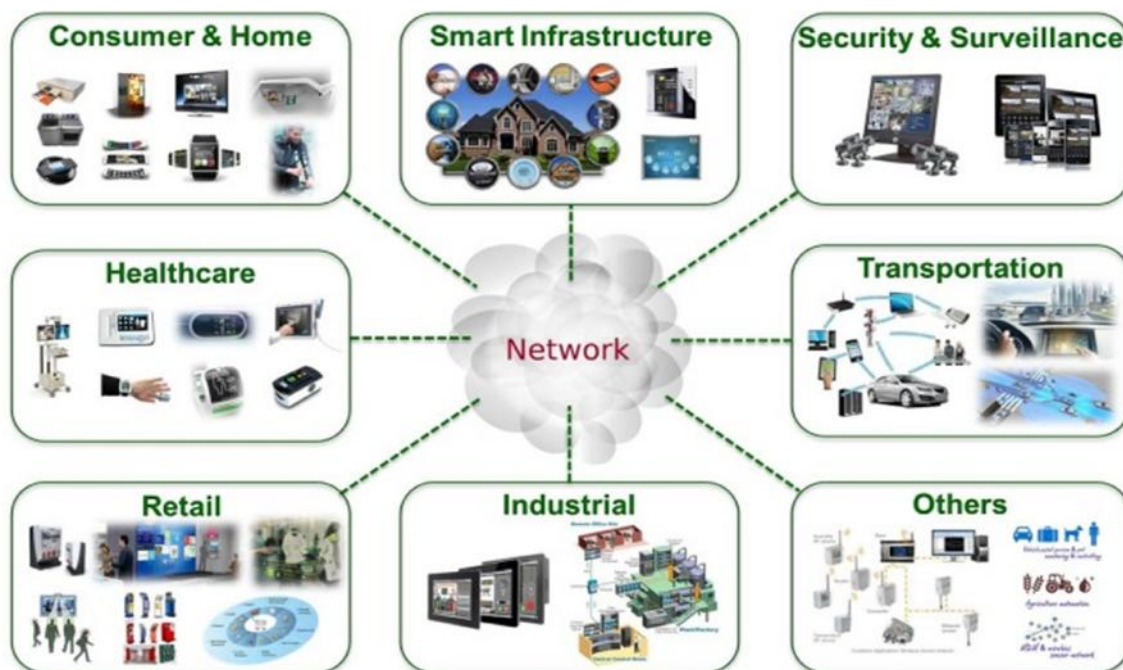
Internet of things is a novel subject and has received significant attention in the past few years. By the term “Internet of things”, we mean representing data of any object in the internet. The basic purpose of “Internet of things” is that the data can be accessed from anywhere and with the help of the pro available information; we can take care of the objects in advance. This paper lists out various applications of the internet of things, various factors associated with it. In the end certain disadvantages are also explained which must be taken care of if internet of things is to become a global phenomenon.

KEYWORDS: Information, Internet, Data, Malware.

INTRODUCTION

Internet of things means representing various objects in the internet so that their data can be accessed from anywhere. The key component in the internet of things is the development of RFID (Radio Frequency Identification). In RFID, electromagnetic waves are used

for data transfer in order to identify various objects. Tags are attached to the objects, which contain information, which is stored in electronic form. These electromagnetic waves automatically identify and track these tags in order to receive information about the objects. Figure (1) represents and internet of things structure.



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Figure (1)

The concept of internet of things is a novel one and can bring a revolution in the present day world if implemented properly. If we know the status of the objects in advance, they would never run out of stock and they can be prevented from being torn out in advance. This paper explains the various applications, constraints and disadvantages. The paper is divided into three main sections. The first section deals with application of internet of things in various fields. The second gives an overview of various factors affecting the internet of things. In the third section, the disadvantages of the internet of things are explained in detail.

APPLICATION OF INTERNET OF THINGS

The concept of internet of things can be applied to almost every possible sphere as per the human imagination. Some of the areas in which the internet of things can be applied are listed as

- Traffic congestion
- Lighting
- Detection of forest fire
- Detection of Air pollution
- Natural disaster prevention

Traffic congestion

Traffic congestion problem can be greatly reduced. The vehicles can be monitored along with the pedestrians and depending upon the input received traffic can be handled.

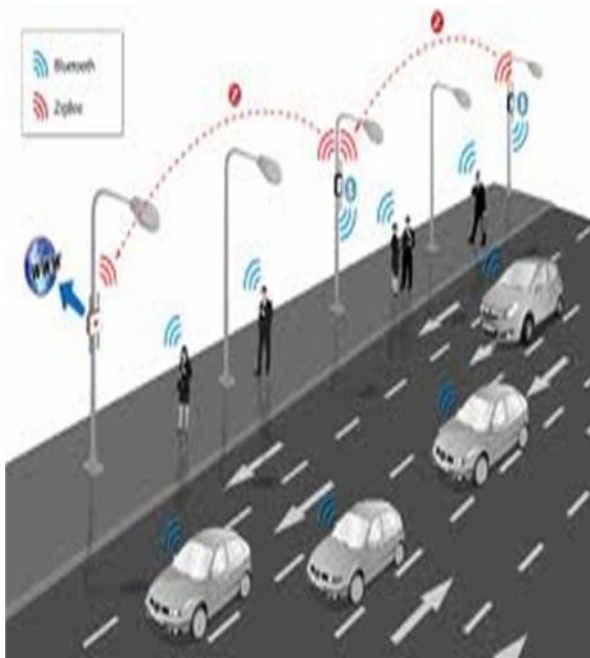


Figure (2)

Lighting

Internet of things can be used to introduce the concept of smart lighting system. Depending on the weather and available light, the streetlights can be used. The same can be extended to home lighting system.



Figure (3)

Detection of forest fire

This is also a very useful application of the internet of things. The detection of combustion gases and fire conditions can help protect and control forest fire.

Detection of air pollution

This can be used to detect the amount of air pollution. CO2 emission and pollution from cars and other sources can be detected and controlled.

Natural Disaster Prevention:

By monitoring weather conditions using the internet of things various natural disasters can also be prevented.

VARIOUS FACTORS RELATED TO THE INTERNET OF THINGS

There are various factors related to the internet of things. They are described as:

- Intelligence
- Size
- Time
- Space

Intelligence

The internet of things consists of intelligent services like web services. And as we can see from the figure, various intelligent features of the internet of things.

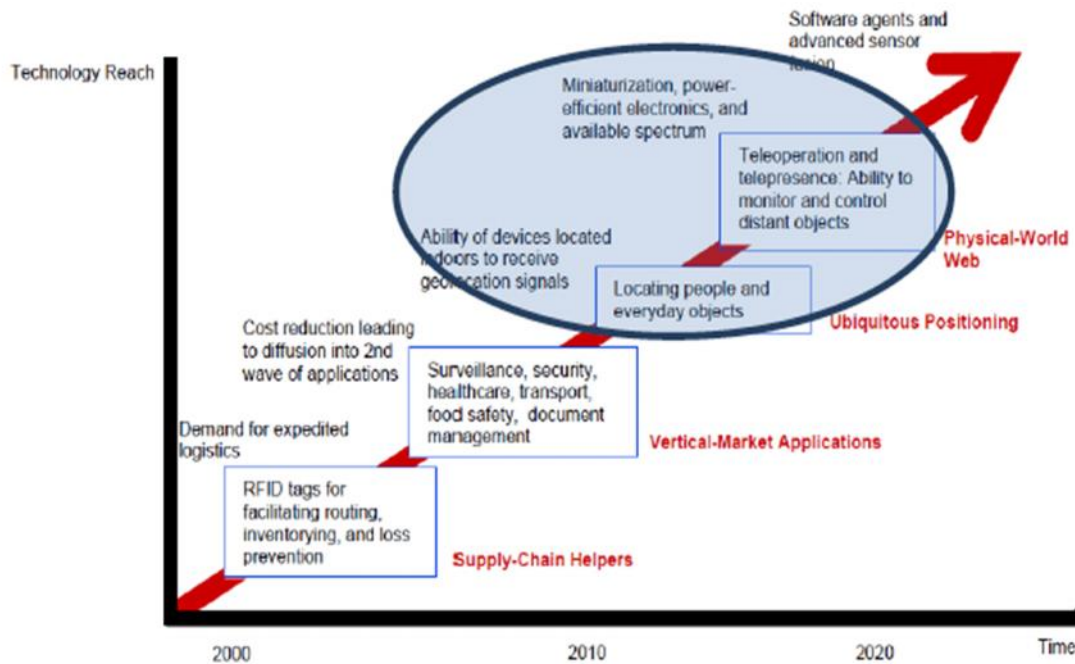


Figure (4)

Time

Time is not a constraint in the internet of things as it is supposed to involve billions of objects. The major factor by which this can be done is the use of massive parallel programming. Hence, independence from time is one of its major advantages.

Size

The size of the internet of things is literally believed to be almost uncountable because internet of things is supposed to cover around 100 trillion objects and track their activity. This will not be end, as it will continue to grow more and more.

DISADVANTAGES OF THE INTERNET OF THINGS

There is no denial that the internet of things takes communication and data sharing at a higher level but still there are certain disadvantages associated with them. The major of them can be classified as:

- Privacy
- Increased Malware spread
- Too much reliance on the internet

Privacy

This is one of the major drawbacks of the internet of things because when something is put on the internet it always remains there and there is always the risk of being hacked by a hacker. Even though there are security measures, against hacking but still, they are not fully secure and from time to time, we keep on hearing various hacking attacks which leaks useful information causing a major nuisance. As more and more data becomes available on the internet, the risk of this data being misused is increased. Hence as the internet of things is gaining more and more development; its security must also be taken care of.

Increased Malware spread

As more and devices become connected, there is more possibility of a malware spread. This can lead to minor problems but sometimes it can cause the corruption of a very large system. The repair would require the repair of the entire chain of devices suffering malware. This is one of the greatest threats of the widespread use of internet of things.

Too much reliance on the internet

With the growing usage of internet and internet of things, there is too much reliance on data obtained through internet. Since there is no system, that is hundred percent faults free, too much reliance on the internet could have serious side effects and data can be misinterpreted and wrongly used.

Loss of jobs

With the growing advent of internet of things, there is also a fear of loss of jobs this has already taken a toll on less educated sector the example being automation of machines. Widespread use of the internet may lead to disastrous effects.

CONCLUSION

Internet of things is supposed to revolutionize modern life. It is believed that the future scope of internet of things will cover almost all the possible objects that are on earth. With the advent of internet of things, troubles can be foreseen and corrected thereafter. However, along with its advantages, the disadvantages and various security threats that it is supposed to bring along with it should not be taken for granted as the more the data becomes available on the internet, the more it becomes prone to hacking attack and other internet malware. Hence, this should be also paid proper attention.

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