IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

5th National Conference on Science, Technology and Communication Skills – NCSTCS 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, September 2022

Internet of Things: A Boon or Bane

Sumit Nandi[1], Md. Mirja Galib[2] and Dhananjay Kumar Tripathi[3]

Associate Professor, Department of Basic Science and Humanities, Narula Institute of Technology, Kolkata, India[1]

Student, Department of Electronics and Communication Engineering, Narula Institute of Technology, Kolkata, India[2]

Assistant Professor, Department of Basic Science and Humanities, Narula Institute of Technology, Kolkata, India[3]

Abstract: The Internet of Things (IoT) describes physical objects with sensors, processing capabilities, software and other technologies that connect and interchanges data with other devices and networks. IoT is a misnomer because the device does not need to be connected to the public internet, they just need to connect to the network with an individual address. IoT helps people live and work smarter and take full control of their lives. In addition, offering smart devices for home automation, IoT is essential for business. It provides businesses with visibility and insight into how their systems are actually performing everything from machine performance to supply chain and logistics operations. There are lot of companies that enabling to automate processes and reduce labour costs. It also reduces waste and improves services, making it cheaper to produce and deliver goods offering transparency to customer transactions. Some benefits of IoT are the ability to receive information from any device at any time whichhelps to increase communication between connected electronic devices by saving time and money. It also helps to automate tasks that to improve the quality of business services by reducing the need for human intervention. Some of thedisadvantages of IoT are theincreasing number of connected devices which goes to lots of data sharing between the devices. Hackers can steal confidential information. Any problem of any single device creates problems of other connected devices.So IoT not only helps to do a lot of jobs but careful handling is needed as well.

Keywords: Internet of things; Industrial Internet of things; Consumer Internet of Things

I. INTRODUCTION

One of the most energetic and effectual developments in information and communications technology is the development of the Internet of Things (IoT). Although networking technologies have become increasingly omnipresent over the past two decades, until recently they have broadly been inadequate to connecting conventional end-user devices, such as mainframes, desktop and laptop computers, and, more recently, smartphones and tablets. An IoT ecosystem consists of web-legalized smart devices that use immersed systems, such as processors, sensors and communication hardware, to collect, send and act on data they come into from their environments. IoT devices share the sensor data they collect by connecting to an IoT access or other edge device where data is either sent to the cloud to be analysed or investigated locally. Sometimes, these devices communicate with other related devices and act on the data they get from one another. The devices do most of the work without human intervention, although people can interconnect with the devices for instance, to set them up, give them commandment or access the data.IoT systems are also referred to as ‘smart’ and ‘connected’, devices. its main motive is to observe the physical world, collect data about the surroundings, and pass it on to help with a decision or to trigger a step. For this, a communication channel is required.Not all IoT devices required an internet connection to work properly. But they do require a connection to other devices on the network to automate certain tasks, to allow you to interact with it via direct commands or to modify its configuration. Connecting the gadget to the internet would give you control over it from outside the local network.

II. USES OF IOT

One of the most energetic and effectual developments in information and communications technology is the development of the IoT. Although networking technologies have become increasingly omnipresent over the past two decades, until recently they have broadly been inadequate to connecting conventional end-user devices, such as mainframes, desktop and laptop computers and more recently, smartphones and tablets.IoT ecosystem consists of web-legalized smart devices that use immersed systems, such as processors, sensors and communication hardware to collect, send and act on data they come into from their environments. IoT devices share the sensor data they collect by connecting to an IoT access or other edge device where data is either sent to the cloud to be analysed or investigated locally. Sometimes, these devices communicate with other related devices and act on the data they get from one another. The devices do most of the work without human intervention, although people can interconnect with the devices for instance, to set them up, give them commandments or access the data.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

5th National Conference on Science, Technology and Communication Skills – NCSTCS 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, September 2022

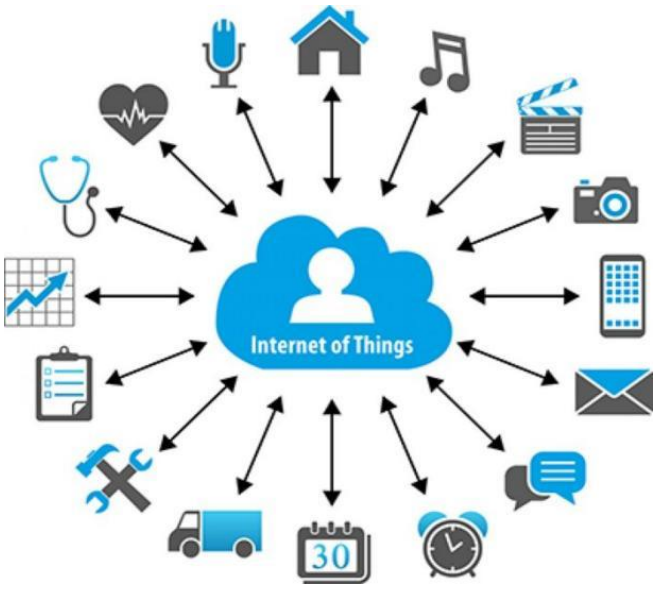

Fig.1 Different applications of IoT

III. TYPES OF IOT

There are two types of IoT: Industrial Internet of Things (IIoT) and Consumer Internet of Things (CIoT)

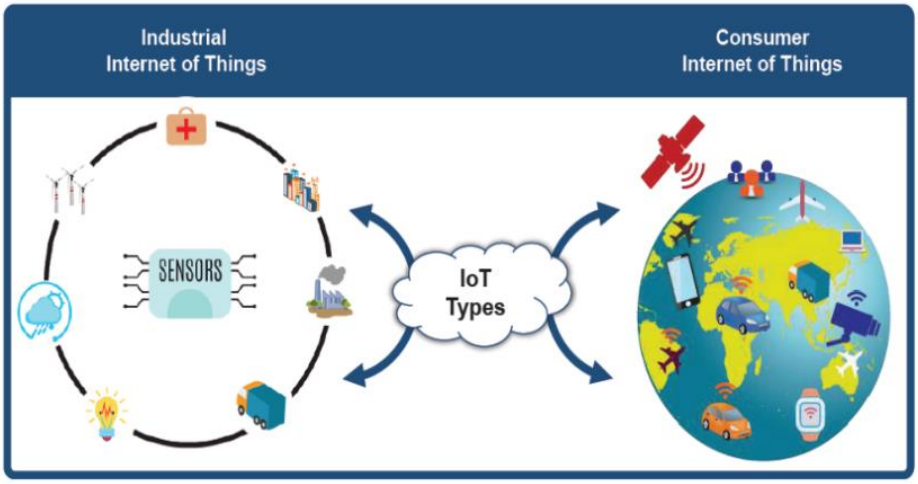

Fig.2 Two types of Iot

a. Industrial Internet of Things

Industry + Internet + Things = Industrial Internet of Things
The IIoT represents industry-related applications where:

- Devices are gadgets be in action in industrial, transportation, energy, or medical domain.
- Data quantity and percentage tend to vary from sustained to relatively high.
- Applications are safety-condemnatory, for example, the misbehaving of a smart traffic system can terrorize drivers.
- IIoT applications tend to be system-centric.

IIoTintegrate machine learning and large data technology by using the sensor data, M2M communication, and automation technologies that have persists in the industrial landscape for a long time. The driving force behind the IIoT is that smart gadgets are better than humans at perfectly, constantly capturing, and communicating data.
This data can help organizations to findinadequacy and problems sooner, save time and money, and support business understanding efforts. In the manufacturing sector, IIoT holds promising possibility for quality checks, sustainable and environmental-affectionally practices, produce chain identifiability, and overall supply chain efficiency.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

5th National Conference on Science, Technology and Communication Skills – NCSTCS 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, September 2022

b. Consumer Internet of Things

Consumer + Internet + Things = Consumer Internet of Things

The CIoT is a category of consumer-oriented applications where:

● Devices are consumer devices, for example, mobile, refrigerator, glasses, etc.
● Data amount and rates are comparatively low.
● Applications are not very condemnatory, for example, failure of fitness gadgets will not injured you.
● CIoT applications are consumer-centric.

Examples of CIoT include fitness tracers, intelligent home director, Wi-Fi or internet connected cameras, virtual reality headsets, smart fridges and toasters, alarm panels, smart glasses, wearable computing products, etc.The CIoT technology platform is huge and different. In general, CIoT use cases and applications can be classified into three domains that vary from individual use to large system, each with an increasing scope:

● Personal IoT: The purview is a single person, such as a smartphone furnished with a Global Positioning System (GPS) sensor or a fitness gadget that measures the heart rate. This is one of the fastest-growing consumer-oriented areas of IoT.
● Group IoT: The purview is a proportionally small group of people, such as a family in a smart house, co-travellers in a vehicle, or a group of tourists. This is one of the most demanding areas and is still in its developing stage.
● Community IoT: The purview is a huge group of people, potentially thousands and more; usually this is used in the circumstances of public infrastructures, such as smart cities or smart public transport. This is a potentially promising IoT area.

The differences between CIoT and IIoT are:

● CIoT often focuses on benifits for individual customers, whereas IIoT is strongly focused on the industry sector, improving the productivity, security, and output of functioning with a focus on Return on Investment (ROI).
● For IIoT, the scope can be within an institution (smart factory) or between institutions (retailer provide chain). This is definitely the most established and mature part of IoT. The IIoT will help a business to achieve:

○ Efficiency
○ Harness intelligence from a long range of equipment
○ Improve functioning (productivity)
○ Increase customer gratification

● For CIoT, the scope can be a single individual, family, small group, or company. The CIoT will help make life easier for customer by improving:

○ Grade
○ Comfort
○ Security
○ Benefits
○ Efficiency

IV. ADVANTAGES AND DISADVANTAGES OF IOT

Advantages of IoT are

- It can accommodate the smarter control of homes and cities via mobile phones. It increases security and offers personal protection.
- By automating activities, it saves our time.
- Information is easily reachable, even if we are far away from our actual location, and it is updated regularly in real time.
- Electric gadgets are directly connected and communicate with a controller computer, such as a cell phone, resulting in efficient usage of electricity. As a result, there will be no irrelevant use of electricity equipment.
- Personal assistance can be supplied by IoT apps, which can alert you to your regular plans or schedule.
- It is useful for safety because it senses any possible danger and it warns users. For example, GM OnStar, is a integrated device which's system that identifies a car crash or accident on the road. It immediately makes a call if an accident or crash is found or occurred.
- It decreases human effort because IoT devices connect and communicate with one another and perform a various type of tasks without the requirement for human intervention.
- Patient care can be performed more beneficially in real time without the need for a doctor's presence. It gives them the ability to make choices as well as produce evidence-based care.
- Asset tracking, traffic or shipments tracking, inventory control, surveillance, individual order tracking, and customer management can all be made more cost-effective with the right tracking system.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

5th National Conference on Science, Technology and Communication Skills – NCSTCS 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, September 2022

Disadvantages of IoT are

- Hackers may gain access to the devices or system and steal personal information. Since we added so many devices to the internet, there is a risk that our information as it can be misused by hacking.
- They rely heavily on the internet and are not able to function effectively without it.
- With the complication of systems, there are many paths for them to fail.
- We lose the control of our lives—our lives will be fully controlled and dependent on technology.
- Overuse or misuse of the Internet and technology makes people unintelligent because they rely on smart devices instead of doing physical work, causing them to become very lazy or dull.
- Unskilled or untrained or employees are at a high risk of losing their jobs, which could lead to unemployment. Smart observations of cameras, robots, smart ironing systems, smart washing machines, and other facilities are replacing security guards, maids, ironmen, and dry-cleaning services etc.
- Deploying IoT devices is very costly and time-taking.

V. CONCLUSION

The Internet of Things express the network of physical objects “things” that are submerged with sensors, software, and other technologies for the connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to cultivated industrial tools. With more than 7 billion connected IoT devices today, the experts are expecting this number increases to 15 billion by 2023 and 22 billion by 2025. The boon or bane depends on the user of IoT which may create a high tech world or a world destroyed by technology.

REFERENCES

[1] https://www.entrust.com/resources/hsm/faq/internet-of-things-iot
[2] https://www.bitdefender.com/blog/hotforsecurity/can-iot-devices-work-without-internet
[3] https://www.cloudcredential.org/blog/knowledge-byte-the-different-types-of-iot/
[4] https://www.oracle.com/internet-of-things/what-is-iot/
[5] https://www.spiceworks.com/tech/iot/articles/top-applications-internet-of-things/
[6] https://www.geeksforgeeks.org/challenges-in-world-of-iot/