A Review Paper on IOT Advantages and Disadvantages

Parteek

(Assistant Programmer, National Institute of Electronics and Information Technology (NIELIT)

ABSTRACT: *In this paper, we talk about the concept of Internet of Things. As we all know, today everywhere IOT is used. In all the fields even in our homes, there are IOT devices are used. We use smart bulbs, Fire alarms, Child's toys, Security alarms, driverless trucks etc. At bigger scale, smart cities projects are filling whole regions with sensors to help us control and understand the environment. Further in this paper we highlight the main characteristics of IOT like connectivity, intelligence, dynamic changes, things related services, inter-connectivity, safety etc. Then we will discuss advantages and disadvantages of IOT. Advantages are use in traffic systems, save time, enhanced data collection, improved security, improved security etc. disadvantages are security issues, privacy concerns, increased unemployment, the complexity of the system, high chances of the entire system getting corrupted etc.*

Key Words:

Introduction

The Internet of Things, or IoT, means, the billions of physical devices around the world that are connected to the internet, all collecting and sharing data with each other. All because of the arrival of super-cheap computer chips and the availability of wireless networks, now it's possible to turn on anything, from as small as a pill to something as big as an AirPlane, into a part of the IoT. Connecting up of all different objects and adding sensors to them adds a level of digital intelligence to devices that would be otherwise dumb, enabling them to communicate real-time data without involving a human being. The Internet of Things is making the world around us smart and responsive, merging the digital and physical universes.

IoT makes dumb devices smart by providing them ability to send data over the internet, and allowing the dumb device to communicate with users and other IoT-enabled things.

We can take the example of connected Smart Home of IoT in action. Internet-enabled door bells, thermostats, security alarms and smoke detectors create a connected hub where data is shared between users and physical devices and users can remotely control the things in that hub (i.e., unlocking doors, adjusting temperature settings, etc.) via a mobile app or website.

The Internet of Things can be used in many devices, industries and settings. From medical devices that can detect signs of Parkinson's disease to smart blackboards in school classrooms, IoT is very fast making the world smarter by connecting the digital and physical.
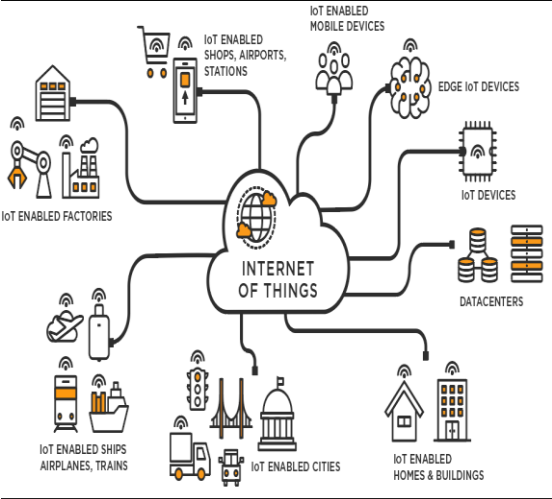
Characteristics of IOT

some of the characteristics of IOT as follows:
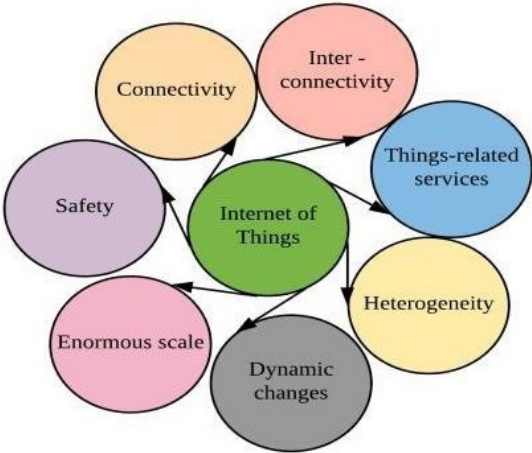
Connectivity

Connectivity is the main characteristics of internet of things. Everything in IoT devices and hardware, with inbuild sensors and other inbuilt electronics, hardware and control systems there need to be a electronic connection between various levels. It helps better hardware accessibility and compatibility and with this connectivity, new market opportunities for the internet of things can be created by the networking of smart appliances.

Dynamic Changes

IOT helps in gathering data and dynamic changes that take place around the devices.In IOT state of devices change dynamically like connected or may be disconnected. Adding up to the context of devices including location,temperature, and speed and the number of devices also changes dynamically with a time , place and person.

Safety

We all know IoT devices are exposed to security threats. There is a high level of privacy issue and transparency with IoT. For creating a security prototype, we have to secure the data, endpoints, and networks that are transferred across all of them.

Heterogeneity

IoT devices work on networks and hardware platforms and can interact with other devices through different networks. IoT architecture support direct network connectivity between networks. The requirement of heterogeneous networks in IoT is modulary, extensibility, scalabilities and interoperability.

Enormous Scale

Devices that can communicate with each other are much larger than the devices connected to the current internet. Control of these devices and interpretation for application is more critical. IOT provides these facilities very effectively.

Interconnectivity

The interconnectivity of IoT devices is **very helpful for the development of a connected world through IOT**. If these devices could communicate, possibilities for developers would be never ending; however, IoT lack flawless interoperability, which allows hardware devices to talk or connect, with each other.

Things-related services

We can do the thing-related services within the restrictions of things with the help of IOT, for example, semantic consistency and confidentiality protection between physical things and their related virtual things.

Advantages of IOT

Internet of things provides various advantages in our day to day lives.

1. **Minimizing the human effort:** IoT devices communicate and interact with each other, they provide automation of the tasks which helps us to improve the quality of a business services and reduce the need for human intervention.

2. **Save time:** As we discussed above it reduce the human effort, so it saves a lot of our time also. Saving of time is the primary advantages of IoT platform.

3. **Enhanced data collection: In IOT** Information is very easy accessible, even if we are away from our location, and it is updated very fast in real-time. So these devices can access any information from any place at any time on any device.

4. **Improved security:** As we know in IOT If we have an system that is interconnected, it can assist in the smarter control of Cities and homes through mobile phones. It enhances security and offers us personal protection.

5. **Efficient resource utilization: with the help of IOT** one can increase and monitor resource utilization by knowing the functionality and knowing how each device works.

6. **Reduced use of other electronic equipment:** E-devices are directly connected and can communicate with a computer, such as a mobile, resulting in efficient electricity use. Hence, there will be no unimportant use of electrical equipment.

7. **Use in traffic systems:** delivery, Asset tracking, traffic, surveillance, or transportation tracking, individual order tracking, inventory control, and customer management can be cost-effective with the right tracking using IoT technology.

8. **Useful for safety concerns:** It is very helpful for safety measures because it senses any potential danger and provides warning to users. For example,there are Integrated device that identifies a car accident or crashes on the road. It immediately makes a call if an crash or accident is found.

9. **Useful in the healthcare industry:** Patient care can be attended more effectively in real-time without the doctor's visit. It gives us the ability to make choices and provide evidence-based care.

Disadvantages of IoT

As the Internet of things provides advantages, it also has a significant set of drawbacks. Some disadvantages of IOT are given below:

1. **Security issues:** IoT systems communicate and connected over networks. So, they offer little control despite of any security measures, and it can invite various kinds of network attacks.
2. **Privacy concern:** The IoT system provides personal data in detail without the user's active participation.
3. **Increased unemployment: Due to IOT** Unskilled or even the skilled ones are at very high risk of losing their jobs, which leads to high unemployment rates. Robots, Smart surveillance cameras, smart washing machines, smart ironing systems, and other facilities are also replacing the workers who can earlier do these works.
4. **The complexity of the system:** The , developing , maintaining, designing, and enabling the extensive technology to IoT system is quite complex process.
5. **High chances of the entire system getting corrupted:** It may be possible that every connected device will become corrupted if there is bug in the device.
6. **Lack of international standardizations:** for IoT there is no international standard of compatibility, and is difficult for devices from various manufacturers to communicate with each other.
7. **High dependency on the internet:** heavily rely on the internet and cannot function effectively without the internet.
8. **Reduced mental and physical activity:** It can make people ignorant because they solely rely on smart devices instead of doing work by self, this cause them to become inactive and lethargic.

Conclusion

IOT technology becomes very important in every field. In this paper, we focus on mainly the concept of Internet of Things. We discussed here about the characteristics of Internet of Things. We see its many benefits but also it has some disadvantages. There are many challenges that we are facing while using IOT devices. It has many security issues like we heard that our smart TV spying on us or our clock record our talks etc. so these kinds of challenges we are facing.

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