ISSN: 2455 - 1597

ijergs
Open Access

International Journal of Engineering Research and Generic Science (IJERGS)
Available online at: https://www.ijergs.in

Volume - 6, Issue - 2, March – April - 2020, Page No. 23 - 26

A Review Paper on IOT & Its Applications

[1]Kanhaiya Saw, [2]Manish Chandak, [3]Pradeep Jha, [4]Shilpi Mishra

[1,2] B. Tech Student, Department of CSE, Arya College of Engineering Research Centre, Jaipur

[3,4] Assistant Professor, Department of CSE, Arya College of Engineering and Research Centre, Kukas, Jaipur

Abstract

In this paper, we are going to discuss about what is IoT, what does it actually mean and how does it actually work? In the era of advanced technology, there are various aspects in which there is a great use of IoT. Amongst the vast applications of IoT, we are going to summarize how IoT contributes to a fully automated environment in which various devices can communicate with each other themselves using sensors. This provides a comfortable living not only for youngsters but also helps physically challenged people. And this fully fledged life is abbreviated here as 'Smart home, Smart life'.

Keywords: IoT(Internet of Things), Smart home technology, Home Automation and Domestics.

Introduction

IoT ,generally abbreviated for 'Internet of Things' is the most widely used concept in the Internet services today. 'Internet of Things' refers to a wireless network between objects usually the network will be wireless such as household appliances. It can be defined as the interconnectivity between objects and people such that they are logically linked and can be accessed using Internet and devices such as Smartphones and remote controls. These devices can not only be controlled by humans but also by changing environmental conditions like humidity, temperature etc.

Basic idea of working of IOT: The five basic elements internet of thing is considerate about in essence to work are hereunder:

The Thing: First of those five elements mentioned above is the "thing"- which indicates anything that on which operation through iot is meant to be performed. .e.g.- any part of home referring to any object as a person, a pet, any physical device etc.

The Identifier: Second element or the identifier is about the technology of RFID (Radio frequency identification system) which is used to make operation on multiple objects by providing a unique identification to them. This technology of identifier works with radio waves and it does not demand much human effort, it is almost automated.[4]

The Sensors: The sole purpose of sensors in IOT is collection of data from the dedicated surrounding environment, the sensors are responsible for the automation in system and the physical device which senses the object is connected with IOT network.

The Network: The network can be picturized as the interconnection between all the elements and it is responsible for the communication. The IOT network requires very less human involvement.

The Data Analyzer: Data analyzer has an important aspect of role as it serves the purpose of analyzing data gathered for the execution, this has multiple tasks in the process of execution such as finding the meaning from collected data. Recognition of pattern etc.

What Is Smart Home Technology…….?

Smart Home Technology ,also called as 'Home Automation' or 'Domestics' ('domus' is Latin word for 'house') , is a home with Internet-connected devices to enable management as well as remote monitoring of appliances and system such as locking and unlocking of doors.

It provides homeowners comfort, security, easy convenience and energy management and efficiency by controlling smart devices using smart home applications via their Smartphones or other networking devices [1]. Smart devices, smart home applications and part of 'Internet of Things' come together to perform automation and actions based on homeowner's preferences.

Implementation of Smart Home Technology

The elements which should be kept in account for the elements are hereunder:

1. Automation: Automation basically refers to the process after which machine does not demand any human effort, and the task gets done which the system was assigned to do on a regular basis, that could be once a day, a week or a month.[5] Such as turning the appliances off which are not in use when somebody is not home etc.
2. Remote Control: this automation process enables the system to manage thing remotely by having one or multiple access remotely, that remote access tool can be installed in any of the devices such as a Smartphone or laptop that might be operated from office etc [2]. also this feature can have emergency management feature that can alert the user through remote service.

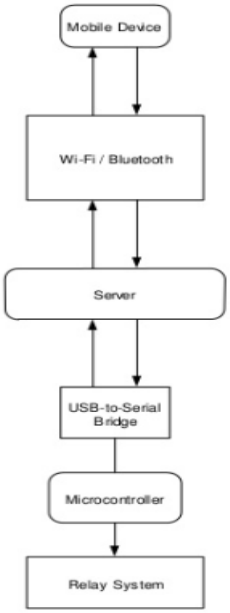

Figure 1: Flowchart of Home Automation

Components of smart home

Many components may come together under Smart Home but the main ones are the following communication protocol :

X10: It is the most common protocol which enables communication among the devices used for home automation. It is developed by Pico Electronics in 1975. It provides remote control of appliances and there are numerous X10 devices using electrical wires [2]. Some new systems has been developed which uses radio waves to communicate.

Z-Wave: In this, each device is embedded a code and as soon as it is plugged in, the controller recognizes the code and adds it to the network after determining its location.

C. ZigBee: It uses mesh networking concept in which the message travels in the zigzag manner determining the best path to reach the receiver [3].The platform is set by standard IEEE for wireless personal networks. This implies to companies that can build a Zigbee compatible devices without paying any license fee.

Examples of Smart Home Technology

- Television can be connected to IOT for the sake of better content presentation according to user's choice.
- Lighting system management according to the needs such as dimming or brightening for some purposes like studying or relaxing etc.
- Entry through the doors can be automated which can keep the door open for house residents and block unknown ones.
- There can be a fully automated system for the meal of pets on time when owner is not around or busy at work.
- The means of gardening can be provided with smart home application.
- Automation of temperature control using smartly featured thermostats.

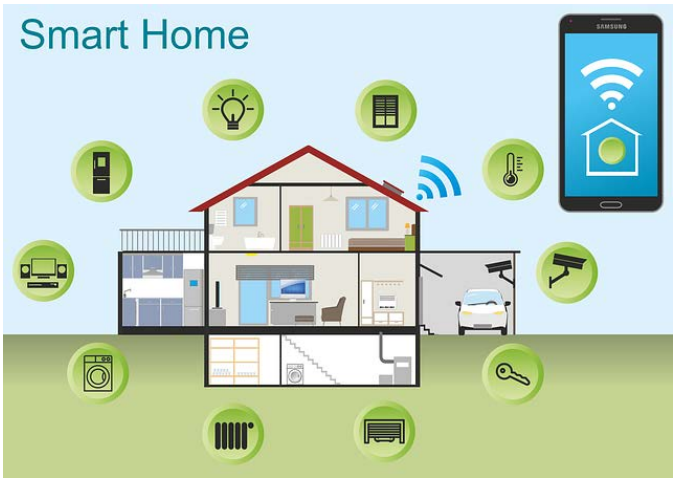

Figure 2: Examples of Smart Home

Conclusion

The technology is changing rapidly with time and is becoming more and more advanced with the passing years.

The IoT is contributing to almost all of the latest technologies and it is speculated that even a small bit of dust will be monitored to serve for us using this amazing concept in the coming generation. Home automation provided people with a

very cozy life and also it provides convenience for the physically challenged or old people. Therefore, in this paper, we studied about how this two concept come together to serve its best services worldwide and is working for more.

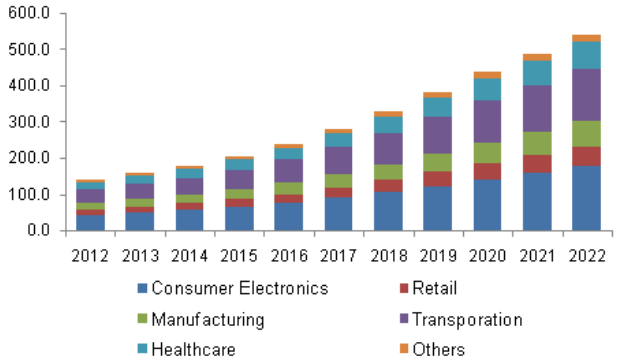

Figure 3. Increasing market demand of IoT

References

1. SharatS.Bhagat, Amit D. Bagul, Pratik N.Patil, SanketA. Dahale "Perceptive Car Booking System with IOT Technology",International Research Journal of Engineering and Technology ,e-ISSN: 2395-0056,Vol:05 Issue:02|Feb 2018.
2. GurramDheerajReddy,ShashankChutke, M.SriVenkat Rami Reddy,Dr.D.NageswaraRao,"WirelessSensorNetwork Applicationfor IOT based Healthcare System",Journal of Emerging Technologies and Innovative Research", ISSN: 2349-5162,Vol:05 Issue:02|Feb 2018.
3. AbhayKumar,NehaTiwari,"Energy Efficient Smart Home Automation System" International Journal of Scientific Engineering and Research, ISSN: 2347-3878,Vol:03 Issue:01|Jan 2015
4. MourvikaShirode, Monika Adaling ,JyotiBiradar, Trupti Mate,"Review Paper On IOT",International Journal of Scientific Research in Computer Science Engineering and Information Technology, ISSN :2456-3307|Volume 1 Issue : 01|2018
5. AlfiyaAbubaker, Kavya CR, Tilju Thomas, Nikhil Joseph, Shifana Begum, "A Study on IOT Approach for Monitoring Water Quality Using MQTT Algorithm", International Research Journal of Engineering and Technology(IRJET), p-ISSN: 2395-0072, Vol:05, Issue:03| March 2018