

REVIEW OF SMART ENVIRONMENT DEVELOPMENT USING IoT

M.Shobana¹ | S.Vaishnavi² | C.Gokul Prasad³

¹(Department of CSE, Assistant Professor, SNSCT, Coimbatore, shobanavsm@gmail.com)

²(Department of CSE, Assistant Professor, SNSCT, Coimbatore, vaishnavi1731@gmail.com)

³(Department of CSE, Assistant Professor, PPGIT, Coimbatore, cgokulprasad@gmail.com)

Abstract— IoT is defined as connecting the things to internet. Through (Internet loves things, things gets connected to Internet), billions of things communicate all over the world. IoT in its development phase is trying to reduce the human interactions and working smart than the manual work done by the people. In this paper we will see about the current scenario of IoT and applications of IoT in medical field, vending machine and traffic signals.

Keywords— IoT(internet of Things), Sensors, Wearable device

1. INTRODUCTION

Internet of Things (IoT) is defined as connecting the devices/thing with internet by which the data is transferred without human intellectual. Things talk with humans, applications and each other and make all the work to be made smart than how it was done earlier. The major objective of IoT is predicting failure before they occur in order to reduce the downtime and reduce the cost. A familiar instance of IoT would be when we forgot to wear our seat belt in car while travelling; it instructs us saying “wear your seat belts”.

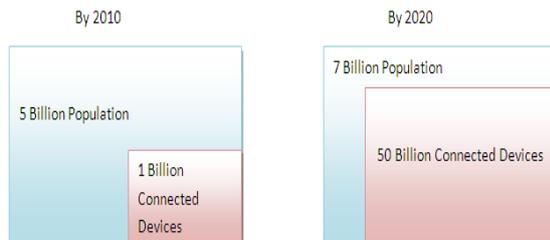


Fig 1.1: Scenario of Connected Devices

IoT is a combination of things, Connectivity and Business & Computing Infrastructure. Thing is a collection of smart products, sensor enabled devices or other things. Devices are connected through internet by means of Wi-Fi, Bluetooth, and LANs. These are connected to an infrastructure that includes people, business.

IoT consists of sensor devices, infrastructure for communicating and processing unit placed on cloud, since cloud is relatively low cost and flexibility. we can start up with a small project and later expand rapidly. We can converge IoT with Big Data Analytics since we can stream it with the cloud. The sensors communicate object specific information over the Internet to the computational and processing unit. A combination of different sensors can be used for the design of smart services. The result of processing is then passed to the decision making and action invoking system that determines an automated action to be invoked.



Fig1.2: state of IoT

2. IoT USE CASES

Much organization is making use of IoT for their own development. The difficulty they face is that they don't know to start up. To help this organization to start their travel with IoT, the use cases are helpful.



Fig 1.IoT Use cases

3. IoT PREVAILING FIELDS

A. Health Monitoring

IoT has many applications in health care monitoring sector, which makes prevention and easy monitoring of the disease. Wireless devices are used to store the patient's health information and this is used to help the patient during emergency situation. Diseases are randomly increased nowadays and probably the cancer disease has been spreading all over the world, here IoT would play a major role where it could help the cancer patients to predict the disease level as earlier as possible. Here we will focus on few areas where IoT can be used in Health care:

(i) Emergency Situation

When a person met with an accident, the time to save him depends on the nearby resources and the time when the ambulance arrives. IoT will change this situation by means of having a wearable device in an individual person and this device could automatically intimate the ambulance regarding the accident and ambulance will arrive in a time much earlier than the existing situation. In this situation we don't want to expect for the third person to support the emergency situation.

(ii) Water Consumption level embed with LIC

Nowadays every person gets hectic in their work schedule and don't concentrate on their own health. They neglect to even drink water, which comprises an estimated 50 percent of a women's body and 60 percent of a man's body. We can survive weeks without food, but only 5 to 7 days without water, because so many of your bodily functions rely on it. In this circumstance we can embed the individual's water level ingestion along with LIC. The primary purpose of life insurance is to provide financial protection for your family in case the policy holder dies. The amount can be used to cover debts and liabilities and also provide a tidy sum for your family to secure their future. Every person will prefer to avail LIC.

So we can embed water intake with the LIC. A wearable device connected to the LIC is worn on left /right wrist (depending on their habits) of the person, which measures the water injection of the person and based on this information the premium, should be paid. When a water level injection is low by a person he has to pay premium higher than the person who takes the water more. This helps to concentrate on every individual health.

When a person met with an accident the insurance amount can be claimed on the level of speed that they travelled in the time of accident. This is done by means of connecting a device to the car which has implant with the Insurance Company.

(iii) Pregnancy Women Monitoring

There are many factors in which a pregnancy women should be monitored, they are: amniotic fluid level, pressure, sugar, etc. This can be monitored when a women is wearing the wearable device which will keep track of all such information and report the information appropriately.

IoT can also be used in automatic oxygen supply in ICU where the patient's are in critical conditions.

B. Vending Machine

Technology is motivated to expose the latest inventions that transform human lives. One of these inventions is the vending machine technology that is used to dispense products to customers without human interaction. When a product in a vending machine drains, it takes time to get the product since the product is to be filled in the machine manually. This situation is changed by intimating the person earlier before the product gets unfilled by means of connecting the vending machine with the person who is responsible to refill the product in the Vending Machine.

C. Smart Home

In home, there are various situations in which IoT can be used. Here are few examples:

Water level monitoring in tank: In this demanding world, people forget to monitor their activities in home, one such thing is water level monitoring. When the water content gets low in tank, we have to switch on the motor. This can be automated by having a sensor in the tank which intimates us regarding the low water level.

Many people like planting, but they don't get time to water it regularly. This can be done by having moisture sensor in the soil, which checks for the moisture content and once the moisture level falls below the saturating point the plants are watered automatically.

D. Traffic Signals

IoT can be used in emergency situation. Every people follow traffic signals which is secure for their life when they prefer roads for their travel. This traffic signal can change to be insecure when there is an ambulance in the roads. When the signals are turned to red, ambulance could face a major issue in passing to the hospital as soon as possible. We can incorporate traffic signals with sensors to detect for the ambulance in the roads, when an ambulance is in a road, the signals drastically changes from red to green monitoring all the sides of road. This also can be extended to the traffic signals in the next stopping to change to green until the ambulance passes the road. Thus it helps the person life during critical position.

4. CONCLUSION

Through IoT we can have connecting devices all over the world and thus reduces the manpower in the working environment and also helps the human during critical conditions. In this paper we have seen about how IoT can be incorporated into industries and scenarios where IoT is being used. In brief we have seen about few areas where IoT has been used and how it helps the people. Thus this technology will provide more economical and professional benefits in future.

REFERENCES

- [1] Rafiullah Khan , SarmadUllah Khan , RifaqatZaheer and Shahid Khan, "Future Internet: The Internet of Things

- Architecture, Possible Applications and Key Challenges “,
(2017)
- [2] DebasisBandyopadhyay , JaydipSen, “Internet of Things - Applications and Challenges in Technology and Standardization” , (2011)
 - [3] SomayyaMadakam, R. Ramaswamy, SiddharthTripathi, “Internet of Things (IoT): A Literature Review”, (2015)
 - [4] Dr.ovidiuvermesan, Dr. Peter Friess, “Internet of Things – From Research and Innovation to Market Deployment”, (2014)
 - [5] http://www.sas.com/en_us/insights/articles/big-data/big-data-and-iot-two-sides-of-the-same-coin.html
 - [6] <http://data-informed.com/how-the-internet-of-things-changes-big-data-analytics/>
 - [7] <http://www.engpaper.net/free-research-papers-iot-internet-of-thing.htm>
 - [8] <http://www.internetsociety.org/sites/default/files/ISOC-IoT-Overview-20151022.pdf>