

IoT BASED HOME AUTOMATION SYSTEM (Smart Light)

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Abstract - The aim of the study is to perform Smart Light Automation for conservation of electrical energy, because we have been consuming more energy by our ignorance. In order to reduce it we go for the automation system. We prefer to go for residential automation at first and then for further development we go for street lights. Because through this technique we get more efficient and accurate light source at right time so there will be less energy consumption. Other people's works are mainly based on large scale automation, we seek there will be more opportunity if we cover a small area. This can be achieved by IoT (Internet of Things) based on home automation system for smart lights. For this study we prefer to use Raspberry pi, Motion Sensor, LED, LDR and GSM. This will increase the efficiency of our system's performance to a certain limit. The system will give the information of monthly electricity report as a SMS to the mobile phones.

Key Words: Internet of things (IoT), Motion Sensor, light-emitting diode (LED), light dependent resistors (LDR) and Global System for Mobile communication (GSM).

1. INTRODUCTION

The Internet of Things, or IoT, refers to the billions of physical devices around the world that are now connected to the internet, collecting and sharing data. The IoT have place a major role in our day to day life. The things around us was connected and the data were send and process through internet.



[1]

The term Internet of Things is 20 years old, but the term was coined by Kevin Ashton in 1999 while he work at Procter&Gamble. He was working under the project of RFID.

At the initial stage IoT was not that much popular and not used for public sector after a few years it was introduce to the public sector even though it was not popular because it was the time of internet has been come to the role in human society. When the internet have contributed a huge part the IoT has also become an large scope and success one. Now the IoT is taking over the world and the human life hack thing. The thing which makes human much comfort and live a peaceful techno life. So that the IoT has larger scope area.

1. Related works

The recent years the work which are related to our topic has been survey by us, to give more efficient and better work then each we surveyed. To make our system success we required this kind of study to gather the information of the existing one to give the newly and innovated work from us.

N.Sriskanthan and Tan Karand they have presented an application of Bluetooth Technology for home automation. This is a good idea, but the Bluetooth technology was emerged in 1990's and it is only used for implementing a wireless automation system. Now the technology has been emerged to compete with it we need to go for the new technology like the things IoT, which are all act as a internet based working systems. This system he proposed will a cost efficient one which can be more easier to handle it. But the system does not use the trending mobile technology.[2]

Shahriyar, E.Hoquw, M.M.Akbar, S.Sohan, I.Naim and M.K.Khan they have proposed a system based on the GSM based communication control for home appliance. Different AT commands were used to control different type of things. Even though they have come up with new idea of GSM, now a day the control over GSM can also be hacked so we cannot secure the devices by GSM instead of it we can go for alerting messages that can be send

through GSM. This will be more secure one that can be trusted by us. [3]

K. Venkatesh,P. Rajkumar,S. Hemaswathi and B. Rajalingam has proposed a system which is IoT based home automation using raspberry pi.xIn which they have used the raspberry pi , relay and devices. The raspberry pi will connected to the network and relay, when the mobile device gives the command over internet then the pi will detect and sends the command to relay which is connected to the home appliance . Then the user can access the appliance through the application which will be act as a interface. Even the system is good and useful it has no self automation in it. [4]

Ashok.J Chavan J.J Patil P.V Naik P.S proposed Advanced Control Web Based Home Automation with Raspberry Pi.This system is mainly useful for those who are physically challenged because they cannot operate all appliances. They have used python for the Wed Page. But python is not good for memory intensive task and for multi tasking. For connection of all home appliances python is not a good choice. Wifi should be placed properly since signal strength can be reduced by walls etc. and they are less secure. Reliability is the main disadvantage of using wifi. [5]

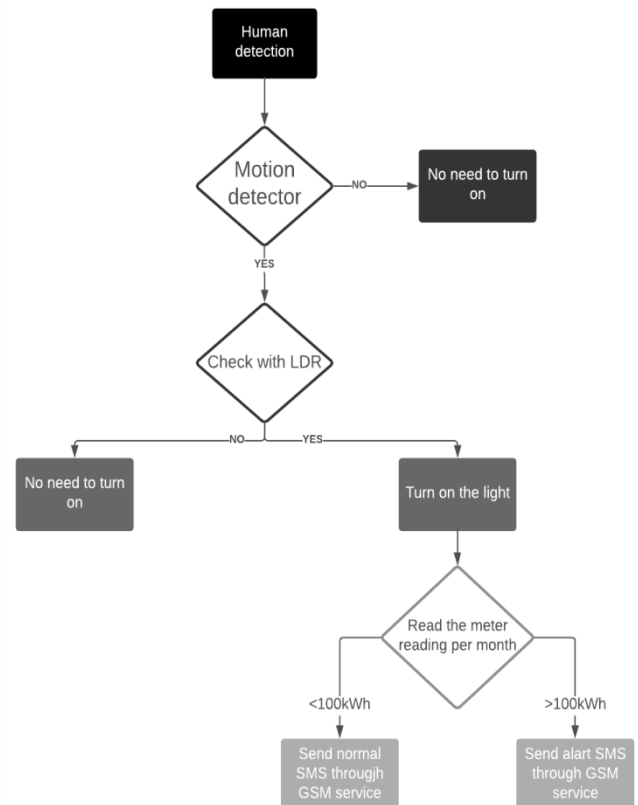
Jitendra Rajendra Rana and Sunil N.Pawar has implemented zigbee based home automation system. For Personal Area Network (PAN) zigbee is used since they are high level communication protocol. They have used it instead of wired automation. Even though the range of zigbee is larger than bluetooth they are less vulnerable. It uses lot of energy. Remote Monitoring of appliances is failure task in zigbee. So we are using Wifi. [6]

R.Piyare and M.Tazil have implemented home automation system at low cost. They used Bluetooth technology and mobile phone for interaction between host and client module. It just on and off working system. It does not provide any energy consumption. Major drawback is bluetooth technology which can be used for limited range only. And system supports symbian Os mobile devices only.[7]

2 Proposed System

To perform our study we use Raspberry pi and Motion sensor at first which helps in detecting human motion in and around the room. The Motion sensor detects the motion and will pass this information to the Raspberry pi will acts as a computer to turn on the lights. This raspberry pi also uses the LDR data to detect the weather condition of the particular location and will turn on the lights accordingly.

- Motion sensor detects the human motion and will send this information to Raspberry pi.
- The Raspberry pi check with the LDR condition and produce the light needed.
- We plan the GSM device to deliver the message of monthly consumption of energy and compared with all the month.



3. CONCLUSION

This system will be more efficient, even it give more efficient it make the human lazy and they reduce the memory power of human. The daily work of the humans was deleted from their life by making automation system to work for them. So all the system will come to a point that they make the human work easy, in later which make no human to work. To avoid it make some useful automation but not to make the human lazy. Here this system gives more efficient but every thing have some negative side, so by saying this I conclude it.

REFERENCES

- 1) IoT Image <https://europe.hughes.com/sites/europe.hughes.com/files/IOT.png>

- 2) N. Sriskanthan and Tan Karand, "Bluetooth Based Home Automation System", Journal of Microprocessors and Microsystem, Vol.26, pp.281-289, 2002.
- 3) Shahriyar, E.Hoquw, M.M.Akbar, S.Sohan, I.Naim and M.K.Khan,"Remote controlling of home appliances using mobile telephony", International Journal of Smart Home, Vol.2, pp.37-54, 2008.
- 4) K. Venkatesh,P. Rajkumar,S. Hemaswathi and B. Rajalingam,"IoT Based home automation using Raspberry pi", Jour of Adv Research in Dynamical & control System, Vol. 10,07-Special Issue,2018.
- 5) Ashok,J,Chavan J.J,Patil P.V and Naik P.S "Advanced Control Web Based Home Automation with Raspberry Pi"(IJARIIT) Volume 3, Issue 2 (2017) www.ijariit.com
- 6) Jitendra Rajendra Rana and Sunil N.Pawar,Zigbee Based Home Automation(April 10,2010)
- 7) R.Piyare and M.Tazil,"Bluetooth based home automation system using cell phone", in Consumer Electronics(ISCE,2011 IEE 15th International Symposium on 2011, pp. 192-195)