

LITERATURE REVIEW ON HOME CONTROLLING ON THE WAY

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Abstract-- Now a days Home automation system is gaining a huge space in the field of digital living. The term home automation means that we can control our home in a smart automated way. When it comes to Home Automation using internet of things, our home is in our control even from a distant place. The home automation systems has its on devices that has capability of performing the desired tasks over internet. This paper describes about a home automation system using the internet of things concept with some addons in the system that is a little bit different from the usual home automation systems that exists.

Keywords—Digital living, Internet of things, Addons, Different

I. INTRODUCTION

As the complexity of human life increased the need for more technologies and simplification of life using technologies emerged and the old found ones started to get advanced around the world. The world is now after the internet. So as its scope never dims the people also are after the technologies with internet. Its been only a short time the home automation using internet of things has got fame and trend in many of the countries when looking to some other developed countries even if these concepts were emerged in 1970's.

The home automation brings us easiness in living making it simple and above all everything comes at our finger tips through home automation. After taking a look over many of the home automation systems it has seen that home automation using the internet of things concept is the best. As the internet is like an ocean, anyone can be a fisher at somewhere in the shores. So the security in home automation using IoT is a great deal. There are many of the papers describing about the security threats and its solutions to an extent for the IoT based home automation system.

We know that home automation includes using of many devices we use in our home and when it comes to automated devices that can work connected with internet there is more chance of the implementation cost going higher. There are also many journals regarding the price comparison of an automated home using different technologies. It's true that the price varies according to the components used and devices attached to the home to work with the automation system.

Day by day the developments in the field reducing all these faults are also emerging. There can be almost safe and sound systems that are more secure, more advanced and more efficient in the coming years.

II. LITERATURE SURVEY

Some of the papers referenced on the basis of this literature survey are mentioned below;

1.A ZigBee based home automation system

In the ZigBee based home automation system, it consists of a coordinator, router and some other devices for connectivity. The Wifi network configured in the home is a standard four port switch modem router which act as a gateway between the local Wifi network in the home and internet and any device in the range of the wifi network can access the home gateway. But as the ZigBee compatible devices are less and not advanced ZigBee based home automation systems are less prioritized as compared to other controllers now a days in internet of things.

2. GSM based home automation system

The GSM is the best option for home controlling from a distant place where the internet is not accessible or not efficient. In the GSM based system the communication is established between the user and the home through the SMS (Short Message Service). A GSM modem is used for this. The communication between the automation server and the GSM modem is done through the attention (AT) commands and sending and receiving of SMS messages are through PDU(Protocol Description Unit) because all GSM modules may not supports text mode. Anyway the GSM based system is the better option in the absence of internet however it is limited compared to the internet services.

3. Security in internet of things enabled home automation

The security is the major look up in case of every system. The internet of things has got many ways in its security resolving. A paper formulated a reconfigurable DTLS (Datagram Transport Layer Security) cryptography engines for the end to end security in IoT applications and also SSL encryption etc are also many ways of securing the internet of things connected devices.

4. Home automation using raspberry pi and wireless sensors

The home automation using the raspberry pi is the most commonly used and most affordable method in efficiency and implementation of home automation systems than any other. The raspberry pi provides more powerful platform for the processing and actioning of commands as per the user needs and that is why raspberry pi is most commonly used in the field of home automation. It can act as a powerful processing unit. With the help of various sensors and other modules such as wifi module , display module etc a better home automation system can be used with more security options to home . As the raspberry pi is a faster and efficient computing machine, the number of devices that can be connected to the raspberry pi is also a large number. The devices connections in raspberry pi is also made using the relay module. All the inputs and outputs from the devices and from the controlling device are all processed through the raspberry pi. A single server can be used to do all the large data computing and when it comes online servers, its so costly. It is better to have a free server for the cost effective automation system building and also the security is to be concerned for the data that passes through the servers.

5. Home automation using Bluetooth module

The home automation using the bluetooth module is the simplest method of automating the home. An android phone, a bluetooth module and a microcontroller is the least needed components. In a paper referenced, a bluetooth module HC-05 and 5V 4 channel relay module and an arduino pro mini controller and some simple components is all that needed. These components are soldered to a PCB with the necessary circuitry. This set can be used to control over 4 devices in a home. Before the system needs to be started, the android phone that uses for the controlling needs to be connected to the bluetooth module HC-05 by simply turning on the bluetooth settings in the phone and connecting it to the HC-05. By turning the corresponding switches on/off the devices connected to the 4 relay channels can be controlled.

The only issue with the bluetooth method is that it is limited. The bluetooth method of home automation is less secure and less convenient. Although the bluetooth is not the trend right now as there is another long distance communication mediums available.

III. CONCLUSION

As far as the home automation systems can be implemented in many more ways, from the observations it can be seen that the home automation system that uses raspberry pi and sensors as the basis are more affordable economically and also in case of efficiency and more options. As it is a literature survey regarding our own research project, the raspberry pi based home automation system using the various sensors available for the observation of changes and a door authentication system which uses a face recognition of any person in the home to access the door and a count of the number of persons who are present in the home and who all are went out are formulated for the implementation of the our project named "Home Controlling on The Way". An android app that can act as a user interface with unique login for each members of the home and the MQTT protocol which uses a broker-subscriber type of command and information passing scheme has also formulated. The MQTT protocol to send and receive commands and information through the online server provider with SSL encryption for the security of data passed are also formulated.

IV. REFERENCES

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