
A REVIEW PAPER ON HOME AUTOMATION SYSTEM USING IOT

**Akash P. Paturde^{*1}, Shivam A. Nakhate^{*2}, Sanskruti P. Wankhade^{*3},
Akash S. Jadhav^{*4}, Nikita A. Kale^{*5}, Rutik S. Malvi^{*6}, Rupali B. Kathote^{*7},
Dipak P. Charde^{*8}**

^{*1,2,3,4,5,6,7}Students, Department Of Electrical Engineering, Jagadambha College Of Engineering & Technology, Yavatmal, Maharashtra, India.

^{*8}Assistant Prof, Department Of Electrical Engineering, Jagadambha College Of Engineering & Technology, Yavatmal, Maharashtra, India.

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ABSTRACT

The main objective of this project is to develop a smart home using IOT. Presently, conventional wall switches located in different rooms\apartments in the home makes it difficult for people to go near them to operate, especially for the senior people, physically handicapped people and for children to do so as well as if we are far from our home, we cannot operate our home so for this problem there's stylish solution i.e., to make our home smart.

This field of home automation is fastly arising in technology making house safer and better places to live. These features help users to virtually monitor and control home attributes like lights, entertainments systems, security, climate control, etc. In this project we can automate our home by using voice command, remote and smart phones. While home automation devices are an outspoken investment that will add to your expenses as you are adding convenience to your life, you're saving electricity, increasing security and also perfecting your lifestyle.

Keywords: Home Automation, Smart Home, IOT.

I. INTRODUCTION

The main purpose of home automation is to save the electricity. The IOT based home automation of smart devices for different application like lighting, security, home entertainment etc. All these bias are integrated on a single network established by gateway and connected in a mesh network. These means it gives flexibility to the users to operate one sensor based action. For e.g. you can record the turn off timing of living room lights as well as door sensor of your main door triggers after 7pm in the evening.

Thus, all the sensors within a network can perform crosstalk via the main regulator unit. Some of the sensors in home automation acts like a sensor capitals. These types of sensors are principally the signal repeaters of signals which that are in the middle of the system installation location and the sensors that are at a distant location. For similar long distances, these sensor capitals play an important role to allow easy transmission of signals to sensors that are far away from the main controller but in near proximity to the sensor hub. Smart plug are the most commonly used sensor hubs in IOT based automation.

Thus, using the same set of sensors, the problem of home security and home automation can be solved. One of the major advantages of this IOT is needed the Wi-Fi is not available we can go through the 3G and 4G services. In other existing methods it is not possible so, by overcoming all the downsides we have implementing a project based on smart home-based automation. This design provides further comfort and the simplicity.

II. LITERATURE REVIEW

As per our survey, we observe that number of systems that can control home appliances using Bluetooth, android based phones. Each system has its unique characteristics. Currently there are many organizations are working to provide better home automation system. Following people's model's describing the work being performed by others.

A. "Smart Home Automation System Using Bluetooth Technology", Muhammad Asadullah 978-1- 5090-3310-2/17/\$3\\$.00 ©2017 IEEE It is a home automation system developed using Arduino board, Bluetooth module HC-06, smart phones. Bluetooth has lower bandwidth and shorter range.

B. "Smart Home Automation and Security System using Arduino", Siddharth Wadhwani¹, Uday Singh², Prakash Singh³, Shraddha Dwivedi⁴ Volume: 05 Issue: 02 | Feb-2018 It is a home automation system using Arduino Uno board and Wireless fidelity technology. It accepts command only through clicks.

III. PROPOSED SYSTEM

The main process which is involved in our system is the combination of all four ways to controlled home appliances like by touch detector, remote, mobile application, and voice command. We see the how all styles work one by one.

Touch sensor- In many homes automation system rather of the wall switches where key of button directly interfaced with the home automation circuit control switching of the appliances. In our system, the capacitive detector\sensor is used to switch devices ON or OFF.

A capacitive touch sensor sends the signal in form of analog voltage to a microcontroller in order to accept the commands and also reply consequently. It operates the loads through a set of relays using a relay motorist ic. Relays are connected between loads and the control unit.

Remote- We can operate our home appliances using the remote control by switching the devices ON or OFF. A remote transmit the infrared data signal to the control unit. Receivers catch the infrared signal, analyses them and shoot to the microcontroller in order to accept the commands and then reply accordingly. It operates the loads through a bunch of relays using relay driver integrated circuits.

Mobile- We can also control our electrical loads with the help of android applications. Which is have the proper indication of our home appliances. It operates the loads through a bunch of relays using a relay motorist integrated circuits.

A Wi-Fi module ESP 8266 catches the signal provided by the mobile application and send it to the microcontroller in order to accept the commands and then react accordingly. It operates the loads through a bunch of relays using a relay driver integrated circuits.

Voice command- The voice controlled wireless smart home system has been presented to the elderly and disabled peoples. In which the system controlled by the voice command to the Alexa. Receivers catch the signal and shoot it to the pall (ESP 8266) and from that to microcontroller in order to accept the commands and then react accordingly. It operates the loads through a set of relays using a relay motorist integrated circuits.

IV. CONCLUSION

IOT based Home Automation is a quite different concept than what is presently available in the market. This would make automation easier and further intuitive. With the help of that people will be able to interact with the system everywhere across the world. It also is an important aspect in the present world where people are so busy, this would help them in easing the introductory functionality of their life.

The world around us is going digital in every aspect we can imagine, and it is happening fast, we also need to move forward with it.

Our system is a great initiative step in automation; it would also provide security soon. As it is based on IOT we can access to our electronic devices through being everywhere across in the world.

Some of the features of our system are following:

- A]. Easy to use.
- B]. Saves extra power consumption.
- C]. Easy to installation.
- E]. Good processing power, it can handle multiple functions at the same time.

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