

HOME AUTOMATION WITH ARTIFICIAL INTELLIGENCE

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Abstract : As we know what the power of artificial intelligence. In today's life big task can become easy with help of artificial intelligence. It's the ability of a computer program to learn and think, in which machine can learn by its own from the examples and the experience. Artificial intelligence will take place every field in future. So that as my research artificial intelligence will having most powerful role in home automation. Using this we can handle all home electric task easily and safe, then everything will be managed automatically according to situation.

1. INTRODUCTION

As we know what the power of artificial intelligence. In today's life big task can become easy with help of artificial intelligence. It's the ability of a computer program to learn and think, in which machine can learn by its own from the examples and the experience. Artificial intelligence will take place every field in future. So that as my research artificial intelligence will having most powerful role in home automation. Using this we can handle all home electric task easily and safe, then everything will be managed automatically according to situation.

Automation is a technique, or a method or we can say system of operating or controlling a process by electronic device with reducing human involvement to a minimum. The fundamental of building an automation system for an office or home is increasing day-by-day with numerous benefits. Automation makes our home not only an efficient but also an economical use of the electricity and reduces much of the wastage. Homes of 21st century will become more and more self-controlled with help of technology and artificial intelligence and automation due to the comfort it provides, especially when employed in a private home. In other hand we can say a home automation system is a means that allow users to control electric appliances of varying kind. Now days or modern system generally consist of switches and sensors connected to a central hub sometimes called a "gateway" from which the system is controlled with a voice command and in these systems if artificial intelligence installed then it will work some tasks automatic.

With artificial intelligence we can make our home automated then every electric related task of our home will be handled and controlled by artificial intelligence.

2. LITERATURE SURVEY

The first smart homes were ideas, not actual structures. With artificial intelligence home automation, we can amaze how it will look like.

As we know home automation is becoming popular because of its numerous benefits. Home automation refers to the control of home appliances and domestic features by local networking or by remote control. Artificial intelligence provides us the framework to go real-time decision and automation for internet of things. From a various feature standpoint, the work deals with our discussion about different intelligent home automation systems and technologies. The work focuses on main concept of home automation with artificial intelligence where the monitoring and control operations are facilitating through smart devices that we fitted with home automation, and installed in residential building. Heterogeneous home-automation system with artificial intelligence and technologies considered in review with central controller based raspberry pi with using web based, email based, Bluetooth based, mobile based, SMS based and main advantage of artificial intelligence is that it will auto controlled according to situation and time, because it will automation controlled with help of that sensors installed with automation system.

Artificial intelligence-based automation will help to control and managed automation system automatically with help of installed sensors. It will detect situation and affection automatically with help of sensors and training then it will work automatically without any external command.

In other hand android base home automation there is no artificial intelligence deployed that work with help of work with android application or web application, this types of automation system we have to give command with help of android system or web based application that's why artificial intelligence based home automation system is become more powerful and it will take his place in every place.

3. PROPOSED SYSTEM

home automation system is an emerging technology and also, a need of today's life, because in today's life everyone all-time busy with his own work so there is so much need to automation and automation was took place in every field then why not in-home automation. Today's life we can see in every place or every field like that every industry, machine all things work automatically.

The main objectives of home automation are controlling, management and coordination of home appliances in a comfortable, effective and secure on the other hand, artificial intelligence is evolving as a technology for developing automation systems that can perceive the environment and artificial intelligence have capability to learn from environment, and can make decision using case-based situation or reasoning. With the help of artificial intelligence to home automation, the living space of the user can be controlled without touch of any electric equipment and buttons, every electric task will work automatically according to situation and reasoning. Due to growth in the number of elderly people and population, it is predicted that in 2050 there will be no more than 1.4 people in the workforce for every one person outside of the workforce. Thus, the system proposed is to cater for people in such diverse domains as home automation and health. The aim is to conceive a system that understand their environment and, without being invasive, are capable of self-adaptation

Numbers of muddle that use to home automation.

- a. Relay Module – A relay module is used to controlling high voltage electrical appliances. Without relay module we cannot control high voltage appliances
- b. Bluetooth module – this module used to send voice command to the Arduino board with the help of any android app that can help make connection.
- c. PIR Sensor – PIR sensor detects a human being moving around within approximately 10m from sensor. In our project this module is used to detect human motion in the room and send signal to the Arduino board. So, this sensor used to if present of any human in room and not according to that automation will work.
- d. Light intensity sensor – light intensity sensor uses to provide light intensity of the room and send to the signal to Arduino.
- e. Arduino Board – Arduino is a backbone of this project; Arduino board collect all data from the all sensors and components and decide whether turn on or turn off electrical appliances. In Arduino digital pin no 7 provide output for the PIR sensor.
- f. Humidity sensor – this sensor is used to measure the humidity and temperature of the room and send the values to the Arduino board.

As we know in this project, we control home appliances using some smart technique like checking the movement of the person in the room the person is present or not in the room or checking light intensity of the room or temperature and humidity of the room. According to these all situation we will decide turn on or turn of the electrical appliances. In other hand this project also used for conserve the electricity and its very necessary for current situation.

So that according to these scenarios artificial intelligence is emerging as a very useful and applicable technology for home automation. On other hand, home automation system provides AI a vast range of Application

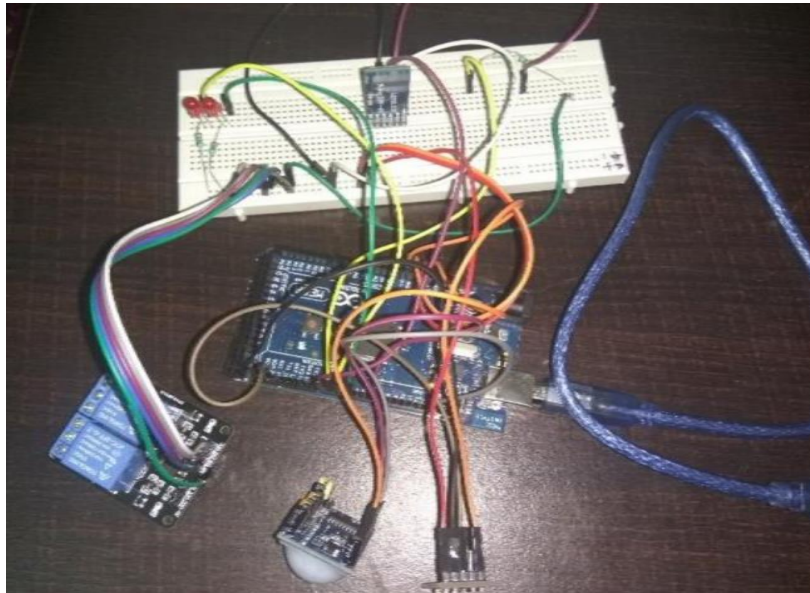


Figure 1 : in this figure light intensity of the room is greater than 1 minute and motion is not detected then light will be off

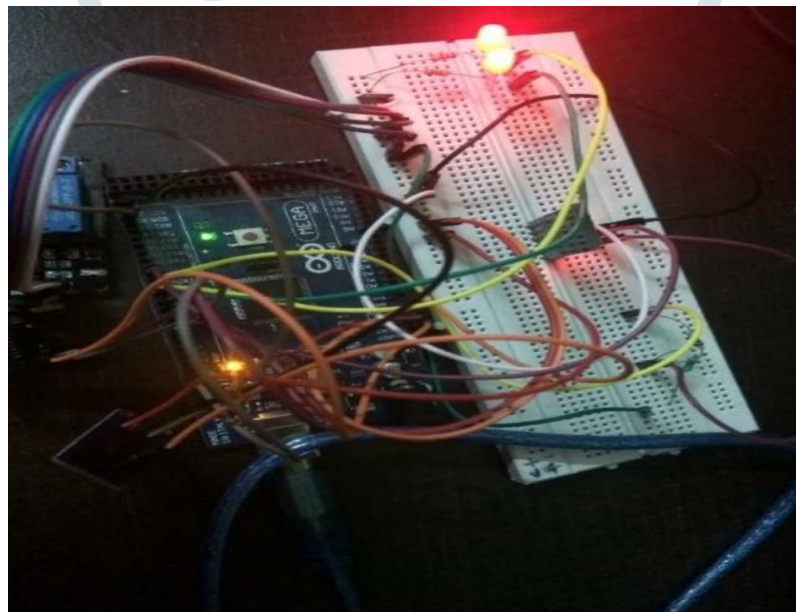


Figure 2: in this figure motion detected and light intensity of the room then it will be turn on after 1 minutes

4. BLOCKS

4.1 DISPLAY BLOCK

The display block is included, since it was needed to make the system more users friendly and easily then everyone can able to understand and accessible easily to everyone. The display block display the command that have option automation and manual, so that according to user need can set. If user set automation then it will corks automatically according to configuration that we have done and if we chose manually then we have to configure with help of application and voice recognition command.

4.2 CODING BLOCK

There is a need to code signal so that it become possible to interface the upper part of circuit with the transmitting block and it will work according to our command.

4.3 TRANSMITTING BLOCK

It is use to send signal one point to point reception using suitable transmission technology so what ever signal

given by user it will work according to that.

4.4 RECEIVING BLOCK

This block use to use for getting signal from another source for example signal getting that given by user.

4.5 DECODING BLOCK

A decoder is used at receiver, almost in a manner similar to the coding block, to interface receiver with the rest of the circuit.

4.6 CONTROLLER BLOCK

The controller block is responsible for interfacing the rest of the circuitry with the lower part of the circuit otherwise there is no other medium of creating a connection. So that controller block used to control the all things between sender and recipient port.

4.7 SAFETY BLOCK

Safety block is most important block because whatever things we are doing the first most usable work is the safety must be there. So that the system is protected against damage, in case of any back EMF or high voltage and some other harmful things like that some external network attack.

4.8 SWITCHING BLOCK

The switching block is used so that it can decided whether the device is to be switched ON or OFF, according to the signal getting from sensors and also that signal given by the use

5. LIMITATIONS

While working on the system, several limitations are highlighted, such as the system produces error in response to environmental noise, and requires absolute silence and solitude to work properly otherwise it can pick noise signals, and produce error in response to it.

Another things is that in this system if some module having internet requirement then it will depend on internet if there is any downtime of internet then it will not work.

6. RESULTS

Home automation using Artificial intelligence is the best way to make a smart home. all system is working properly according to our project. All sensors are work properly as we need. So that the home automation using artificial intelligence is good to make a smart home. and to help of this we. In other hand this project also help to save the electricity and its very necessary for current situation.

So that all work we done successfully and it will work very well as our requirement and as we defined in the configuration.

7. CONCLUSIONS

as we know what the power of artificial intelligence. In today's life big task can become easy with help of artificial intelligence. In this project we done home automation with help of artificial intelligences. Here the home automation system work with help of some kind of sensors that configuration we done and can make decision using case-based situation or reasoning.

In which project automation will work using some criteria like that sensors checking the movement of the person in the room, light intensity of the room or temperature and humidity of the room. According to these all situation our home automation system work properly and there also option of manually and automations if we chose automations then all things take care by automation system, we have no need to worry about anything's. and if we chose manually then we have sent command with help of android application and web-based application.

So that home automation with help of artificial intelligence will make our house to smart house

8. REFERENCES

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