

WIRELESS HOME AUTOMATION SYSTEM

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Abstract:

With advancement of Automation technology, life is getting simpler and easier in all aspects. In today's world, automatic systems are being preferred over manual system. IoT is the latest and emerging internet technology, Internet of things is a growing network of everyday object that can complete tasks while you are busy with other activities. Wireless Home Automation system (WHAS) using IoT is a system that uses computers or mobile devices to control basic home functions and features automatically through internet from anywhere around the world, an automated home is sometimes called a smart home. It is meant to save the electric power and human energy. In this project we mainly focus on Automatic Room Light Controller upon human presence, Automatic water level controller system and Smart Medicine Reminder Box. In Automatic Room Light Controller upon human presence, the lights will automatically turn on/off as a person enters or leaves the room in which we want to control the lights and it is uses IR sensor. In Automatic water level controller system, the motor automatically starts filling water in a tank i.e. when the water level reaches up to the brim of the tank, the water pump will stop automatically when the water level in the tank left upto few centimeters, the pump will start automatically to fill up the tank till the water reaches again up to the overflow pipe. In Smart Medicine Reminder Box, the medicine box will remind users or patients to take pills using sound and light.

Key words: Wireless home automation, Automatic light system, Automatic water controller, etc.

1. INTRODUCTION

In recent years, wireless systems like Wi-Fi have become more and more common in homes. Also, in home and building automation systems, the use of wireless technologies gives several advantages that could not be achieved using a wired network. It reduces the installation costs, Integration of mobile devices. In recent years the people are looking forward for the automation in their day to day life. And even now the people are eager to save energy consumed in day to day life. People are becoming lazy to switch off the lights while leaving the room. So, the large amount of energy is wasted if the lights are ON in the absence of human beings.

Generally, in public and private sector companies, most of the people are not interested to switch OFF the consumer electronic appliances such as fans, lights etc, if they are not present. Now the people are looking forward for automation in all simple tasks they need to do. The people are trying to reduce human efforts. The automatic switching of home lighting system reduces the human efforts. Using automatic switching, the person will not have given attention towards turning OFF the lights while leaving the room, this system also helps to reduce the power wasted when the lights, fans and other electric appliance are ON in the absence of any person.

Each time it might not be possible for the operator to keep an eye on the water filling process in the tank and immediately switch the motor OFF manually, once the tank is filled. It may happen few times that the operator might be busy with some work and unknowingly forgets about switching the motor OFF manually and due to this kind of negligence, there might be unnecessary wastage of water. Keeping this in mind we have designed a system which can avoid these issues by completing the task automatically. The automatic water level controller systems are quite useful to reduce the wastage of water from any tank, while filling water in such tank without worrying about switching the motor OFF once the tank is filled, to avoid wastage of water.

Smart medicine box for those users who regularly take medicines and the prescription of their medicine is very long as it is hard to remember to patients and for their care giver. Also, Old age patients suffer from problems of forget to take pills on proper time which causes certain health issues for patients having Permanent diseases like diabetes, blood pressure, breathing problem, heart problems, cancer diseases etc. We saw these problems in hospitals & people around us who have such kind of diseases and thus based on these two problems we made smart medicine box which solve these problems by Setting up time of prescribed medicines through push buttons as given in prescription.

2. LITERATURE SURVEY

Viral Shah, Jigar Shah [1], Taking Medicine at right time in proper amount will lead towards the faster recovery. What happens is that, they get their prescribed medication but fail to follow their health care professional's instructions. Many people while taking prescript medication do not follow their doctors' instructions.

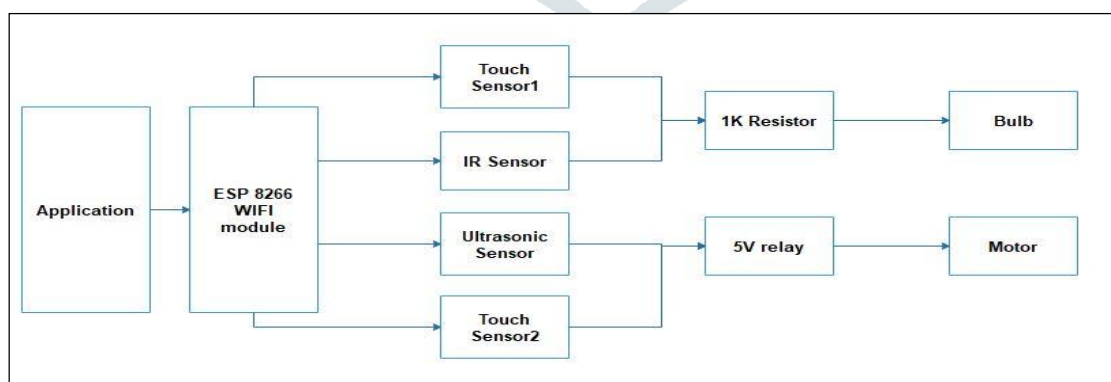
Kusuma [2], As we switch on our device, the current time and date that is stored in the RTC is displayed on LCD. The device initially asks the user to set the alarm timings using the keys. A speaker module is connected to the ARM7 microcontroller. The playback voice should be initially recorded in it through the microphone in it. The alarm time is compared to the current time by the microcontroller and when they match, an interrupt is generated.

Sangeetha Uppala1[3], LED could be used for mobile phone-based electronic payment. A purchaser could use the user interface and wireless data connection of the telephone to set up an electronic payment transaction with their bank. They could then point the phone's LED enabled power LED at the vending machine of interest, completing the transaction. The LED's directionality and short range are an advantage here because they allow the user to specifically and naturally indicate for which machine the payment is intended.

Vinay sagar, K Kusuma [4], S M proposed a system which uses Intel Galileo. This system uses wireless communication, internetworking of cloud networks. It operates various lights, fans and simple appliances. The data from the sensors will be collected automatically. This data will be stored in the cloud. The proposed system is built to reduce cost and allows expandability using wide range of devices. This system can be operated from anywhere of the world using internet connection.

3. PROPOSED MODEL

In this proposed system, we mainly focused on Automatic Room Light Controller upon human presence, Automatic water level controller system and Smart Medicine Reminder Box. In Automatic Room Light Controller upon human presence, the lights will automatically turn on/off as a person enters or leaves the room in which we want to control the lights and it is based on IR sensor. In Automatic water level controller system, the motor automate the water filling in a tank i.e. when the water level reaches up to the brim of the tank, the water pump will stop automatically and when the water level in the tank remains up to few centimetres, the pump will start automatically to fill up the tank till the water reaches again up to the overflow pipe. In Smart Medicine Reminder Box, the medicine box will remind users or patients to take pills using sound and light.



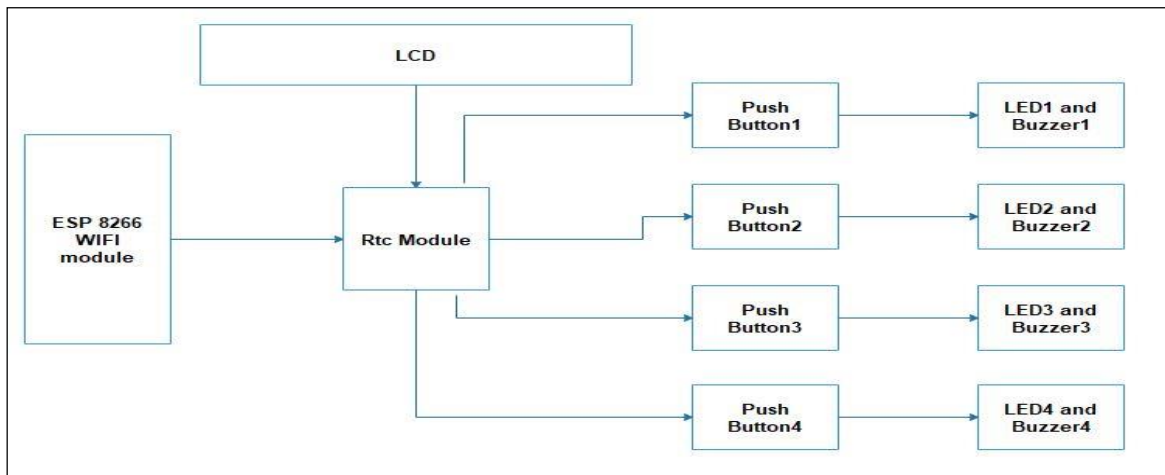


Fig 1 System Architecture

The above Figure 1 gives an overview about the architecture of wireless home automation system.

4. RESULTS

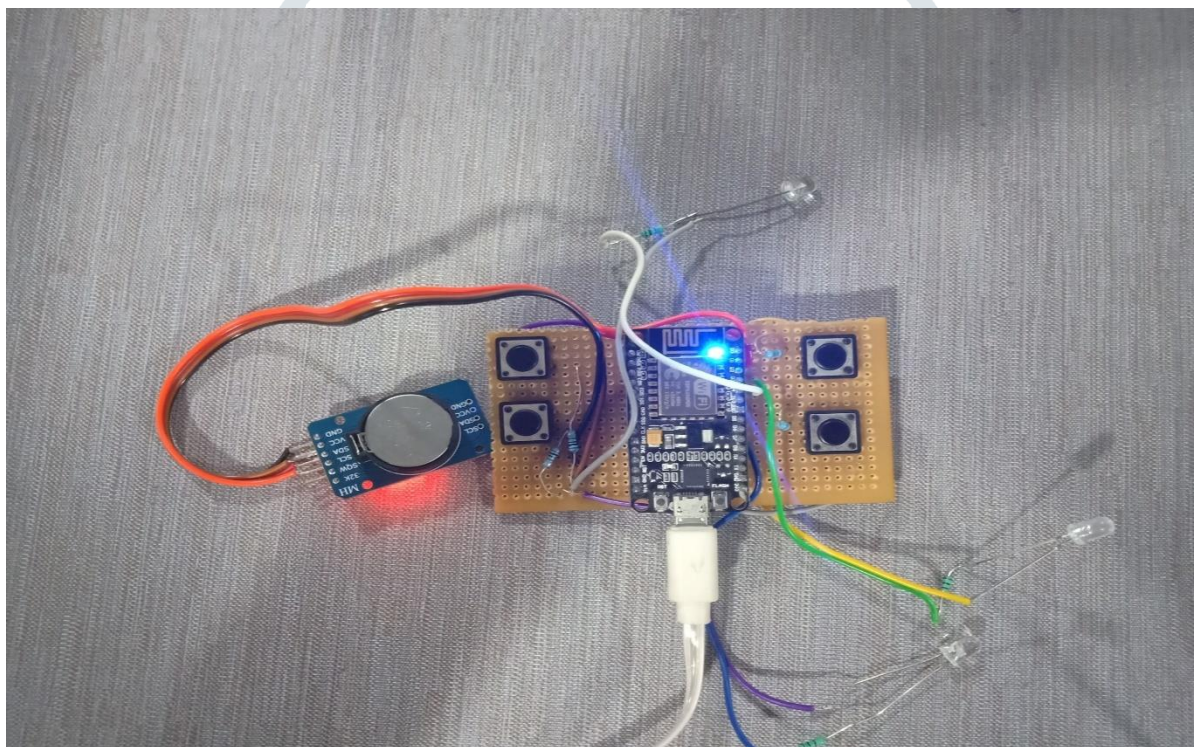


Fig -1: Smart Medicine Reminder box

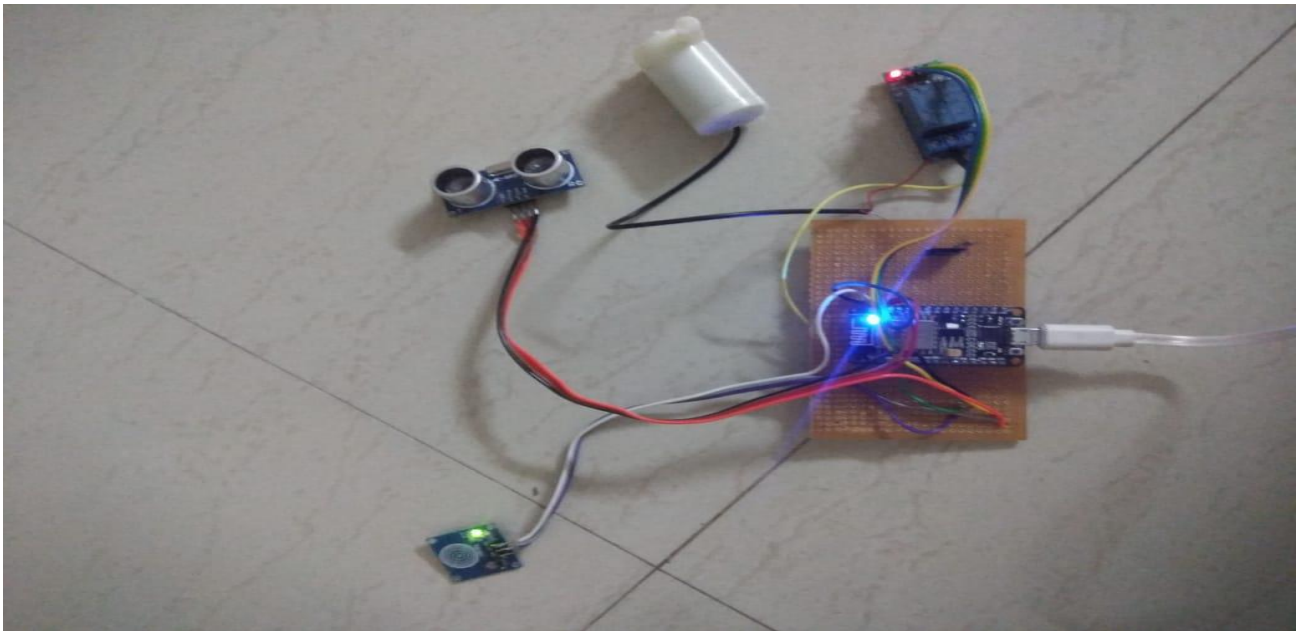


Fig- 2: Automatic Water and light Controller System

5. CONCLUSION

So, as we see large amount of power is wasted in day to day life just because of human tendency of being lazy. As we know 1 unit of power saved is equal to the 1 unit of power produced. So, this wasted energy can be conserved and can be contribute to large amount of saving of energy. For detection of person entering the room or exiting Ultrasonic sensor can also be used, but its cost as compared to the IR sensor is more. The total cost of all the circuit is much low as compared to the amount of energy saved. If this system is adopted at every home and offices, it can contribute to large amount of energy savings.

This is not only for water tank but also used for oil level and chemical lab. To design this system, we used transistor as a platform and local materials for low cost. We tried to design a system in such a way that its components will be able to prevent the wastage of water. The whole system operates automatically. So, it does not need any expert person to operate it. It provides healthy and tension free life to those users who are taking regularly pills and to provide this product at affordable cost also. It is also reusable by exchanging those other medicine box that has only alerting system and are non-usable or unaffordable compare to our product.

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