

IOT BASED SMART HOME AUTOMATION

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ABSTRACT

The internet of things (IoT) is connecting the devices and tools to the internet network to be controlled by websites and smart phone applications remotely, also, to control tools and instruments by codes and algorithms structures for artificial intelligence issues. In case we want to create advanced systems using python algorithms, Wi-Fi or Ethernet connection is connected to our tools, equipment, and devices controlling them by smart phone applications or internet websites. That's actually the simplified definition of IoT. Farther than just using the IoT as a smart home to operate lamps or other home-use devices, it can be used as a security system or an industrial-use system, for example, to open or close the main building gate, to operate full automatic industrial machine, or even to control internet and communication ports. And more ideas can be done by using IoT technology. A huge industrial facilities or governmental institutions have much of lamps. Employees sometimes forget to turn them off in the end of the day. This research suggests a solution that can save energy by letting the security to control lighting of the building with his smart home by Blynk application. The lamps can be controlled by switches distributed in the building and Blynk application at the same time with a certain electrical installation. This research presents a simple prototype of smart home, or the easy way and low cost to control loads by Wi-Fi connection generally.

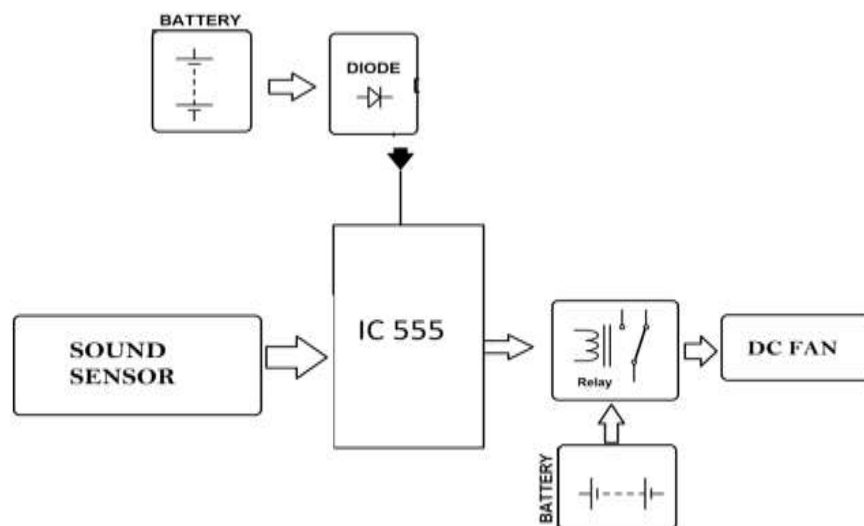
Home automation using the Internet of Things (IoT) has gained significant attention in recent years due to the increasing popularity of smart homes. In this literature review, we will discuss the key research works that have been conducted in the field of home automation using IoT. One of the earliest works in this field was conducted by Al-Fuqaha et al. (2015), who proposed a comprehensive survey of IoT-based smart homes. They discussed various aspects of smart homes, including the architecture, communication protocols, security and privacy issues, and the applications of smart homes. The authors also highlighted the potential benefits of smart homes, such as energy conservation, improved safety and security, and enhanced comfort. Another study by Bandyopadhyay et al. (2016) presented a detailed review of various IoT-based home automation systems. The authors discussed the key components of these systems, such as sensors, actuators, and communication protocols. They also presented a comparative analysis of various home automation platforms, such as ZigBee, Z-Wave, and Bluetooth. The authors concluded that the choice of the platform depends on various factors, such as the cost, scalability, and interoperability of the systems. In a more recent study, Vasic et al. (2020) proposed an IoT-based systems for monitoring and controlling the home environment. The systems consists of various sensors, such as temperature, humidity, and light sensors, which

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collect data from the environment. The authors used a fuzzy logic algorithm to control the HVAC systems based on the collected data. The authors reported that the proposed systems can significantly reduce energy consumption while maintaining the desired level of comfort. Another interesting study was conducted by Chen et al. (2019), who proposed an IoT-based systems for detecting and preventing gas leaks in smart homes.

EXISTING SYSTEM

We have analysed that the person when give the clap can cause the Fan to start and remain ON for a limited period of time. We have mic that acts as a transducer. This transducer converts the sound energy in its vicinity to electrical pulses. These pulses are amplified and given to 555 timer controller. If someone claps near the mic of the systems the above stated series of events get triggered. This leads to turning ON of the Fan. Due to the timing configuration set in the 555 timer the Fan remains ON for a stipulated period of time. After that period the Fan turns OFF and waits for the next clap from the user.



Description

This section gives the complete details about the design and implementation of proposed approach. The main aim of this project is to provide the security to the home and control the electrical appliances in the home from the android using Bluetooth technology. For this project, we are using smart phone, in which we have to download and install the Bluetooth app application from the play store and pair the Bluetooth in mobile with the Bluetooth module in the hardware kit. If the user wants to know the status of the sensors then you have send a predefined letter (S in this case) then the status was received. In the same manner, we can

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control the load also by sending the predefined letter to the controller. The code was written in the embedded c language using keil compiler and the relevant hex file was dumped into the LPC 2148 using flash magic software. There is a large variety of microcontroller on the market today. At controlling system side we have Bluetooth module, micro controller and load controlling circuits. Whenever this blue tooth module receives command from its paired blue tooth

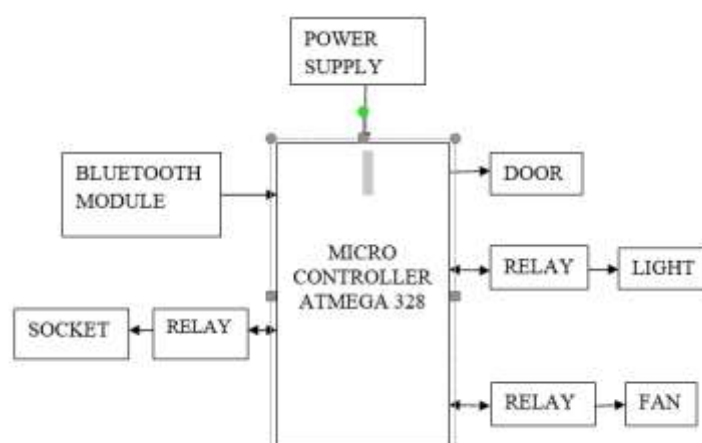
HARDWARE COMPONENTS

- Arduino
- L239D Motor&DC Motor
- push buttons
- Relay
- Power Supply
- Bluetooth module

SOFTWARE USED

- Arduino IDE software

PROPOSED SYSTEM

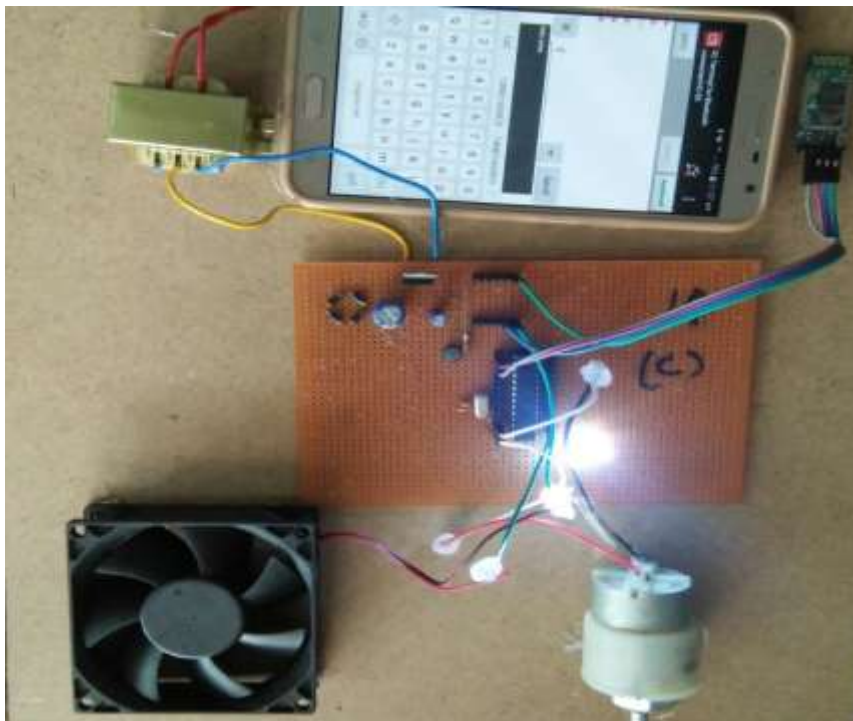


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RESULTS



This section gives the complete details about the results of the proposed approach. The operational description with pictorial representation is shown in this section. For demonstration

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purposes, The overall design of the kit is shown above. It is having a Bluetooth module, microcontroller and the load like fan, light e.t.c. The system has been successfully designed and prototyped to monitor and control the home from dangers using an Android Bluetooth-enabled phone and Bluetooth modules.

The project will enable us to bring every appliance at every corner of our home under our control from a single point without having to get up and manually switch on or off the appliance. The use of a Bluetooth module assists the use of this system from various locations in our house.

The system is further simplified by allowing appliances to be controlled by using android. Just by typing the appliance corresponding number assigned to that particular appliance, and typing in android mobile to switch on or off will enable the user to have complete control over any appliance without any effort.

APPLICATIONS

This project can be applicable for the

- Auto Intensity Control Of Street Lights
- Home automation
- Industrial Applications
- Hostages Rescue
- Home security

CONCLUSION

The objective of the project is to realize the Smart Living, more specifically the home security system using Bluetooth technology. The system has been successfully designed and prototyped to monitor and control the home from dangers using an Android Bluetooth-enabled phone and Bluetooth modules.

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Android applications are very simple and user friendly allowing the user to understand its functionalities in very little time. Hence, the use of android application in this system allows a user to easily learn the process and get accustomed to the functions. Moreover, the entire system is very flexible and scalable. Any number of appliances can be added as and when required. Hence, the systems finds use not only in houses but also in many offices where appliances such as fans or lights on multiple floors can be controlled by a person on any of the floors, saving manual labour and human effort to switch on or off the electronic appliances, thereby saving time.

In addition, there have been many advertisements broadcasted by the Government of India promoting awareness to switch off household appliances when not in use and thus save electricity. Hence, such a project would assist the initiatives taken by the government, as most people forget to switch off home appliances and are too lazy to return and switch it off.

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