Home Automation using Arduino & Bluetooth

Divya Deep Rawat, Shubham Choudhary, Shivam Bohare, B. Lalitha Devi, Arun Kumar

Abstract: Different controlling devices and configurations can be found in existing systems. Such systems have been found already in many places for a wide variety of applications. This paper presents a survey of all such system. With the increase in consumption of energy and population, there is a grave need to conserve energy in every way possible. The inability to access and control the appliances from remote locations is one of the major reasons for energy loss. A web or an android application is used by the users to give instructions to these systems. This system can make use of a host of communication methods like Bluetooth and GSM to connect the electronic devices in any building within the range. This paper is about a system which lets people control their surrounding electronic devices and maintain their condition while conserving energy. And all this is at a very low cost. This paper is about a home automation system which has a very appealing user interface. Along with this the home automation system is also compatible with security system. This system offers another feature of energy saving also. As the home automation system uses various devices in it the proposed system also manages and does analysis of power consumed and power loss by the devices it is made of. The system also gives ways to save energy and minimize the use of electricity.

Keywords: Appliances From Remote Locations, This System Offers Another Feature of Energy Saving Also. Communication Methods Like Bluetooth and GSM.

I. INTRODUCTION

In this modern era of development, Automation of everything is the need of the hour. The basic aim of any development is to ease human life. Activating the home appliances without conventional switch but by using a smart phone is known as home Automation. Home Automation can be used in many homes by the use of computerized remotes to control basic home functions and features. This can be used remotely and sometimes automatically. This Automated home can be called smart home. This is the reason why this project can be called as smart homes. Wireless technology has emphasized the whole world now a days, the reason being messiness of the cables and wires. Another reason is that the wired networks are not remote which takes time if we implement it on a large scale. These wireless technologies have impacted human life in a very significant way which has increased the development speed on manifolds. The main wireless technologies in home Automation is GSM, Internet, cloud and Bluetooth. Each technology has its own advantages and disadvantages, but Bluetooth based home Automation has way more advantages than its counterpart.

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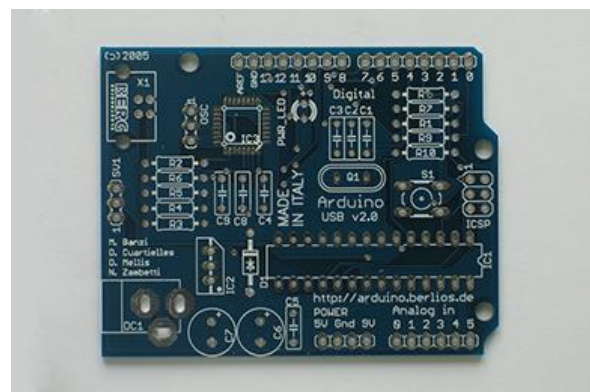**Mr. Arun Kumar,** SRM Institute of Science and Technology, Ramapuram Chennai (Tamil Nadu), India.

The devices can be connected from a range of 10 to 100m. The frequency used for Bluetooth is 2.4 GHz which is globally available. The speed which can be fetched is uptp 3mbps.

It is these ideas which has led the idea of developing a Bluetooth based home Automation system. Home automation making life easier for everyone. You can just control all the appliances which electronically powered with the use of a mere remote, no need for going to every switch and adjust all the appliances. This helps everywhere for eg:- In a big institution where there are many fans, lights, air conditioners, you have to switch it off after every day by going room by room. So this system will help by switching it off and on at just one click of a smart phone. By looking into these kinds of benefits HOME AUTOMATION is the need of the hour.The proposed system uses latest technology which are cost efficient and long lasting. The newly designed home automation system uses state of the art equipments and devices which are built with precision. These devices are modified for making a home automation system which is robust and user friendly. These devices make the home automation system quite energy efficient and that is ultimately good for the environment too. The sytsem is the best one can get. Once the sytem is installed the users do not need to worry about anything.

II. MODULE COMPONENTS

1. Arduino Board The latest version of Arduino Board comes with USB, its name is Arduino USB Board. The board comes with USB port which is very important for connecting it with the computer for programming. The board can also handle load very efficiently.

2. Mobile Application The mobile application is used for providing the control of home automation system to the user. It is also used by the system to transfer information about the health of system and energy consumptions to the user. Other details such as assistance and system troubleshooting are also present in the app.

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The app is build using the latest Angular framework.
3. Relays Relays are the path makers for flow of signals and information. The relays are used to connect all the sub systems and devices to the central system. It is important to do so as the user sends the signals to central system.

4. Bluetooth Module A Bluetooth module is attached to the devices to make them compatible with Bluetooth. Once this module is installed, a device can be easily controlled with another Bluetooth device.
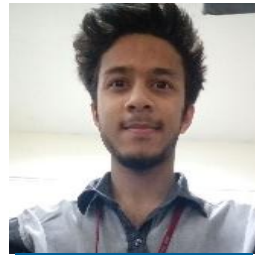

III. CONCLUSION

The system is assembled using devices which are energy and cost efficient. This makes the system perfect for us to use. Moreover the reduction of energy losses and heck on the health of users and their devices make the system very much advanced. The technology is used at its best for mankind. Acknowledgement Thus, the approach discussed in the above chapters on Home Automation System is original and has achieved the mark to control home appliances remotely using the Bluetooth technology to connect system parts, satisfying user needs and requirements. Bluetooth technology capable solution has proved to be controlled remotely, provide home security and it is low cost as compared to the previous systems. The system design and architecture were discussed, and prototype presents the basic level of home appliance control. The global market for home automation has been segmented on the basis of application into entertainment in the form of home video and audio, HVAC or heating, ventilation, and air-conditioning, security and safety, lighting, robotics, and healthcare, among others. These applications employ home automation intensely as they are preferred to be controlled automatically by the homeowners. Homeowners are exhibiting a particular affection for HVAC systems as the demand for this is expected to rise in the coming years owing to the demand for these systems from automated and high-end homeowners.

REFERENCES

1. Bluetooth Based Smart Home Automation System using Arduino UNO Microcontroller Abdul Kareem Kasim Abdul Raheem*(Lecturer)
2. Android Based Home Automation System Using Bluetooth & Voice Command Bhavik Pandya1, Mihir Mehta2, Nilesh Jain3 1 Student, Department of Computer Engineering, K.J. Somaiya Institute of Engineering & Information Technology, Maharashtra, India 2 Student, Department of Computer Engineering, K.J. Somaiya Institute of Engineering & Information Technology, Maharashtra, India 3 Student, Department of Computer Engineering, K.J. Somaiya Institute of Engineering & Information Technology, Maharashtra, India
3. SMART HOME AUTOMATION SYSTEM USING ARDUINO A. Vinodha Krishnan*, J. Indira Priyadharshini, T. Sivaranjani * UG Student, Department of EIE, Karpagam College of Engineering, Coimbatore Assistant Professor, Department of EIE, Karpagam College of Engineering Assistant Professor, Department of EIE, Karpagam College of Engineering
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