

A REVIEW PAPER ON IOT Based Home Automation

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Abstract

Automation of a device has a comprehensive scope for this Group as well as in forthcoming generation. In this wide scope, Mobile communication skill is playing a main role in the world of modernization. This Paper is completely centred on low cost and reliable home controller monitoring system for opening and controlling devices and appliances distantly using Android created Smart phone application. While using this technology the system expands the living standard at home, decreases human effort, energy effective and time convertible and thus create a smart home. And also it was precise helpful for providing provision to spiked people and fulfil their desires in home and thus they leads a normal life. The planned systems consist of android mobile, Arduino Uno board, Wi-Fi module and a relay circuit. We are using Wi-Fi technology to monitor the device because of its correctness, great range and prompt connectivity. This module controls the home appliances with a actual ease of fixing and it is user pleasant.

Keywords: Automation, Android, Wi-Fi module.

I. INTRODUCTION:

Home computerization is develop more constructive because of its safety and security. Nowadays, home automation became more develop and exact to display all the home appliances. Home automation system convert energy effective and extremely welcoming smart home technique. It includes basic features to uphold the user pleasure and comfort. [3] This planned system is a exact blend of Android smart phone and implanted system which include Arduino Uno Board, Wi-Fi module and Relay circuit.[4]

In this paper, we used a Wi-Fi wireless technology to display the device. An android request is fit in a mobile device i.e. android smart phone and it has inherent switch edge of all the appliances distinctly in it. Through which all the individual devices can be regulate and monitor separately. The Wi-Fi module obtains the grasp from mobile phone and permits to relay circuit. As per the assumed signal from the user, the relay circuit swapped ON/OFF the respective devices. The main drive of by Wi-Fi wireless technology is to deliver a better level to variety and better feasibility.[2] This paper will deliver the future access to switch the various home appliances with the help of android smart phone.

A.HOME AUTOMATION:

Home Automation is a exclusive system that can regulate and start communication between nearly all aspects of your house. [1] Home Computerization is a term used to label the occupied together of all household facilities and pleasure. For case, a centrally microcontroller panel can have the ability to switch all from heating, air

taming, safety system, lighting and overall electrical appliances. [3] Home mechanization can contain regulatory aspects of our home distantly over a computer or any mobile equipment, software design electronics devices to react automatically to some circumstances or scenarios or integrating the control of a variety of appliances in our home into a single regulator center. For case, Switch of lights in and everywhere our house from one central location so there is no necessity to become out of to that place or go to below if we forgot to turn OFF or ON any appliances, just we can regulate remotely. [5] It is important that the dissimilar manageable appliances be organized and communicates with each other. The main resolve of Home automation is to switch or monitor signals from different appliances, or basic services. A smart phone or web browser can be used to switch or monitor the home automation system.[1]

II. LITERATURE SURVEY:

A.IMPLEMENTATION OF INTERNET OF THINGS FOR HOME AUTOMATION:

Mamata Khatu, Neethu Kaimal, Pratik Jadhav and Syedali Adnan Rizvi [1] they offered a paper on the application of Internet of things for home automation. This paper primarily absorbed on IoT attention that attaches all the change of objects like smart phone, tablets, digital cameras and sensors in the internet and thus delivers many facilities and vast amount of data and material. They also absorbed on Cloud computing, Cloud based stage help to attach the things that environs as so that we can simply access everything at any time and in any residence. They have showed detecting as a facility on cloud by using firm application like Enlarged Reality, Agriculture Environment monitoring etc. and finally they have planned a prototype model for providing sensing as a service on cloud. The society want new and scalable, well-matched and secure solutions for both the administration of the ever broader complexly networked Internet of Things. Safety distress is dazed by this model since we are using Wi-Fi Wireless Equal Privacy (WEP) and Wi-Fi Protected Access (WPA) are two most security accesses used in Wi-Fi.

B. BLUETOOTH BASED WIRELESS HOME AUTOMATION SYSTEM USING FPGA:

B.Murali Krishna, V.Narasimha Nayak, K.Ravi Kishore Reddy, B.Rakesh, P.Manoj Kumar and N.Sandhya [2] they obtainable a paper on the Bluetooth based Wireless Home automation system using FPGA.They primarily absorbed on Bluetooth skill. With the help of the Bluetooth module (HC-05) and Android Phone, they switch the home appliances, which all linked to FPGA board. Thus, they have stated the advantages of the home automation, which not only decreases the human efforts, but it is also energy well-organized and time redeemable. Moreover, they have included that it is also help to the handicapped and old aged people to switch the home appliance without any difficulties. We want module so that the range will be great as well as it can operate in different frequencies. This drawback is overcome by our model. Wi-Fi based networks work at 2.4, 3.6 and 5 GHz. In addition, it can range up to range 100m.

C. HAND GESTURE BASED HOME AUTOMATION FOR VISUALLY CHALLENGED:

Smitha M, T.Ayesha Rumana and Sutha P [3] published a paper entitled Hand gesture based Home Automation for Visually Challenged People. They have intended a device for the visually dared people to assist them to working the home appliances. They have used MEMS (Microelectromechanical Systems) accelerometer which is hand-me-down to logic the accelerations of a hand in consistent three vertical direction that is (x y z) and thus convey the signal to wireless protocol using Radio frequency. The movement templates were kept in a microcontroller at the receiver end. The established sign and the hand sign were likened by the templates. If the corresponding sign were coordinated with the templates then accordingly home appliances were organized. In accumulation, these devices were help for the old aged person too. Since they have used four types of gesture and deposited in the microcontroller and it processed further. However, we need the system to be mechanized without the use of gesture.

We do not want the sign to be kept in the controller. Nowadays, the application can be rummage-sale by any means of people by the option "TALKBACK" in the android application.

D. HOME AUTOMATION USING ATmega328 MICROCONTROLLER AND ANDROID APPLICATION:

S.Anusha, M.Madhavi and R.Hemalatha [4] accessible a paper on Home automation using AT mega Microcontroller and Android application. In this paper they have label the plan and growth of a remote household appliance governor system using the ATmega328 microcontroller and android mobile over GSM

technology. In addition, this appliances remotely using the SMS-based system that filling user wants and necessities. Thus, all electrical household appliances can be precise by sending a text message from an Android mobile. For Controlling, the remote appliances carried out by sending a SMS message from a mobile phone, which again congestion process and make system, convoluted for the disabled persons. Here, we does not carry out this technique, we are using simple open source android application over Wi-Fi we can directly switch the whole appliance with a greater extent. Thus, intend to be a reliable technique.

E. E-MAIL INTERACTIVE HOME AUTOMATION SYSTEM:

Sirisilla Manohar and D.Mahesh Kumar [5] presented a paper on E-mail interactive Home automation system. They have instruct on a basic home computerization application on the public field over the issue of E-mail ID.The swapping action were complete by LED hint. They deliver a basic request of home automation using GVT app, which can be easily applied and recycled as efficiently. The coding which they deliver is basic and supple in user-friendly manner and can be skillful in any application like power control, surveillance etc easily. In addition, all the results were made by a series of E-mail shown to the user of G-mail account. For each and every interjects one email will made and will send to the user of the Gmail account, which over a We can easily switch the appliances in its place of successful through such process.

III.PROPOSED SCHEME:

Home Computerization typically is included of three main parts:

1. Main Controller
2. Interfaces
3. Control methods

A. MAIN AUTOMATION SUPERVISOR:

1) ARDUINO UNO BOARD

The 8-bit AT mega 328P microcontroller founded on Arduino UNO is rummage-sale in this suggestion is to switch the different mechanisms like Wi-Fi module and relay circuit networks. The advantage to having a distinct controller is to focus only on the wanted task.

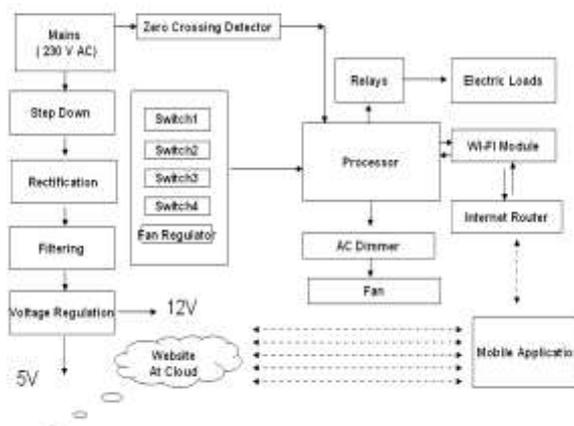
2) INTERFACES:

An Boundary is the method we interrelate with the Home automation supervisor. There are several types of borders like Touch Panels, Keypads, Remotes, Mobile Devices and Internet. In this suggestion, we cast-off a Mobile device (Android smart phone).Nowadays it is a exact common device for every user. We essential to install an appliance controller application in it. In addition, inside the mobile border it can be capable to switch all the appreciated appliances of the home. Wouldn't it be nice to be upstairs, pull out your mobile phone, and turn off all the lights in your house with the press of a button right beforehand you go to bed?

3) CONTROL METHODS:

We now have a supervisor, lines to interact with the controller, and sensors that tell the controller what things are occurring in the house. Supervisors can connect and switch the many dissimilar parts of a Home Automation System in a variety of ways. Some of these are IP (Internet Protocol sp), Wi-Fi, Bluetooth, Zig-bee, IR, Serial Data, and Relays (for

Block Diagram



IV. APPLICATION:

1. Illumination control system
2. Heating airing and air
3. habituation(HVAC)
4. Appliance switch with a smart network
5. network
6. Indoor positioning systems
7. Home computerization for elderly and incapacitated people
8. incapacitated people

V.CONCLUSION:

Today, Automaton is the world's influential mobile platform open source working system to apt easily whatever the functionality we had in our attention. This paper is about wireless home computerization by Android mobile helps you to gadget such a fantastic system in our home at a very sensible price using cost-effective devices. Thus, it disables many problems like prices, stubbornness, safety etc. In count, will deliver greater rewards like it shrinkage our energy costs, it recovers home safety. In addition, it is exact suitable to usage and will recover the ease of our home.

REFERNCES:

- 1.Mamata Khatu, Neethu Kaimal, Pratik Jadhav, Syedali Adnan Rizvi, "Implementation of Internet of Things for Home Automation", International Journal of Emerging Engineering Research and Technology , Volume 3, Issue 2, February 2015 .
2. B. Murali krishna, Narasimaha Nayak, Ravi kishore Reddy, B.Rakesh,P. Manoj kumar, N.Sandhya, "Bluetooth based Wireless home automation system using FPGA" , Journal of Theoretical and Applied Information Technology,31st July 2015,Vol-77 No.3.
- 3.Smitha.M, T. Ayesha Rumana, Sutha.P, "Hand gesture based home automation for visually challenged", International journal of innovations in engineering research and technology, Volume 2, Issue 4, Apr.-2015.
- 4.Sirisilla Manohar,D. Mahesh Kumar, "Email interactive home automation system", IJCSMC, Vol. 4, Issue. 7, July 2015, pg.78 – 87 .
5. Mrs. Latha A.P., Agarwal, Rishabh Rajgarhia, Shashank Sinha,Nafiya Monis, "Home automation using Android application and Predictive Behaviour Implementation", International Journal of Engineering and Techniques - Volume 1 Issue 3, May - June 2015.
6. Shirisha Tadoju ,J.Mahesh, "Bluetooth Remote Home Automation System using Android Application", International Journal of Advanced Technology and Innovative Research,Vol.07,Issue 10,August 2015.
7. Mukesh kumar,Shimi S.L, "Voice recognition Based Home Automation System for Paralyzed People", International Journal of advanced Research in Electronics and Communication Engineering, Volume 4,Issue 10,October 2015.