IOT BASED HOME AUTOMATION USINGANDRIOD

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Abstract

IOT or internet of things is an upcoming technology that allows us to control hardware devices through the internet. Here we propose to use IOT in order to control home appliances, thus automating modern homes through the internet. This system uses three loads to demonstrate as house lighting and a fan. Our user friendly interface allows a user to easily control these home appliances through the internet. For this system we use an AVR family microcontroller.

This microcontroller is interfaced with a WIFI modem to get user commands over the internet. Also we have an LCD display to display system status. Relays are used to switch loads. The entire system is powered by a 12 V transformer. After receiving user commands over the internet, microcontroller processes these instructions to operate these loads accordingly and display the system status on an LCD display. Thus this system allows for efficient home automation over the internet.

Introduction:

There is increasing demand for good homes, where appliances react automatically to changing environmental conditions and might be simply controlled through one common device. This project presents a attainable answer whereby the user controls devices by using their only mobile phone, where control is communicated to the Microcontroller from a mobile phone through its Bluetooth interface. There are many

technologies are used for smart home automation. Currently, GSM, Bluetooth, Wi-Fi, USB, ZigBee Technology. In this project we have used 8051 (AT89S51) microcontroller for controlling the entire process of this project. Bluetooth module can be employed for controlling the home appliances wirelessly. Home appliances will be turned ON and OFF when user will touch button in Bluetooth mobile application in cell phone. We can use any Bluetooth application which will send character through Bluetooth. After that controller will receive the data and compare according to their code and generate a signal and go to ULN2803 Driver then after driver will drive the relay and hence relay operate and control the different appliances. Manual system should be avoided over Automatic systems. Through this project we have tried to show real model of house and also control all appliances as a result of which power is saved to some extent. Automation is that the use of management systems and data technologies to cut back the requirement for human work in the manufacturing. automation plays an increasingly important role with in the world economy and in daily expertise. Automation might be enhance the world economy of enterprises, society or most of humankind. For example, an enterprise that has invested in automation technology recovers its investment, or a state or country will increase its financial gain because of automation like Germany or Japan in the 20th Century. Moreover, humans are more possible to commit errors and in intensive conditions the probability of error increases, whereas an automated device can work with almost zero error. In the dangerous environment (i.e. fire, space, volcanoes, nuclear facilities, underwater, etc.) human can be replaced. Performing tasks that are on the far side human capabilities of size, weight, speed, etc. This is why this project looks into construction and implementation of a system involving Prototype to control a many of electrical and electronic systems. We are surrounded by smart devices that

are capable of making decisions on their own without much human interaction. The home automation may include centralized control of electrical devices including lightings, appliances and security. Presented here is a touch-control based home automation system that can control up to eight electrical devices. Life will become simpler if we can control devices like lights, AC, fans, TV, or a music system with a remote from a distance just by pressing the button.

Literature Review:

Literature Survey 1 :

TITLE:

Advanced Control Web Based Home Automation with Raspberry Pi Publication : International Journal of Advance Research, Ideas and Innovations in Technology.

Author: Prof. Dr. Ashok J, Chavan J. J, Patil P. V. Naik P. S Description : This Home automation system provides the user with the webpage of various lights and appliances within their home with using the raspberry pi model by the webpage.

Abstract:

The aim of this project is to develop a system that will provide a control of home appliances by using web page when the home host not at home. This paper is mainly concerned with the automatic control of light or any other home appliances using the internet. It is meant to save the electric power and human energy. This project is made with the help of the raspberry pi. For this paper, of course, you will need a Raspberry Pi board. In this paper, we used a Raspberry Pi model B with the Wi-Fi dongle. The Raspberry Pi is a credit-card-sized single-board computer developed in the

UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The raspberry pi board contains a processor and graphics chip, program memory (RAM) and various interfaces and connectors for external devices. The raspberry pi can be used for many of the things that your desktop PC does. However, one key aspect that makes the raspberry pi so brilliant for schools is its ability to execute "Python" coded programs.[9:50 AM, 4/25/2022]: Literature Survey :1.ESP 8266 Wi-Fi Module :The ESP8266 is a low-cost Wi-Fi chip with full TCP/IP stack and MCU (Micro Controller Unit). This small module allows microcontrollers to connect to a Wi-Fi network and make simple TCP/IP connections.. Specifications of ESP 8266 Wi-Fi module :802.11 b/g/n protocol• Wi-Fi direct (P2P), soft-AP Integrated TCP/IP protocol stact • It requires 3.3 V power • 13 GPIO-PINS

Literature Survey 2:

TITLE:

Raspberry Pi based advanced scheduling Home Automation System through Email Publication International Journal of Advanced Research in Electronics and Communication Engineering (LJARECE) Volume 4, Issue 9, September 2015

Author: M.P.Sathish, Dr. S.A.K.Jilani, Mr.D.Girish kumarDescription: Advanced method of home automation of Raspberry Pi through reading the subject of the E-mail.

Abstract:

In present days, as the technology improves day by day, every one seems to automate most of the possible things to take advantage in providing ease in life, secure and saving electricity. The main objective of this paper is to develop an interactive home automation system based on

Raspberry Pi through reading the message body of E-mail which we are send. Here the message body of the received E-mail is read by the developed algorithm fed into Raspberry Pi and it will resend the acknowledgement to that mail id, if it is successfully sent or not. This algorithm is developed in python language, which is default programming language provided by Raspberry Pi. Store these results in internet by creating new channel API in thing speak, which is un IoT application.

SYSTEM MODELING AND DESIGN

Block Diagram:
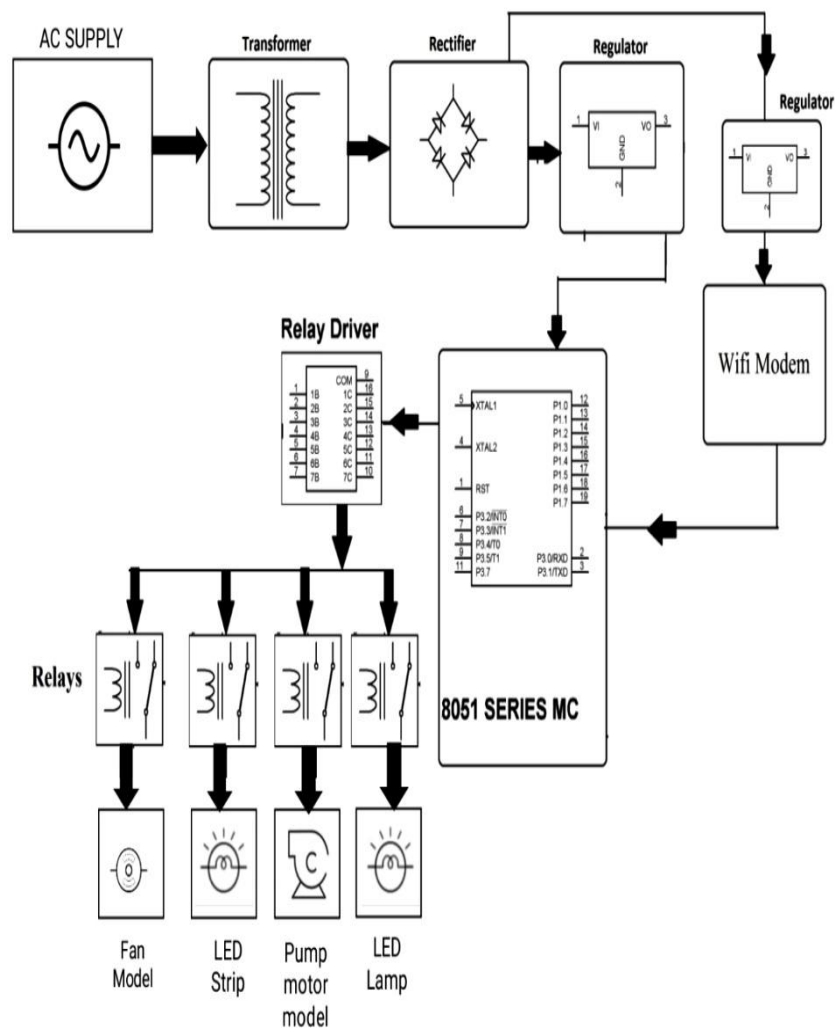
BLOCK DIAGRAM DESCRIPTION

hardware realization of the system contains Node MCU, the ESP8266 WiFi board, is USB powered and the same is interfaced with various home appliances like light, fan, bulb and charger through the four SPDT relay channels by means of 230Vpower supply. The ESP8266 WiFi board acts as webserver for the system and it sets number of GPIO pins equal to the number of home appliances. The aim is to create a simple HTTP server through which the status of GPIO pins of ESP8266 is altered depending upon there quest. An example of changing the status of GPIO2 pin Once the Node MCU is powered up using its USB port it attempts to discover the access point whose SSID and password have been stored already. This access point may be connected to the Internet using either wired or wireless medium or cellular connectivity. The code is uploaded with required libraries [12] to the Node MCU using the Arduino IDE. Once the ESP8266finds the matched combination of that particular SSID and Password, it connects to the access point and be-comes part of the WLAN. The Node MCU has already been programmed to act as web server with port address of 80. The Server IP is displayed in the serial monitor of Arduino IDE which is the local IP of the server. Then, it listens using port 80 and lets the client upload its data. Depending on the data, the status of the GPIO pins of the ESP8266 is modified and in turn the relay connected to the corresponding GPIO pin is controlled. The relay acts as a switch to control 220v AC power to the domestic appliance. Table I provides the URLs used to turn on and off AC power to various appliances.

CONCLUSION

This AC power control system has numerous applications in the domestic as well as industrial areas. In conclusion, this low cost system is to design to improve the standard living in home. The remote control function by smart phone provides help and assistance especially to disabled and elderly. Furthermore modern day wireless technologies like IOT and Bluetooth etc means remote control from a faraway distance is easily possible. This increases its scope and helps in better resolving of safety issues. The developed system eliminates the stress of human manual switching and to introduce flexibility of control without direct contact to switches even such that could be easily done via an android phone application at any comfortable point at domestic premises within the wireless coverage distance. The system makes switching boundless within the Bluetooth 7m coverage. Thus this paper has achieved its target using the architecture of a Bluetooth based switching automation of domestic electrical powered appliances through application software on android phone platform. With this, user can switch appliances 'ON' and 'OFF' on his/her bed or any comfortable spot through hand android phone. Nevertheless, the user usage distant is limited to the Bluetooth coverage length of about 7 meters. Future research may be geared towards developing a household switching device that can beyond 7m coverage however without charges. Two layers circuit board can be designed and used in place of single layer circuit board for easier soldiering work and

Neat ness to commercialize the product 2 OFF.

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