

IOT Based Home Automation System over the Cloud

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Abstract:

With development of Automation technology, life is getting straightforward and easier in all feature. In today's world computerized systems are being favor over laboring system. With the speedy expand in the number of users of internet over the past decennary has made Internet a bit and pack of life, and IoT is the fresh and appear internet high tech. Internet of things is a enlarge network of everyday object- from industrial machine to consumer goods that can share facts and complete piece of work while you Wireless Home Automation system 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 globe, an electronic home is sometimes called a smart home. It is meant to save the electricity and human potency. The home automation system different from other system by allowing the user to operate the system from anywhere around the world internet.

In this paper we present a Home Automation system (HAS) that employs the integration of cloud networking, wireless communication, to provide the user with remote control of various lights, fans, and appliances within their home and storing the data in the cloud.

Keywords: - Blynk, HAS, Ethernet, IoT, Wi-Fi, Google assistant.

I. INTRODUCTION

Home automatize is erection automatize for a home, labeled a summer home. A home automation system will invigilator and predomination home virtue such as lighting, humidity, merrymaking systems, and apparatus. It may also insert home armament such as access control and alarm systems. When joined with the Internet, home article is an important essential of the Internet of effects.

A home automatize system sometimes connects self-controlled devices to a central hub or "pylon". The program for control of the system uses either wall-mounted terminals, tablet or desktop computers, a movable application, or an internet interface which will even be accessible off-line through the Internet.

While there are many attempt peddlers, there are accumulating trouble in route open source systems. However, there are issues with the current state of home automation including a lack of standardized security measures and deprecation of older devices without backwards compatibility. Home automation has high potential for sharing data between family members or trusted individuals for personal security and could lead to energy saving measures with a positive environmental impact in the future.

The home automation market was worth US\$5.77 billion in 2013, predicted to succeed in a market price of US\$12.81 billion by the year 2020.

II. LITERATURE SURVEY

Bluetooth based home automation system using cell phones: - In Bluetooth based home automation system the home appliances are connected to the Arduino BT board at input output ports using relay. The program of Arduino BT board is based on high level interactive C language of microcontrollers; the connection is made via Bluetooth. The password protection is bestow so only admitted user is acquiesce to access the implement. The

Bluetooth associate is secure between Arduino BT board and phone for wireless communication. In this system the python script is employed and it can install on any of the Symbian OS environment, it's portable. One circuit is meant and implemented for receiving the feedback from the phone, which indicate the status of the device.

To overseer and control the home appliances the system is designed and materialize using Zigbee. The device realization is manuscript and store by network organizer. For this the Wi-Fi network is employed, which uses the four switch port standard wireless ADSL modern router. The network SSID and security Wi-Fi specification are pre-figured. The message for security purpose first process by the virtual home algorithm and when it's declared safe it's re-encrypted and forward to the important network device of the house. Over Zigbee network, Zigbee controller sent messages to the top. The inviolability and immunity of all messages that are received by the virtual home principle. To reduce the expense of the system and therefore the intrusiveness of respective installation of the system Zigbee communication is useful. Because of the mobile phone and GSM technical knowledge, the GSM based home industrialization is lure to research. The SMS based home automation, GPRS based home automation and dual tone multi frequency attempt options we considered mainly for communication in GSM. In figure shows the diagram the work of A. altering, it shows how the house sensors and devices interact with the house network and communicates through GSM and SIM (subscriber identity module). The system use transducer which convert mechanism function into electrical signals which goes into microcontroller. The sensors of system convert the physical qualities like sound, temperature and humidity into another quantity like voltage. The microcontroller analysis all signal and convert them into command to know by GSM module. Select appropriate communication method among SMS, GPRS and DTFC supported the command which received GSM module.

III. PROPOSED WORK

The Power Supply will provide energy to the system through the relay and NodeMCU ESP8266 modules, in order that all equipment can work and performance properly. NodeMCU ESP8266 microcontroller also will study adjuration that are sent by the Blynk Server in TCP / IP formation which can then be reversed by giving the logic "HIGH" or "LOW" on certain pins by relay to manage the on / off of the house lights. Internet by advance Wi-Fi be remodeled the central connection between Blynk application and NodeMCU project.

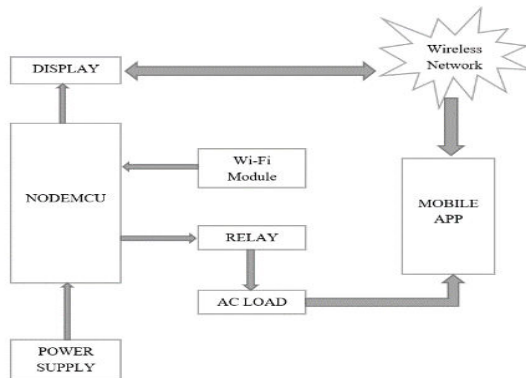


Fig. 1.1 System Block Diagram

IV. HARDWARE SPECIFICATION

NODEMCU (esp8266) has been selected because the controller for this proficiency thanks to its compact size, congeniality, easy incorporate over several other sort of controller including programmings microcircuit (PIC), Programmable Logic Controller (PLC) and others. ESP8266 is an opensource firmware that is built on top of the chip manufactured occupancy SDK. The forewarn provides an easy programming encompassment, which may be a very easy as pie and fast originate language. The ESP8266 chip associate on a canonical circuit board. The board has a built-in USB port that is already cabled up with the chip, a hardware reset

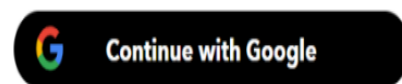
button, Wi-Fi antenna, LED lights, and canonical-sized GPIO (General Purpose Input Output) pins that can plug into a victuals board..Figure-3 shows the diagram of NODEMCU (ESP8266).It has Processor called L10632bit RISC microprocessor core based on the Tensilica Xtensa Diamond Standard 106Micro organization at 80 MHz and has a memory of 32 Kbit edification RAM ,32 Kbit instruction cache RAM, 80 Kbit user data RAM&16 KbitETS system data RAM. It has inveterate Wi-Fi module of IEEE 802.11 b/g/n Wi-Fi.

V. SOFTWARE

1.IFTTT

If This Then That, also referred to as IFTTT may be a free web-based service to make chains of straightforward conditional statements, called applets. An epaulet is activate by changes that occur within other web services such as Gmail, Facebook, Telegram, Instagram, or Pinterest. For example, an applet may send an e-mail message if the user tweets utilizea hashtag or copy a microfilm on Facebook to a user's chronicle if someone tags a user in a photo. Here, IFTTT is employed to use google assistant service and adversity service in chain. So, Google assistant is used to containment light of my home by aphorism Ok google, turn the light ON or OFF. Then IFTTT interpret the message and may send it to Adafruit's dashboard.

Get started with IFTTT



Or use your password to [sign up](#) or [sign in](#)

Fig.2.1 creating account in IFTTT Website

2. Blynk Application

This project is running by Blynk application. Download the appliance to a sensible phone from Google play store then create a project thereon with four switches and one gauge to be as a scale. Set clasp to be swap on D1, D2, D3 and D4. Then set count on A0 by reason of the sensor output is on A0 in NodeMCU board.

3. Light Control Test

The Light regulation Test is done by instant the ON / OFF button widget on the Blynk application on the relevant Android smart phone for lights and fans. This is done rear the system is turned on and connected to a Wi-Fi internet associate. If at any time the internet connection is lost or bad signal, then it also affects system performance. switches test results.

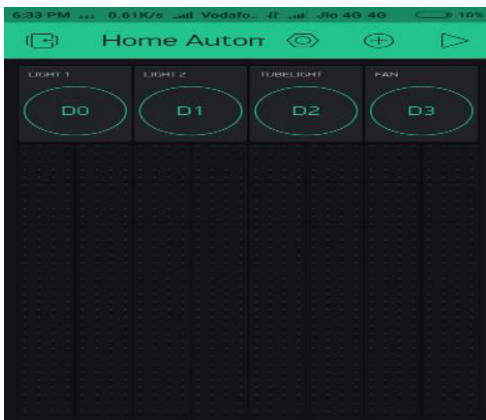


Fig.3.1 Light Control Test

VI. OBJECTIVE

The main objective that has got to be kept in mind for this work is that it's developed for creating lifestyle of a user easy. Getting things avoided actually having to form an attempt to try to to it's the most motto. aside from this, the system also aims to supply for efficient utilization of electricity. this is often achieved by the utilization of IOT technology and appliances like lights close up with none explicit command by the user



Fig1. Home automation our project

CONCLUSION

In this project, voice adjuration are given to the Google assistant. The voice commands for Google assistant have been added through IFTTT website and the Adafruit account is also linked to it. In this home automation, user have given commands to the Google assistant. Home appliances like Bulb, Fan and Motor etc., are controlled according to the given commands. The adjuration given through the Google assistant are crack the code and then sent to the microcontroller and it control the relays. The device connected to the respective relay turned On or OFF as per the users request to the Google Assistant. The microcontroller used is NodeMCU (ESP8266) and the intercommunication between the microcontroller and the application is well-established via Wi-Fi (Internet).

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