HOME AUTOMATION USING ESP8266 MODULE

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Abstract: - The industry for HOME AUTOMATION is growing. According to studies home automation product are increasing rapidly. Artificial intelligence and IoT are the future .it can be used in as well, for older people to work or for handicap. So they will not depend on other. In this project an ESPR module was used to control the light. The project consisted of jump wire, two channel relay.

I. INTRODUCTION

Nowadays, we have remote controls for our television sets and other electronic systems, which have made our lives real easy. Have you ever wondered about home automation which would give the facility of controlling tube lights, fans and other electrical appliances at home using a remote control? Off-course, Yes! But, are the available options cost-effective? If the answer is No, we have found a solution to it. We have come up with a new system called Arduino based home automation using Bluetooth. This system is super-cost effective and can give the user, the ability to control any electronic device without even spending for a remote control. This project helps the user to control all the electronic devices using his/her smartphone. Time is a very valuable thing. Everybody wants to save time as much as they can. New technologies are being introduced to save our time. To save people's time we are introducing Home Automation system using Bluetooth . With the help of this system you can control your home appliances from your mobile phone. You can turn on/off your home appliances within the range of Bluetooth.

II. LITERATURE SURVEY

1. In their paper, Tan, Lee and Soh (2002) proposed the development of an Internet-based system to allow monitoring of important process variables from a distributed control system (DCS). This paper proposes hardware and software design considerations which enable the user to access the process variables on the DCS, remotely and effectively rent designations.

2. Potamitis, Georgila, Fakotakis, and Kokkinos's, G. (2003) suggested the use of speech to interact remotely with the home appliances to perform a particular action on behalf of the user. The approach is inclined for people with disability to perform reallife operations at home by directing appliances through speech. Voice separation strategy is selected to take appropriate decision by speech recognition.

3. In the year 2006, S. M. AnamulHaque,S. M. Kamruzzaman and Md. Ashraful Islam proposed a system entitled "A System for Smart-Home Control of Appliances Based on Time and Speech Interaction" that controls the home appliances using the personal computer. This system is developed by using the Visual Basic 6.0 as programming language and Microsoft voice engine tools for speech recognition purpose. Appliances can be either controlled by timer or by voice command.

4. Jawarkar, Ahmed, Ladhake, and Thakare (2008) propose remote monitoring through mobile phone involving the use of spoken commands. The spoken commands are generated and sent in the form of text SMS to the control system and then the microcontroller on the basis of SMS takes a decision of a particular task

III. CONSTRUCTION

1. Software
The code for the microcontroller was created in Arduino IDE & blink app

Arduino IDE source:Javatpoint

blink app
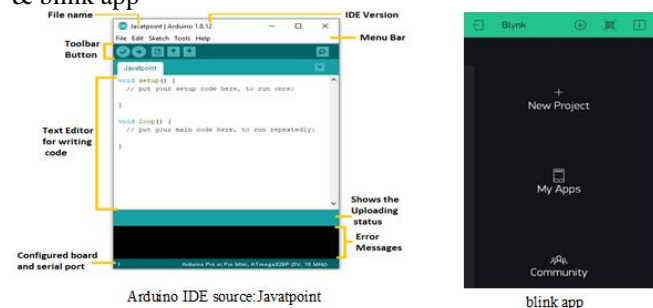
2. Hardware

a) ESP8266 Wifi Module
The ESP8266 is a low cost Wi-Fi chip with full TCP/IP stack and microcontroller unit. This small module allows microcontroller to connect to a Wi-Fi network and make simple TCP/IP connection using Hayes style commands, The ESP8266 with 1MiB of built in flash, allowing for single chip device capable of connecting to Wi-Fi. Figure 4 shows theESP8266 module structure.

The various Features of ESP8266 WIFI MODULE are as follows: -
• Processor: L106 32-bit Reduced instruction set computer processor core based on Tensilica Xtensa Diamond Standard 106 micro running at 80 MHZ*.
• 64 KiB of instruction RAM, 96 KiB of data RAM.

• External QSPI flash: 512 KiB to 4MiB.
• WPA/WPA2 authentication, or open networks.
• 16 General purpose input/output pins

b) Relay Board

A relay is an electrically operated switch. Many relay use an electromagnet to, mechanically operates a switch, but other operating principles are also used, such as solid state relay. Relay are used where it is necessary to control a circuit by a separate low power signal, or where several circuits must be controlled by one signal. Relay were used extensively in telephone exchange and early computers to perform logical operation.

c) Jump Wire

A jump wire (also known as jumper, jumper wire, jumper cable, DuPont wire or cable) is an electrical wire, or group of them in a cable, with a connector or pin at each end (or sometimes without them – simply "tinned"), which is normally used to interconnect the components of a breadboard or other prototype or test circuit, internally or with other equipment or components, without soldering.

IV. CODE

```
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

// You should get Auth Token in the Blynk App.
// Go to the Project Settings (nut icon).

char auth[] = "fUxcyjCypm7gvDuYujdLomsQ5-Od0ft7";

// Your WiFi credentials.
// Set password to "" for open networks.
char ssid[] = "suryaTech";
char pass[] = "techbhai";

void setup()
{
  // Debug console
  Serial.begin(9600);

  Blynk.begin(auth, ssid, pass);
  // You can also specify server:
  //Blynk.begin(auth, ssid, pass, "blynk-cloud.com", 80);
  //Blynk.begin(auth, ssid, pass, IPAddress(192,168,1,100), 8080);
}

void loop()
{
  Blynk.run();
}
```
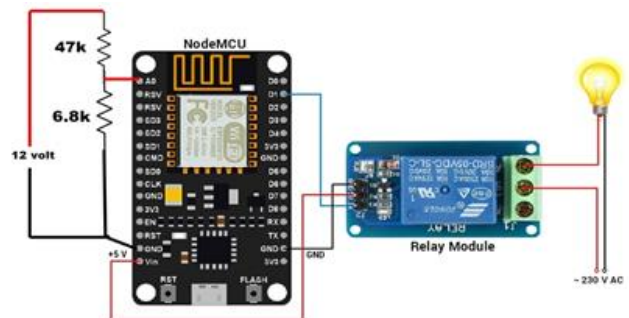

V. APPLICATIONS

• Controlled electrical fixtures such as lights and air conditioners
• Simplified garden or lawn management
• HVAC
• Controlled smart home appliances
• Enhanced safety and security at home
• Water and air quality control and monitoring
• Voice based home assistant supporting natural language
• Smart locks and switches

VI. RESULT

We can use blink app, To control the light of room.

VII. CONCLUSION

The Arduino uno and Esp8266 were studied and the Esp8266 was selected, as the controlling result is satisfying for its use in the home automation prototype developed. It was used to control the light of room. On successful implementation of home automation was successfully carried out too with

minimal errors, by coding in aurdino ide.

VIII. ACKNOWLEGMENT

REFRENCES

1. Sharma, Raj., Chirag, Pranjalkatara, Shankar, Vishnu. Proceedings of IEEE TechSym 2014 Satellite Conference VIT University, Paper on Advanced Low-Cost Security system using sensors, Arduino and GSM communication module.
2. DeepaliJavale, Mohd., Mohsen, Nandewar, Shreerang., MayurShingate. (2013). Home Automation and Security using Android ADK, (March).
3. Yavuz, E., Hasan, B., Serkan, I., Duygu, K. (2007). Safe and Secure PIC Based Remote Control Application for Intelligent Home, 7 (5) (May).
4. Sriskanthan, N., Karand, Tan. (2002). Bluetooth Based Home Automation System. Journal of Microprocessors and Microsystems, Vol. a. 26. p.281-289
5. Arduino, 'PWM' April 2020. [Online]. Available: https://www.arduino.cc/ en/tutorial/PWM [Accessed: 28- Apr -2020]
6. Wikipedia
7. Wireless Sensor Networks: Concepts, Applications, Experimentation and Analysis. 2016. p. 108. ISBN 9811004129. The use of standardized, with open standards over proprietary protocols provides the industry with the freedom to choose between suppliers with guaranteed interoperability. Standardized solutions usually have a much longer lifespan than proprietary solutions.