A

PROJECT REPORT

ON

Voice Activated

Home Automation

Submitted in partial fulfillment of the requirement for the V semester

Bachelor of Technology, Computer Science And Technology

By

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

GRAPHIC ERA DEEMED UNIVERSITY

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DECLARATION

I, **Vivek Joshi** student of **B-tech, Semester 5,** Department of Computer Science and Technology, Graphic Era Deemed University, Dehradun, declare that the technical project work entitled "Voice Activated Home Automation Using IOT" has been carried out by me and submitted in partial fulfillment of the course requirements for the award of degree in B-tech of **Graphic Era Deemed University** during the academic year **2021-2022**. The matter embodied in this synopsis has not been submitted to any other university or institution for the award of any other degree or diploma.

Date: 17/12/21

CERTIFICATE

This is to certify that the project report entitled "Voice Automated Home Automation Using IOT" is a bonafide project work carried out by Vivek Joshi , roll n0-2015402.. in partial fulfillment of award of degree of B-tech of Graphic Era Deemed University, Dehradun during the academic year 2021-2022. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated. The project has been approved as it satisfies the academic requirements associated with the degree mentioned.

Dr. Devesh Pratap Singh,

Head of   Dept. of Computer Science

ACKNOWLEDGEMENT

Here by I am submitting the project report on **"Home Automation Using IOT"** as per the scheme of Graphic Era Deemed University, Dehradun.

I would like to express our sincere gratitude to **Dr. Devesh Pratap Singh,** Head of Dept. of Computer Science, for providing a congenial environment to work in and carry out our project.

I consider it mine cardinal duty to express the deepest sense of gratitude to Dr. **Sourav Jain** Asst. Professor, Department of Computer Science and Application for the invaluable guidance extended at every stage and in every possible way.

I would like to also thanks Skyfi labs for helping me in better understanding each component of topic in an interesting way.

Finally I am very much thankful to all the faculty members of the Department of Computer Science and Technology, friends and our parents for their constant encouragement, support and help throughout the period of project conduction.

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INTRODUCTION

Today, the world is entering to the new phase of life with modern technology, everything in this world now can be controlled with a click, weather it is launching of a missile to the switching ON/OFF of the lights in household.

The project is all about controlling the home appliances using a Bluetooth device i.e. phone, tab etc. and collecting all data of appliances and updating on cloud, so that it can be used for future references, for e.g. personal home appliances bill. Bsically home automation is simply a automation of household activities by interfacing the home appliances in the house through electronic and proper communication protocols. This is also known as Domotics.

World is heading up to M2M (machine to machine) communication so that human intervention is as much as low so that human resource can be used in useful works and are not wasted for useless purposes. This project is brief introduction for working of our household appliances.

This project enables our smart phones to be remote of every appliance in our household, adding to one more feature to this smart technology and Arduino Uno makes this possible in very efficient way.Hence this project is a great example of the future technology and it's application.

Tools And Software Used

→In order to accomplish this project following tools were used:

→Arduino UNO board

→Bluetooth Module

→Laptop And Arduino Board connector

→A 9v Battery

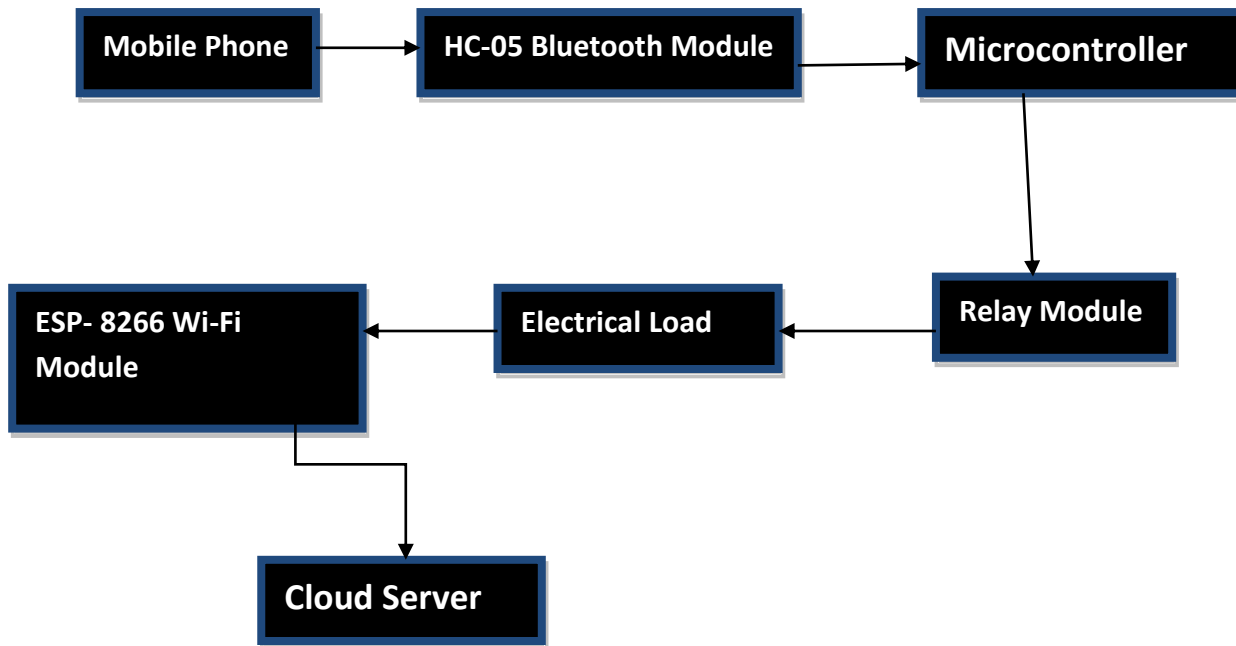→Male To Female Pin Connector

→Female To Female Pin Connector

→Electrical wires

→Appliances (here used bulb)

→ For coding purpose arduino ide was used and code was written in arduino sketch using C++ language.

→ A sketch is the name that Arduino uses for a program. It's the unit of code that is uploaded to and run on an Arduino board.

Components Of Home Automation

Mobile Phone	→	HC-05 Bluetooth Module	→	Microcontroller

ESP- 8266 Wi-Fi Module	←	Electrical Load	←	Relay Module

Cloud Server

Methodology

Building up a project on Home-Automation was a great piece of experience, it not only help me in gathering information about new technologies but also made me realize the use of programming in real life.

Discussing about how this learning process started and journey up to building up this project goes like this:

First of all we need Arduino UNO embedded board which has following components(These are already embedded):

- 8-bit microcontroller with on chip flash memory for program storage. Arduino mostly uses AVR mega series microcontroller developed by Atmel, here I have used AT Mega 328 microcontroller.
- An oscillator - It work as a clock for microcontroller, here it is used of 18MHZ frequency.
- A USB plug in order to load our program and a power supply port.
- And further there are analog pins and digital pins (comprising PWM pins).

Second is to make connections of arduino board with other peripheral devices like ESP -8266 , HC-05Bluetooth module, Relay board. This is to be done as per connection schematic--➔

Component 1	Pin	Pin Description		Pin	Pin Description	Component 2
Arduino Uno	12	Digital Pin (Receiver)		TX	Transmitter	HC – 05 Bluetooth Module
	13	Digital Pin (Transmitter)	➔	RX	Receiver	
	5V	Vcc		Vcc	-	
	GND	Ground		GND	Ground	

Component 1	Terminals/Pins		Terminals/Pins	Component 2
Relay Driver Module - Electrical Terminals	R1 – C	→	Negative Terminal (Black Wire)	Plug 1
	R1 – NO		Negative Terminal	Bulb Holder 1
	R2 – C	→	Negative Terminal (Black Wire)	Plug 2
	R2 – NO		Negative Terminal	Bulb Holder 2

Component 1	Terminals/Pins		Terminals/Pins	Component 2
Relay Driver Module - Signal Terminals	R1	→	Digital Pin 9	Arduino Uno
	R2		Digital Pin 8	
	Vcc		5V	

Component 1	Pin	Pin Description		Pin	Pin Description	Component 2
Arduino Uno	3	Receiver	→	Tx	Transmitter	ESP8266
	4	Transmitter		Rx	Receiver	
	3V3	3.3 V		Vcc	-	
				CH_PD	Chip Enable	
	GND	Ground		GND	Ground	

Now put the bandwidth(bits per second) in 9600 of arduino(Serial Monitor) , esp8266, HC-05 bluetooth module so that all devices can communicate with each other.

Now upload the coding part that is sketch to arduino board using arduino IDE.

Now using Mobile phone open the app for controlling the lights, and connect phone Bluetooth with HC-05.

Now you can operate your home appliance using your smartphone only, and the data of using appliance gets updated in cloud(here use thingspeak.com).

Conclusion:

The completion of the project went quiet well, I learned much new things while I was building up it, and I get up to know various platforms which help us to learn all this stuff. I was able to learn the practical use of IOT. The practical helped me to learn the debugging of code and development tools of home automation Project. Arduino provides an open platform for developers to make up projects like this one.

Overall working on this project was great fun as I came up with great piece of knowledge and understanding of the topic.

Reference:

Skifi Labs(online teaching platform)

Youtube

www.google.com