# VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI-590018

## NAVKIS COLLEGE OF ENGINEERING,HASSAN

A Mini-project synopsis
on

# VOICE ASSISTED HOME AUTOMATION


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# Introduction:

In today's rapidly evolving world, technology has seeped into every aspect of our lives, revolutionizing the way we interact with our surroundings. With the ability to seamlessly connecting various devices and appliances.

- IoT-based home automation has revolutionized the way we live.
- Through the integration of these network connectivity, and actuators, this technology is making our life more comfortable.
- By harnessing the power of IoT, home automation is poised to transform the way we perceive and interact with our living spaces

# Project objectives:

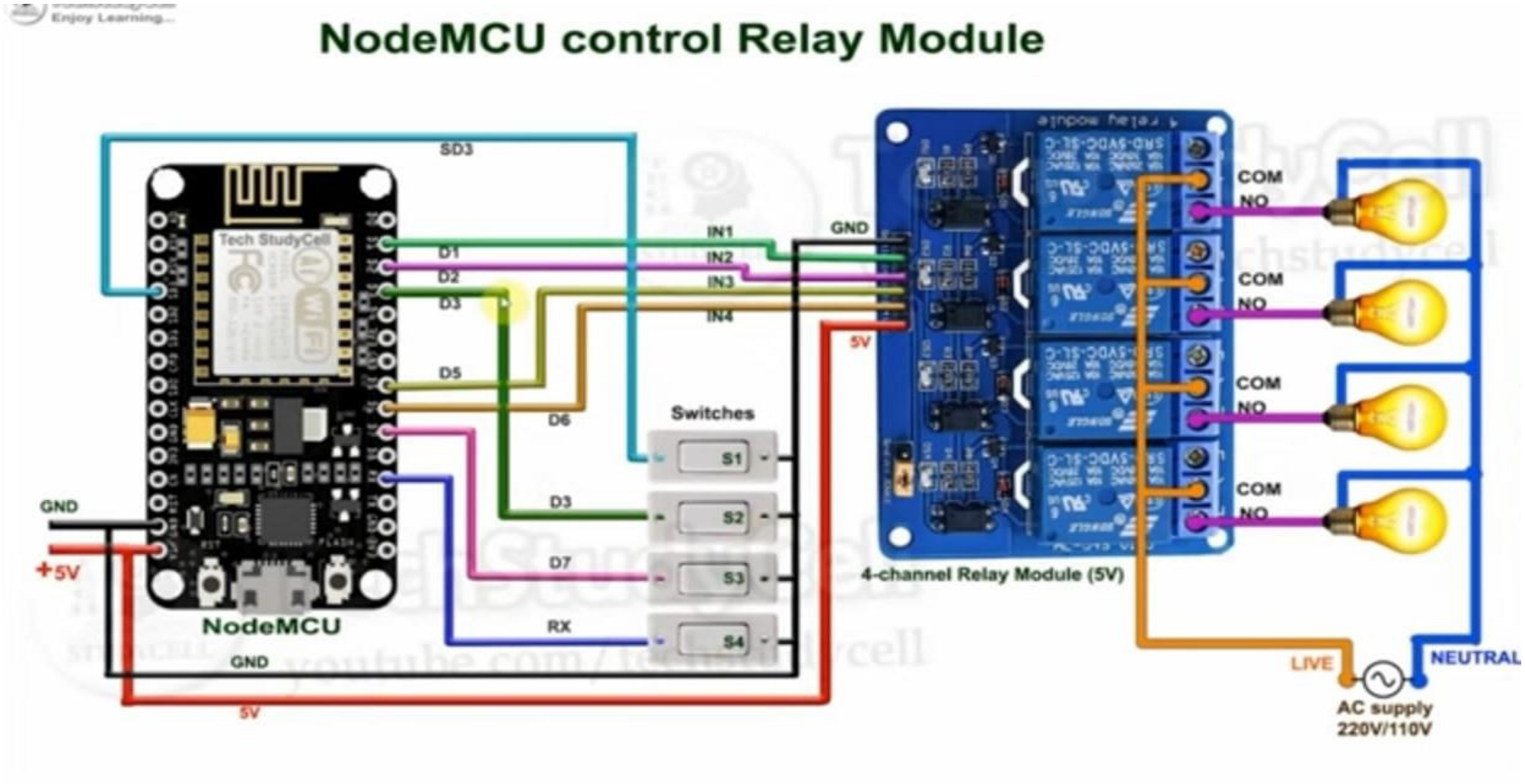
- To enhance convenience for homeowners by using voice commands, users can easily control and operate various home devices without the need for physical interaction.
- To enable individuals who are differentially abled or limited mobility to interact with and control their home devices independently.
- By removing physical barriers and providing an alternative control method, voice-assisted home automation promotes inclusivity and empowers all users to enjoy the benefits of a smart home.

# Methodology :

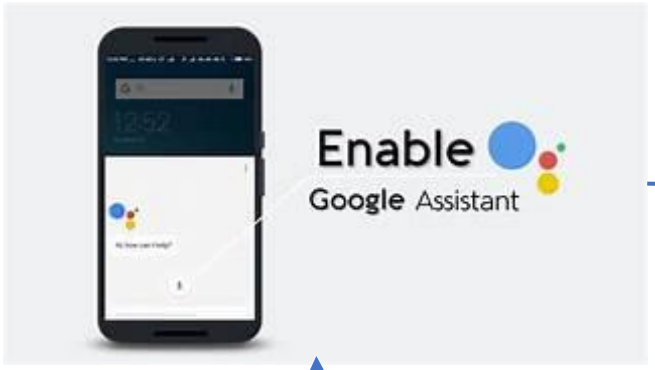
Steps involved in Voice assisted home automation

- Set up Node MCU with Arduino IDE
- Connect necessary hardware components.
- Install required libraries for Node MCU and Google Assistant.
- Set up voice commands using Arduino IDE.
- Connect the Node MCU to the phone using Wi-Fi.
- To test give the specified command such as “turn on green bulb” through Google Assistant.
- Observe the output.

# Circuit diagram:

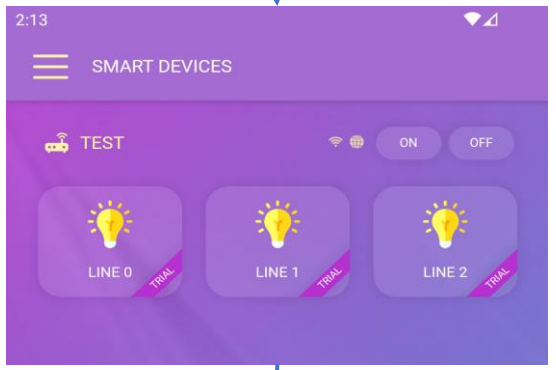


# Block diagram:




Connectivity
Via CADIO

Turn ON light
or
Turn OFF light




Cadio

0 for OFF
1 for ON

Send data
to Node MCU

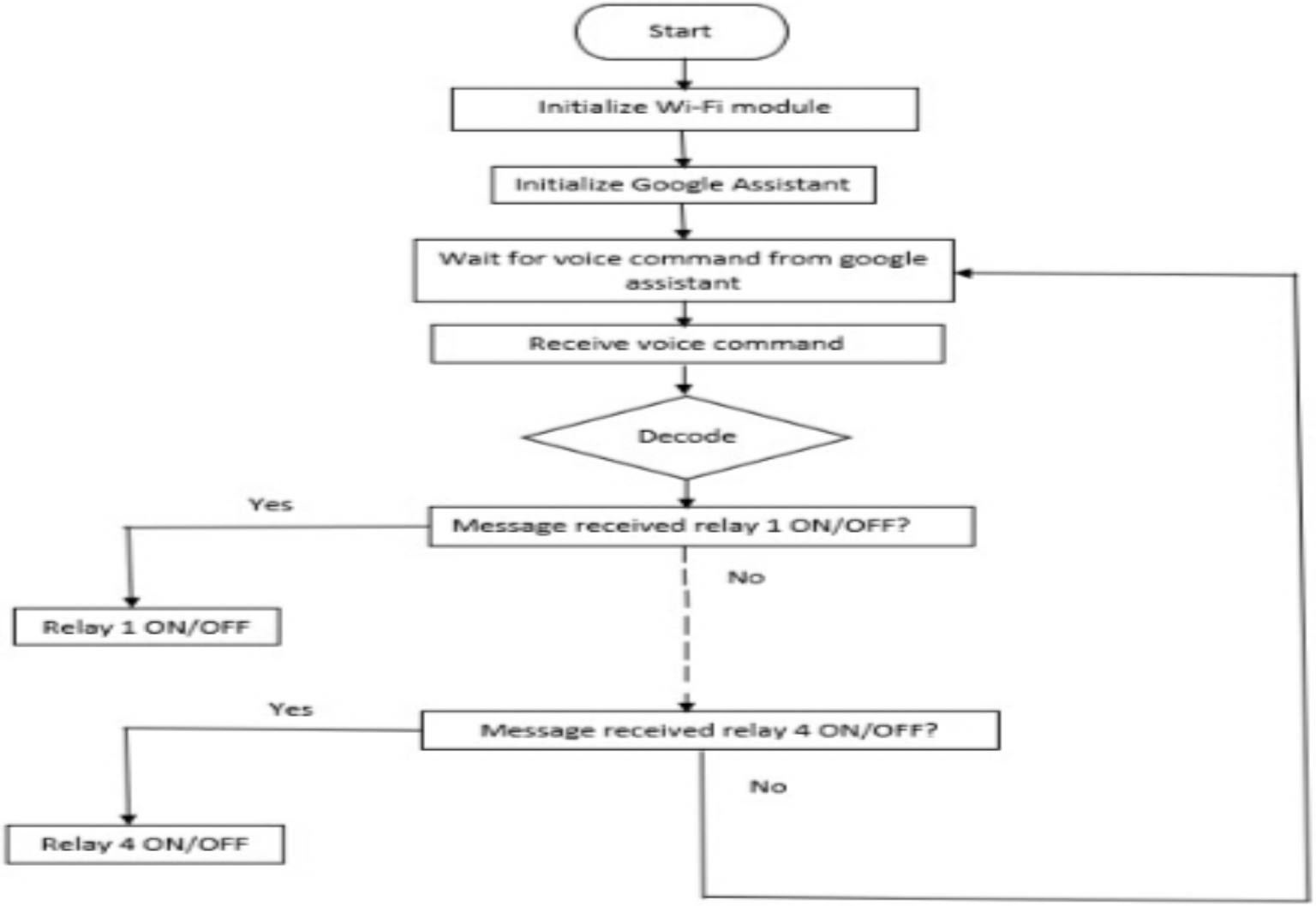
Switch light
ON or OFF
Via Relay

Feedback

Turning light
ON or OFF

Connectivity
Via CADIO

# Flow chart :


Start
Initialize Wi-Fi module
Initialize Google Assistant
Wait for voice command from google assistant
Receive voice command
Decode
Message received relay 1 ON/OFF?
Yes
No
Relay 1 ON/OFF
Message received relay 4 ON/OFF?
Yes
No
Relay 4 ON/OFF

# Hardware and software Components :

**Hardware Components :**

- Node MCU (ESP8266)
- 4-channel relay module
- Switches and bread boards
- Bulb, Fan
- Connecting wires

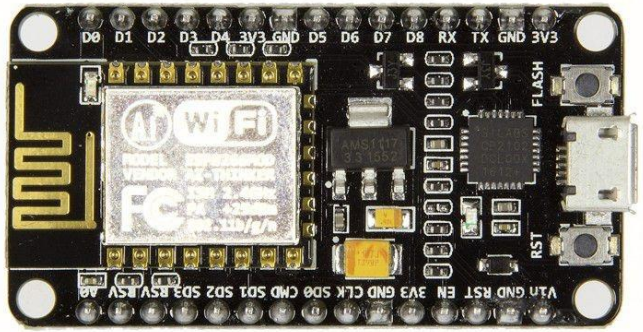
**Software Components:**

- CADIO IO applications

# Hardware Components:

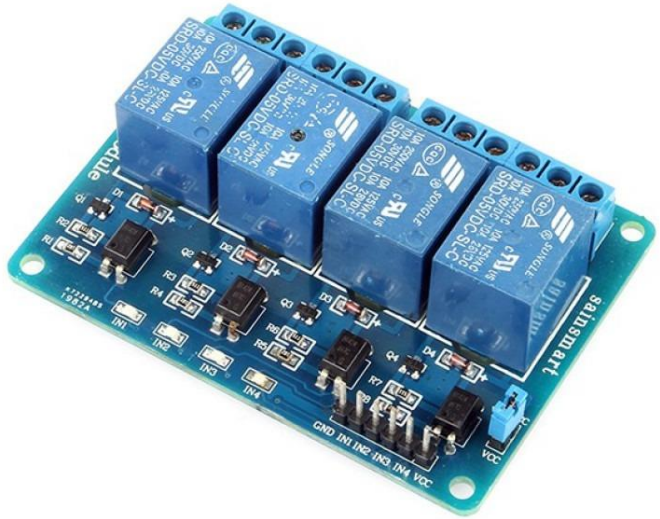
## Node MCU (ESP8266) :

- The ESP8266 chip on the NodeMCU board provides built-in Wi-Fi connectivity, allowing it to connect to Wi-Fi networks and communicate with other devices over the internet. This feature enables the NodeMCU to interact with cloud services, web servers, and other IoT devices.
- The NodeMCU is not just a Wi-Fi module but also a fully functional microcontroller board. It is powered by the ESP8266 chip, which combines a microcontroller unit (MCU) with Wi-Fi capabilities. This allows developers to run their firmware directly on the NodeMCU without needing an external microcontroller.

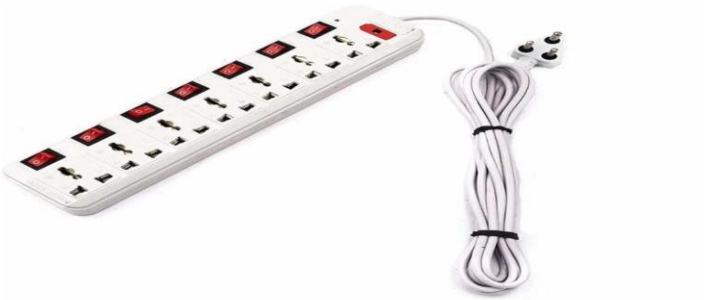


# 4-Channel relay module :

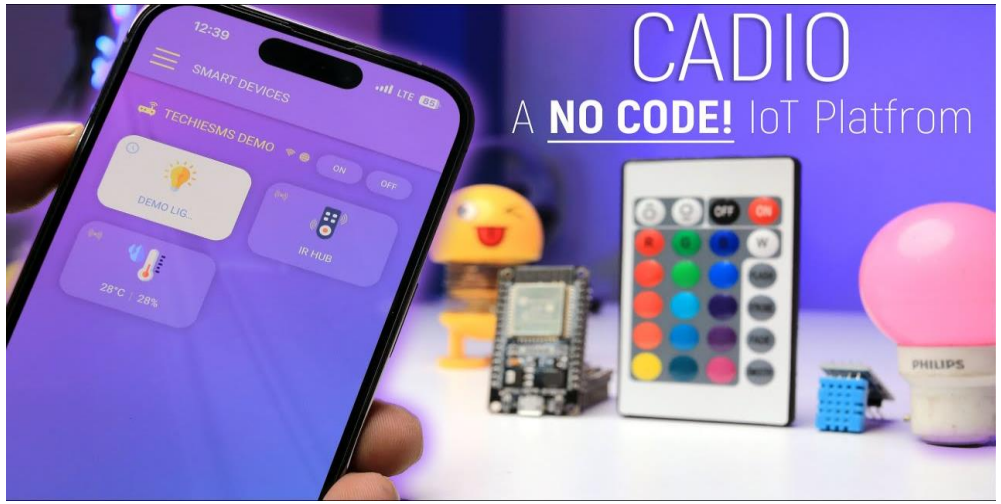
- A 4-channel relay module provides four independent relays, which means it can control up to four separate electrical circuits. Each relay has its own input control signal, allowing for individual activation and deactivation.
- Each relay on the module acts as an electromagnetic switch that can control the flow of current in a separate circuit. When the relay coil is energized with a low-voltage signal, the associated circuit is closed, allowing the flow of current. When the coil is de-energized, the circuit is opened, interrupting the current flow.



# Bulb, Fan, Switches



# Software Components:




## Cadio IO application:

- Control relays with voice commands & switches
- CADIO is complete home automation platform allows you to build and control smart home devices, With many new features developed to give you the best smart home experience
- Monitor real-time feedback in the Cadio
- Very Easy Device Configuration and Control Over Local WiFi Network
- ON/OFF Devices

# Results :

- The main objective of this home automation is to eliminate physical interaction between the users and home appliances
- The devices can be controlled through manual switches, Software application,and also through voice commands
- On and off operation of the devices

# References :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2. 2. “Home Automation Based On IoT Using Google Assistant”This was done by D.Swathi and V.S.D.Rekha and published in International Journal of Advanced Research Trends in Engineering and Technology (IJARTET), Vol. 6, Issue 1, January 2019.
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# Thank You