Home Automation

WITH ESP8266

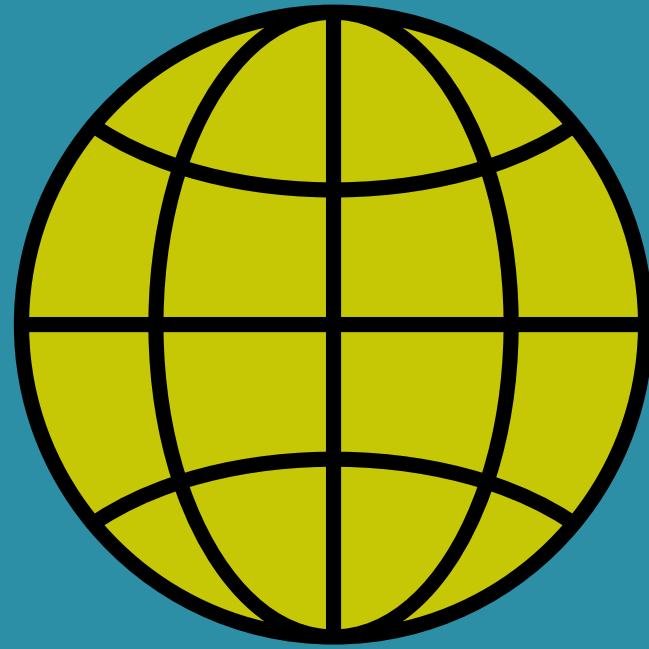**Team Members**
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STEP ONE

Problem Statement

INTERNET OF THINGS

Many home devices now have WiFi and can interact with other home devices, smartphone applications and home computers.
An issue is that these devices cannot communicate with each other or require an additional device to do so and need an individual application on the smartphone to be controlled. A much better option is to unify these devices into one program/device that controls them. As an example, one can control the lights, microwave, oven, tv, airconditioning and door locks through one application on the smartphone.

STEP TWO

INTRODUCTION

This presents a home automation system prototype that enables users to control a bulb remotely using an internet-based web server. The prototype consists of a NodeMCU device, single channel relay, and a bulb that is connected to the relay. NodeMCU is integrated with a Telegram server through Arduino IDE. With the help of a Telegram bot, users can control the bulb via the web server. The system provides users with the convenience of controlling a light source from anywhere as long as they have access to the internet. This presentation explains the design, implementation, and testing of the home automation system prototype.

COMPONENTS

1.Node MCU
2.Relay Module
3.Bulb
4.PC or Mobile
4.Bread Board
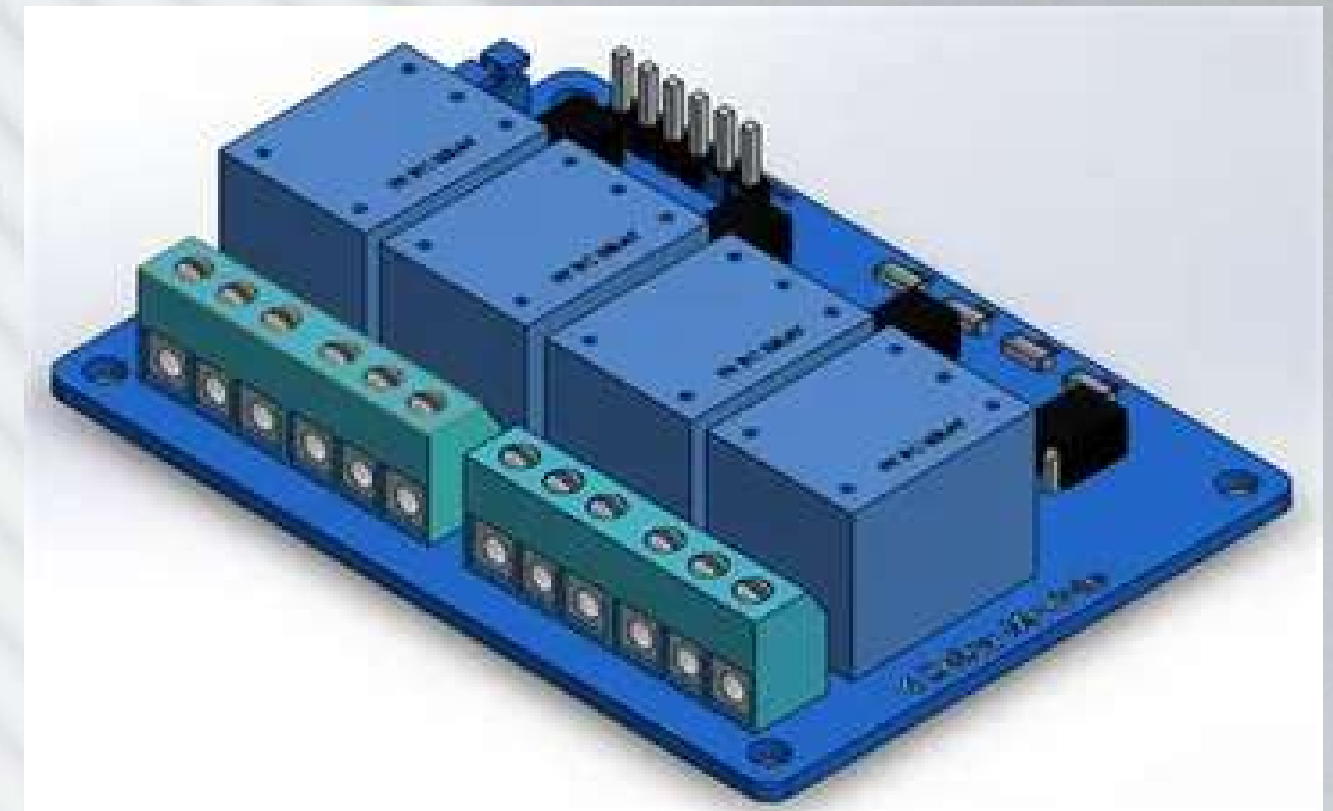
Node MCU

NodeMCU is an open source Lua based firmware. It has one analog pin (AO) and nine digital pins (DO – D9). It also has the support for serial communication protocols such as UART, SPI, I2C etc... Hence it can be used for interfacing with devices such as sensors, displays etc..
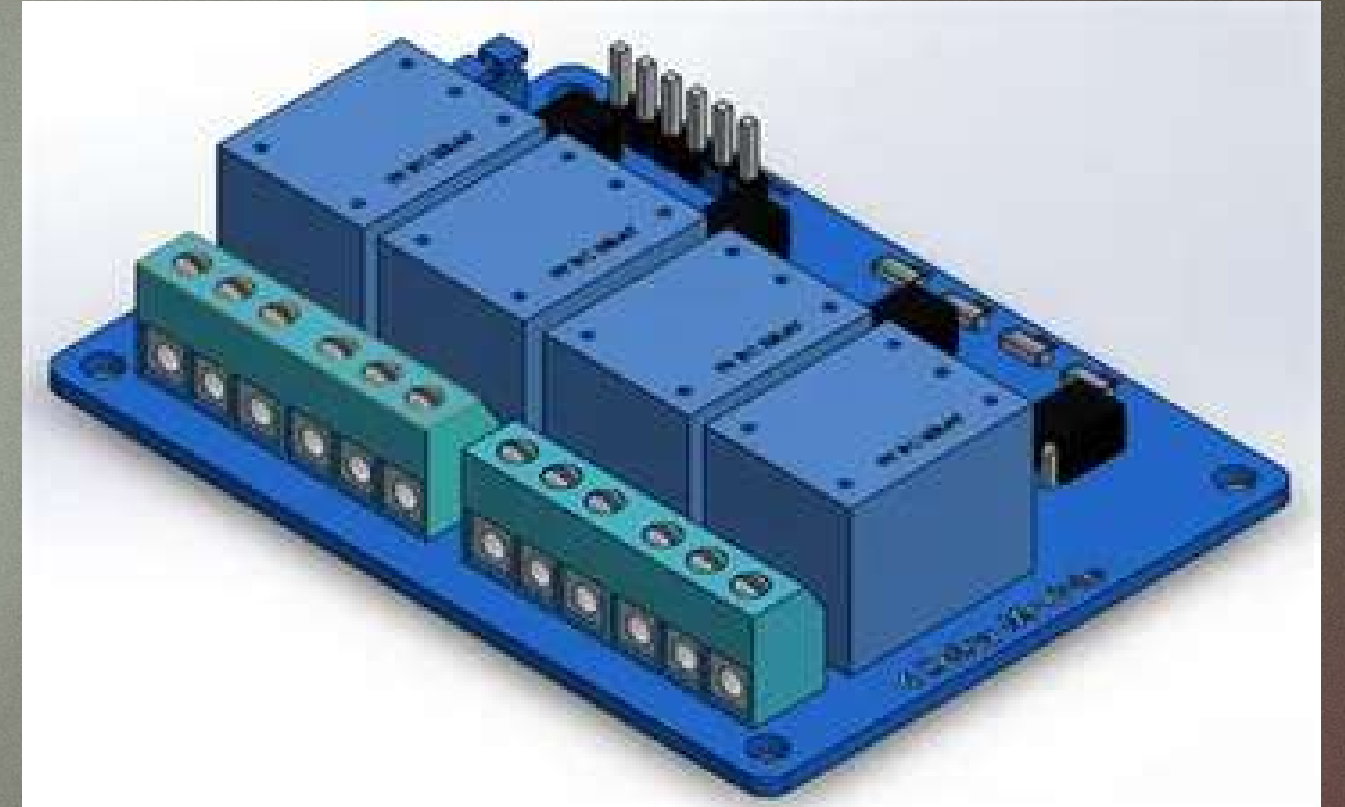.

Main Feature

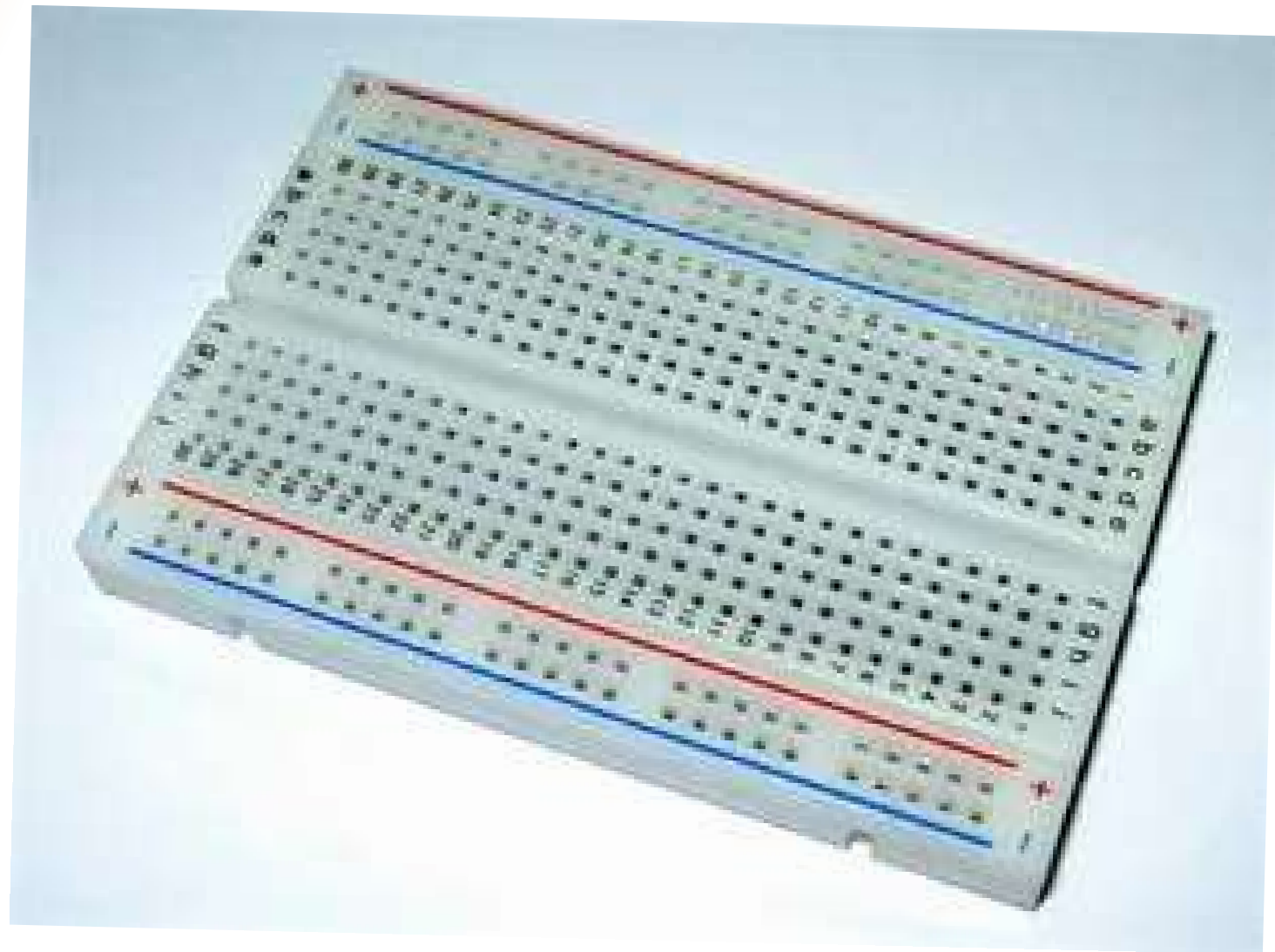The main feature of NodeMCU is its inbuilt WiFi functionality

Relay Module

It works by using an electromagnet to switch the state of one or more contacts, which can be used to turn on or off a larger load. The relay module typically consists of a small circuit board with a control input, power supply connections, and one or more output contacts.
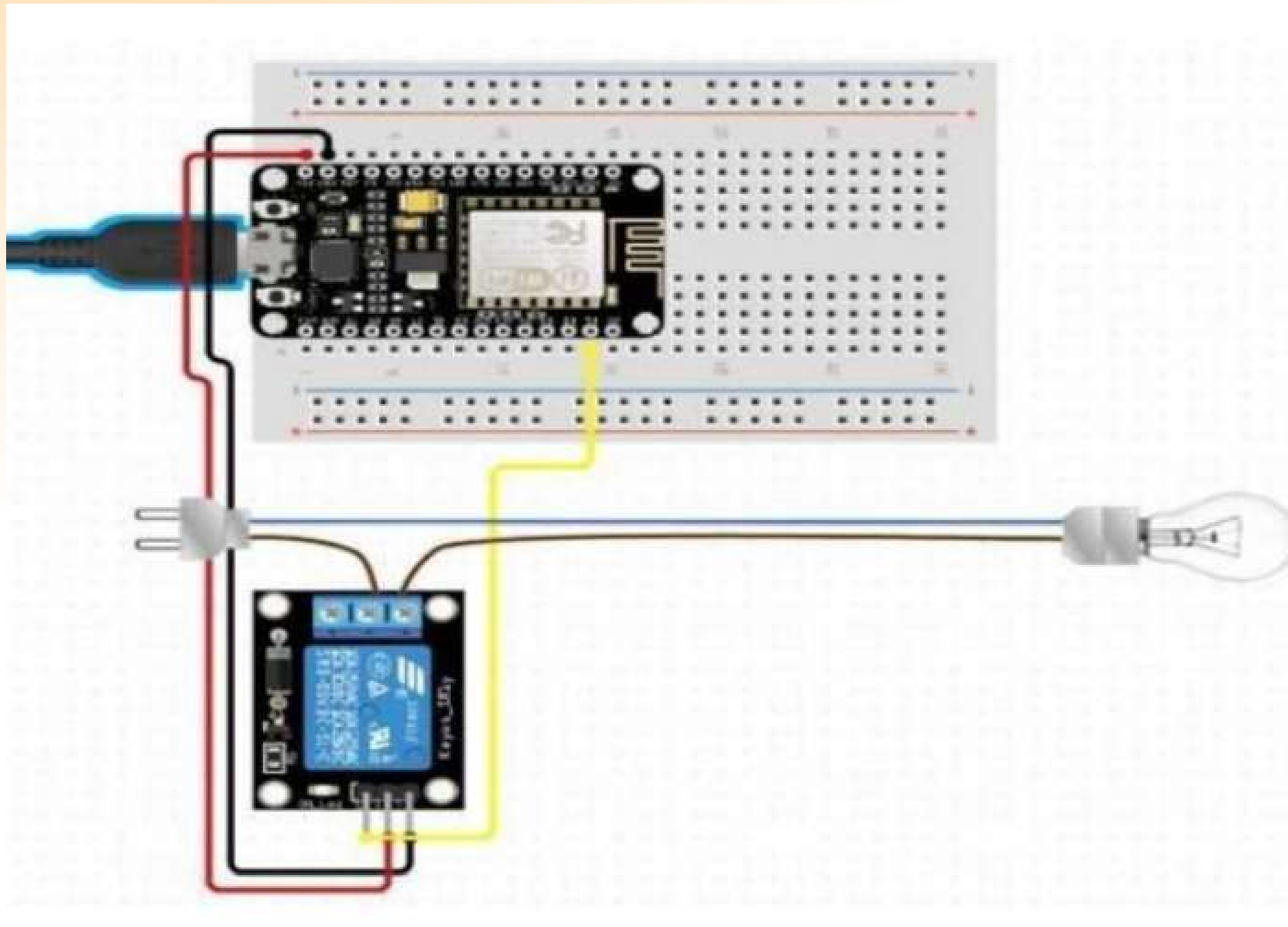
Bread Board

Small holes or sockets that can hold electronic components and wires. some having built-in power supplies and The rows and columns of holes on a breadboard are typically connected in a specific pattern
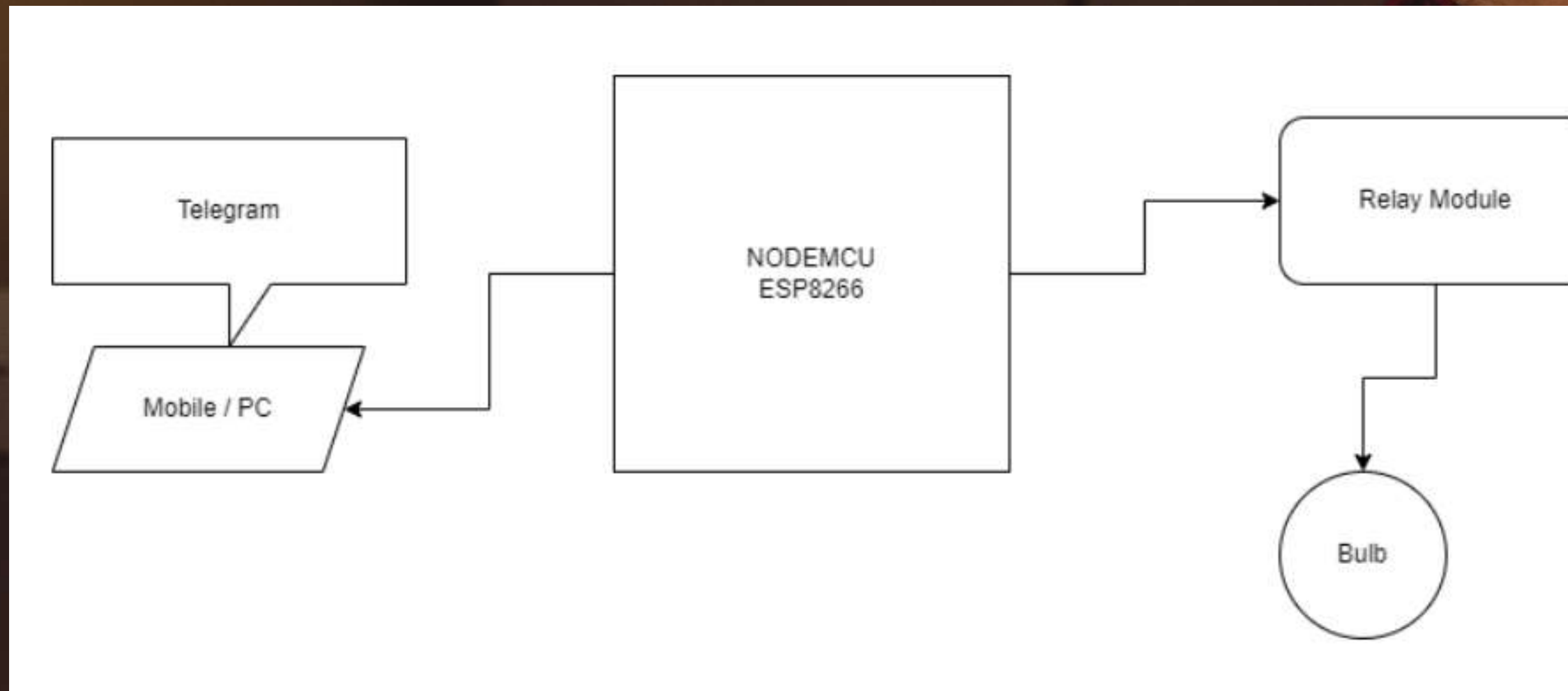
Circuit

The node mcu is connected to the power source and the relay module , the inbuilt wifi module connected to the our chat bot whaterver instruction given in the chat bot ,the signals can be generated by the node mcu , and the power supply controlled by the realy module.

Block Diagram

BUSINESS MODEL CANVAS

Business Model Canvas

Designed for:	Designed by:	Date:	Version:
Home Automation	Team 17	04.04.2023	01

Key Partners

• Electronic component providers (Buyer-supplier relationship)
• Home automation solution providers (Joint venture)

Key Activities

• Research and development
• Production and manufacturing
• Installation
• Technical support
• Software updates and upgrades

Key Resources

Physical Resources
• NodeMCU device
• Single channel relay
• Bulb
• Arduino IDE
• Telegram server
• Telegram bot

Value Propositions

• Convenient control of light sources from anywhere
• Easy to install and use
• Cost-effective solution

Customer Relationships

• Technical support
• On-site installation

Channels

• Online sales
• Social media
• Direct sales

Customer Segments

• Homeowners who want to control light sources remotely.
• Home automation solution providers.

Cost Structure

• Production costs
• Shipping and delivery costs
• Installation costs
• Software updates and upgrades costs
• Customer service costs.

Revenue Streams

• Sales of home automation products
• Installation and service fees
• Software updates and upgrades fees.