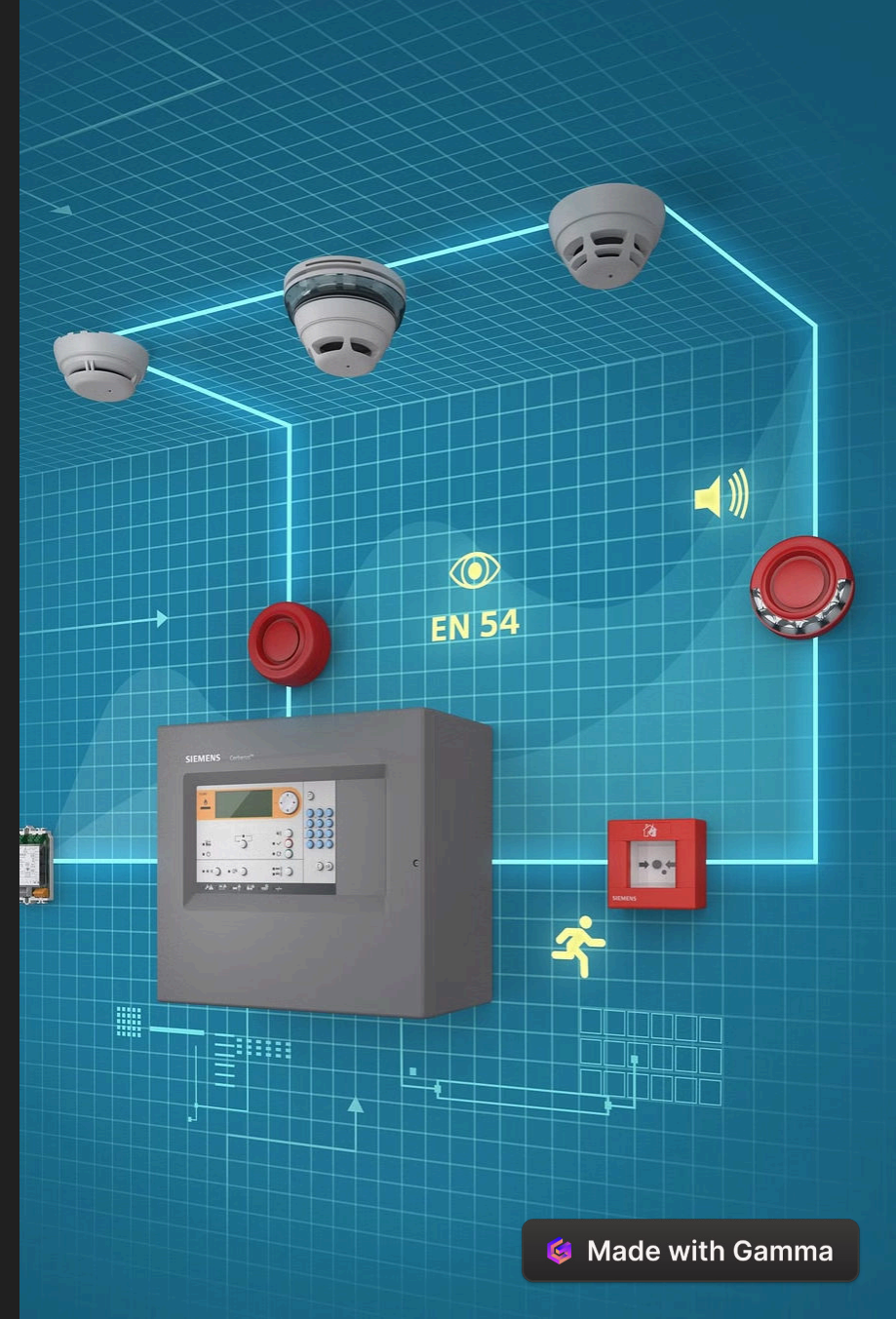


Flame and Gas Detection System

📄 Made by Sharan ram, Siddarth



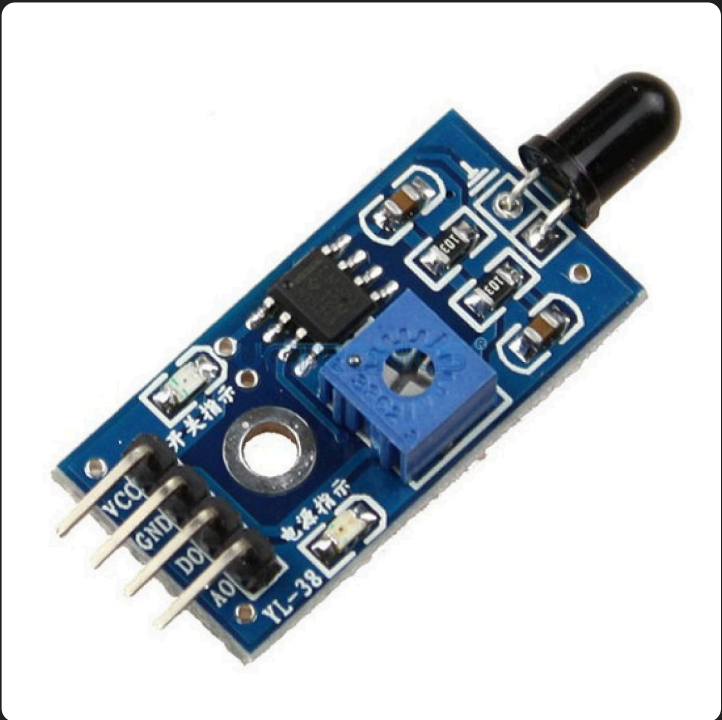
Purpose of the project

The purpose of flame and gas detection systems is to enhance safety by providing early detection of fire hazards and gas leaks, thereby preventing potential disasters and ensuring the protection of people, property, and the environment. We have integrated the BLYNK app in mobile so that the user gets an alert notification when there is a gas leakage or flame detected by the sensors.

Hardware Components and Sensor Integration

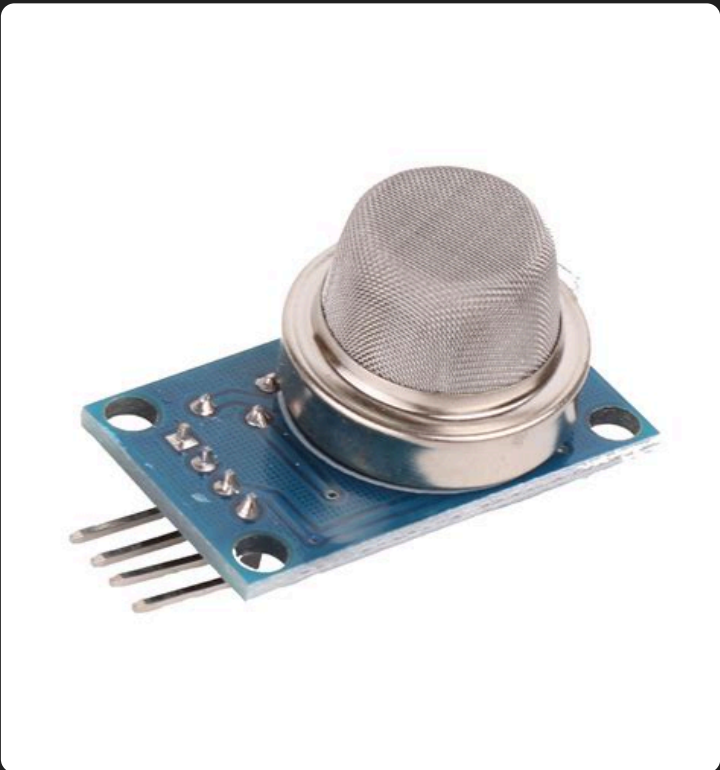
1 Flame Sensor

Detects the infrared radiation emitted by flames for rapid fire identification.



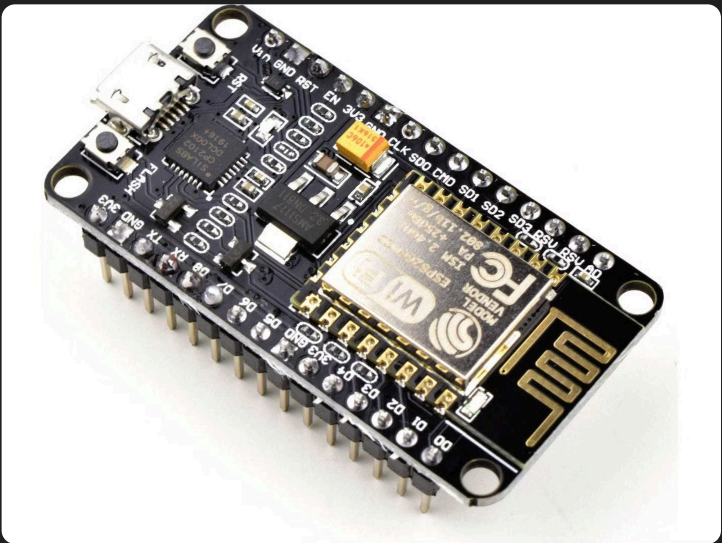
2 Gas Sensor

They can detect the presence and concentration of gases in the environment such as methane (CH₄), ammonia (NH₃), hydrogen sulfide (H₂S)



3 Node MCU Controller

The ESP8266 is a low-cost Wi-Fi microchip with full TCP/IP stack and microcontroller capabilities, It includes a built-in microcontroller capable of executing user-defined programs.



4 Water Pump

A 5V water pump is a small, electrically powered device designed to move water or other liquids in various applications, typically powered by a 5-volt direct current (DC) source.



5 Relay Module

A single channel relay is an electromechanical switch used to control a high-power or high-voltage circuit with a low-power signal, typically from a microcontroller or other low-voltage device.

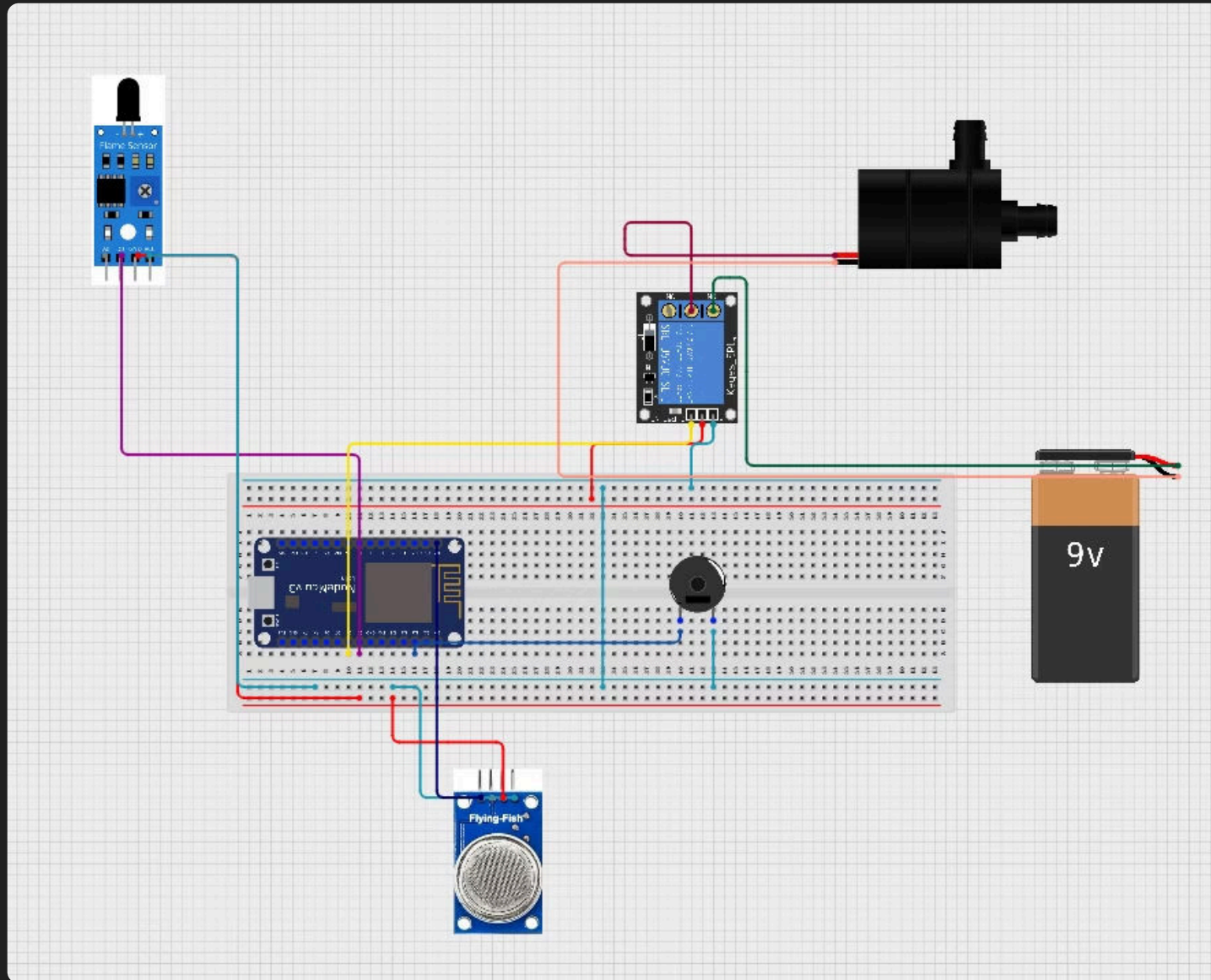


Software Used

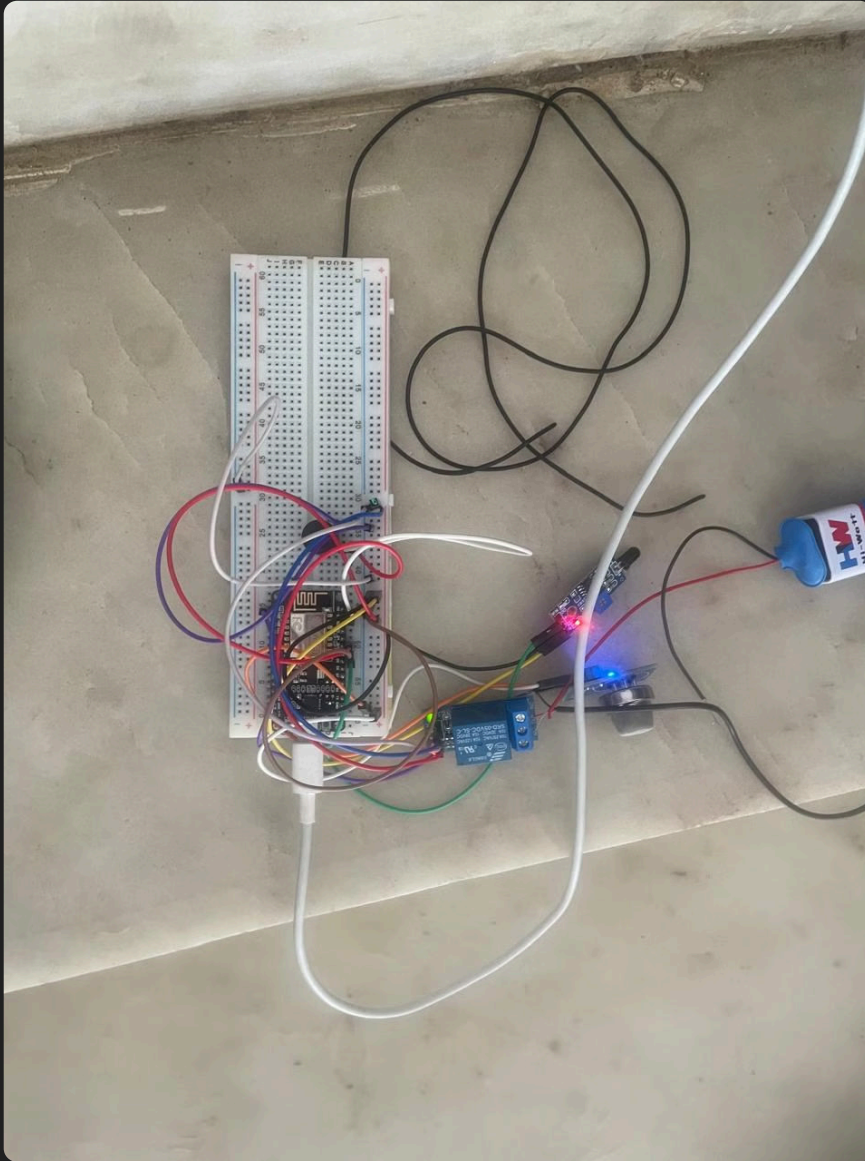
Arduino IDE

The Arduino Integrated Development Environment (IDE) is a software application used for writing, compiling, and uploading code to Arduino microcontroller boards. It provides an easy-to-use platform for developing and debugging embedded systems projects

CIRCUIT DIAGRAM



Result



Conclusion and Future Developments

Enhanced Sensor Capabilities

Integrating advanced technologies like computer vision and gas sensors.

Predictive Maintenance

Using AI to anticipate equipment failures and schedule proactive maintenance.

Voice Control Integration

Enabling users to monitor and control the system through voice commands.

Decentralized Intelligence

Leveraging edge computing to enable autonomous decision-making at the device level.

THANK YOU