TITLE : LPG Gas Leakage Detector with Buzzer Alert and Notification System

ABSTRACT :

Our project presents a real-time gas leakage detection system that uses an MQ2 gas sensor, ESP8266 microcontroller, buzzer, and smartphone notification alert mechanism. When a gas leak is detected, the system triggers an audible buzzer and sends a notification to alert users, even remotely. This dual-alert system enhances safety and minimizes risks in residential, commercial, and industrial settings.

OBJECTIVES :

1. Develop a reliable gas leakage detection system for safety.

2. Implement real-time monitoring using sensor technology.

3. Ensure instant alerting through a buzzer and smartphone notification.

4. Provide a user-friendly and cost-effective solution.

PROBLEM STATEMENT :

1. Gas leaks are a major safety concern, leading to accidents, fires, and fatalities.

2. Traditional gas detectors rely only on buzzer alerts, which may go unnoticed if no one is nearby.

3. There is a need for a smart detection system that provides remote alerts for timely action.

METHODOLOGY :

1. Gas Sensor Detection:

MQ2 sensor continuously monitors LPG concentration

2. Signal Processing:

ESP8266 microcontroller analyzes sensor data

3. Threshold Check:

If gas levels exceed a set limit, the system triggers an alert

4. Buzzer Alert:

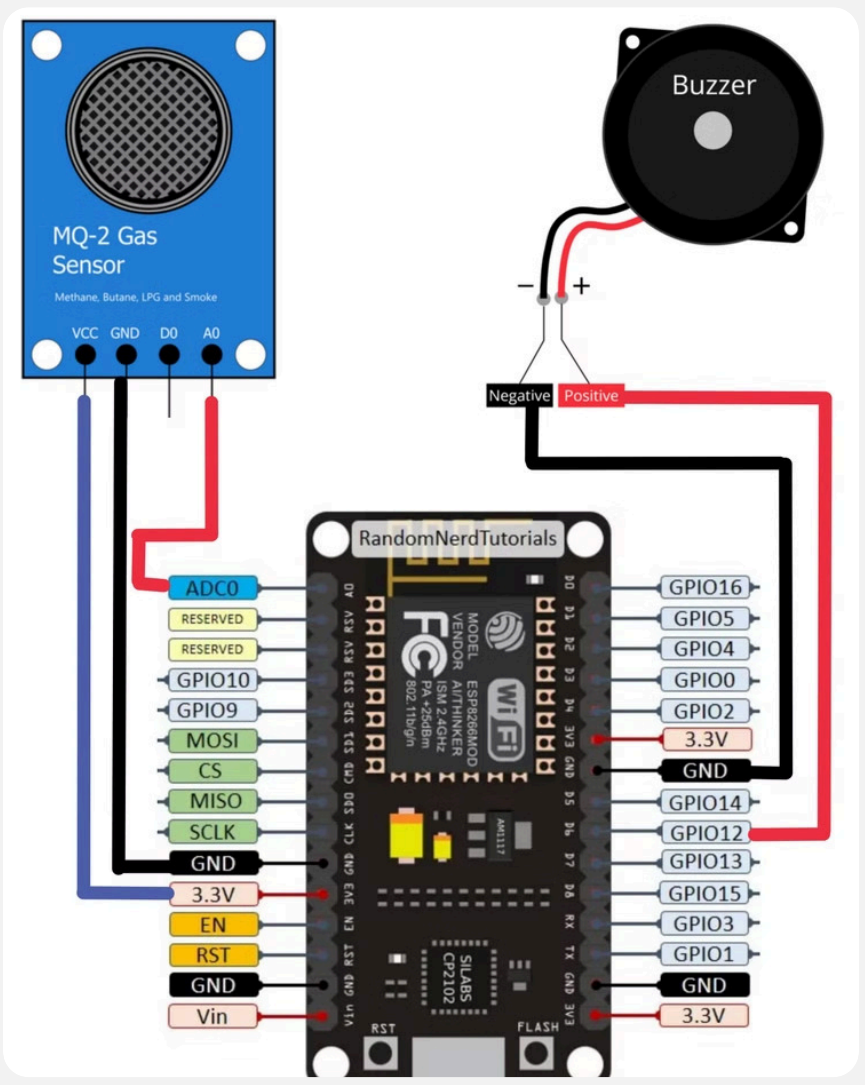
Immediate local alarm to warn nearby individuals

5. Notification Alert:

Sends an alert to the user via Wi-Fi.

6. User Action:

The user takes necessary safety measures



BLOCK DIAGRAM

PINOUT

RESULTS :

1. Successfully detects gas leaks within seconds.

2. Smartphone notification alerts received in real-time

3. High accuracy and sensitivity in detection

CONCLUSION :

This project offers a smart and efficient solution for gas leakage detection. The dual-alert mechanism (buzzer + notification) ensures both local and remote warnings. The system is cost-effective, easy to install, and scalable for various environments. With future enhancements like automatic gas shut-off and mobile app integration, it can further improve safety measures.