TOPIC: - IOT based LPG Gas maintenance and notification.

AIM: The aim of an IoT-based LPG gas maintenance and notification project is to develop a system that can remotely monitor and manage the usage of LPG gas cylinders in households and commercial establishments. The system would use sensors and actuators to collect data on gas leakage, and other relevant parameters. This data would then be transmitted to a central server for analysis and notification.

PROJECT OBJECTIVE: The objective of an IoT-based LPG gas maintenance and notification project is to use IoT technology to monitor the level of LPG gas in a cylinder and notify the use. This can help to prevent gas leaks and shortages, and ensure that theuser always has enough gas on hand.

WORKING: An IoT-based LPG gas maintenance and notification system utilizes sensors and wireless communication to monitor LPG gas, detect leaks, and send alerts to users in case of any abnormalities. This system aims to enhance safety and prevent potential gas-related accidents.

Hardware Components

The hardware setup typically includes:

1. LPG Gas Sensor: Detects LPG gas concentration levels.
2. Microcontroller: Processes sensor data and controls communication modules.
3. Wireless Communication Module: Transmits sensor data and alerts to a centralserver or user devices.
4. Power Supply: Provides power to the microcontroller and communication module.

Working Principle:

1. Leak Detection: The microcontroller analyzes the gas level data and triggers an alert if the gas concentration exceeds a predetermined

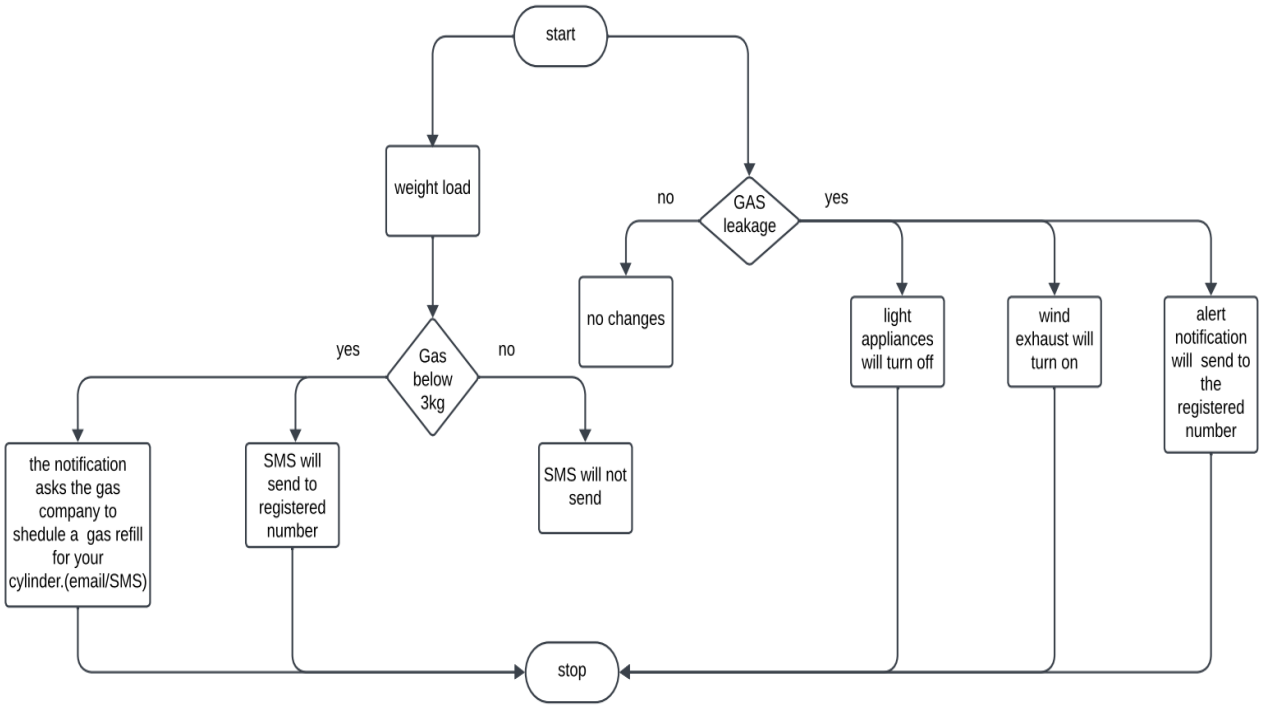
threshold, indicating a potential leak.

2. Data Transmission: The microcontroller transmits the gas level data and alert notifications to a central server or user devices via the wireless communication module.
3. User Notification: The central server or user devices receive the gas level data and alerts, providing real-time information on gas levels and potential leaks.
4. Maintenance Reminders: The system can also provide maintenance reminders based on sensor data, indicating when to perform routine maintenance checks onLPG equipment.

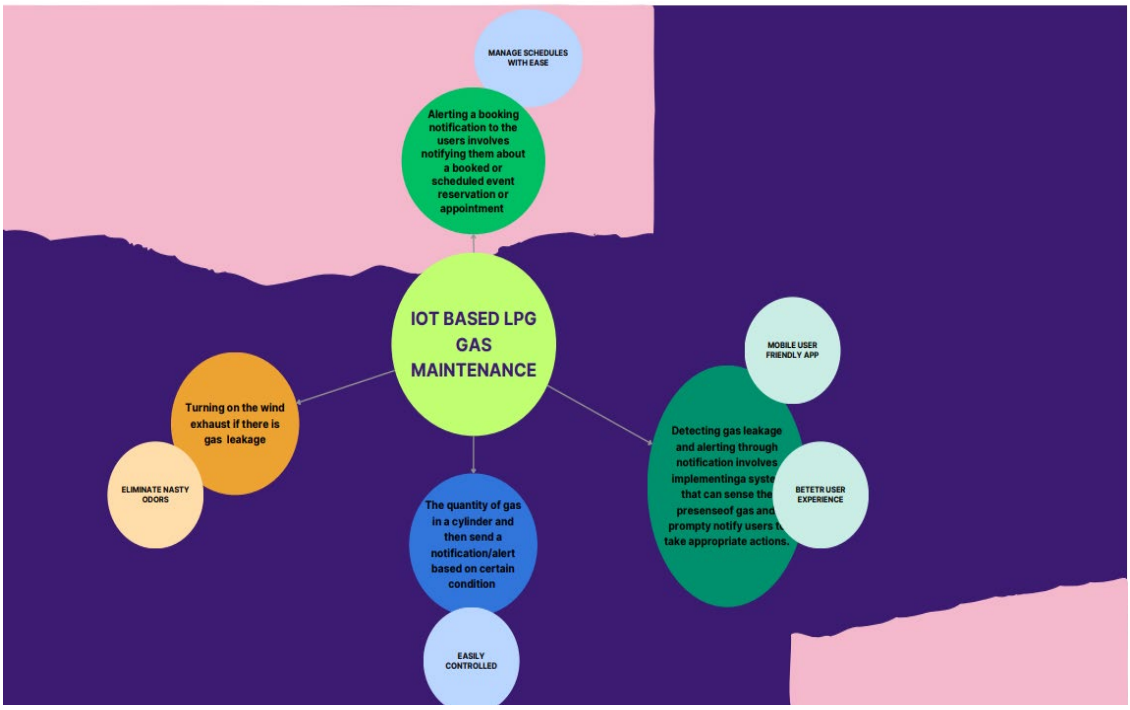
COMPONENTS:

Name	Quantity	Price
MQ2 sensor	1	300
LCD display	1	300
I2C module	1	200
Buzzer	1	50
LED(Red,Green)	2	100
180-ohm resistor	2	50
Breadboard	1	80
Wind exhaust	1	40
Dc servo motor	1	170
IRF540 mosfet	1	35

FLOWCHART:



MIND MAP:



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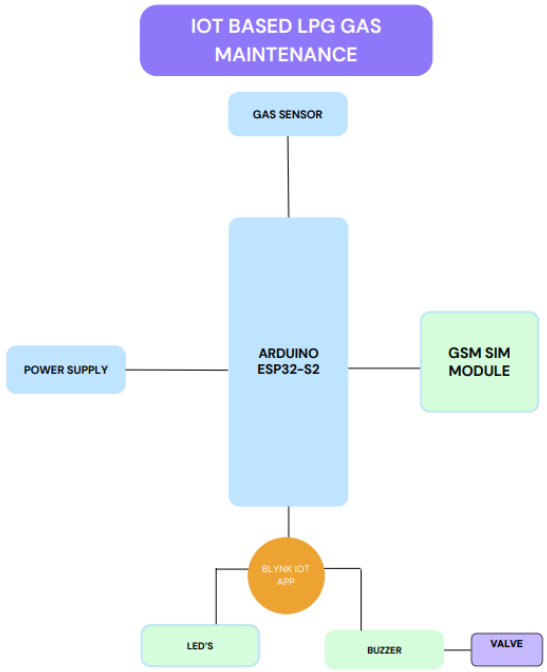

ALGORITHM:

Step 1: Setup the Hardware

Step 2: Program the Arduino

Step 3: Test the Functionality

- Simulate gas leakage by blowing on the gas sensor.
- Observe the GSM SIM module sending SMS alerts to the specified phone number with the gas concentration data.
- Verify that the gas sensor is accurately detecting gas and the GSM SIM module is successfully sending data.

Step 4: Deploy the System

- Mount the gas sensor and GSM SIM module in an appropriate enclosure.
- Connect the power supply to the system.
- Install the system in the desired location, ensuring proper ventilation for the gas sensor.

Step 5: Monitor and Maintain

- Regularly check the GSM SIM module for SMS alerts indicating gas leakage.
- Periodically calibrate the gas sensor to maintain accuracy.
- Ensure the power supply remains connected and functional.
- Replace the GSM SIM module if necessary.