IoT Based Gas Leakage Detection and Alerting System

Aim:

The aim of the provided code is to create a gas leakage detection and alert system using an Arduino UNO R3. The system includes a gas sensor to detect flammable gases, a speaker to provide an audible alert, an LCD display for visual feedback, and a GSM module for sending SMS alerts.

Components Used:

- Arduino UNO R3
- Gas sensor (connected to Analog pin A5)
- Speaker (connected to Digital pin 8)
- Liquid Crystal Display (LCD) (connected to digital pins 12, 11, 5, 4, 3, 2)
- GSM module (not fully implemented in the provided code)

Circuit Diagram:

Procedure:

- The gas sensor continuously monitors the level of flammable gases.
- The program checks the gas level and displays "Gas Scan - ON" on the LCD.
- If the gas level exceeds a certain threshold (150), an alert is triggered.
- The alert includes activating the speaker and sending SMS alerts using the GSM module (commands stubbed in the provided code).
- The program continues to monitor the gas level and triggers a shutdown procedure if the gas level drops below a certain threshold.

Observation:

- The LCD displays the status of the gas scan.
- If a gas leak is detected (gas level > 150), an alert is displayed on the LCD.
- The speaker is activated to provide an audible alert.
- SMS alerts are attempted to be sent using the GSM module (commands stubbed in the provided code).

Result:

The system is designed to detect gas leaks, provide visual and audible alerts, and attempt to send SMS notifications. The effectiveness of the system would depend on the accuracy of the gas sensor and the proper configuration of the GSM module, which needs to be completed based on the specific hardware setup and requirements.