MINOR PROJECT

Gas Leakage Detector with SMS Alert

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OBJECTIVE OF THE PROJECT

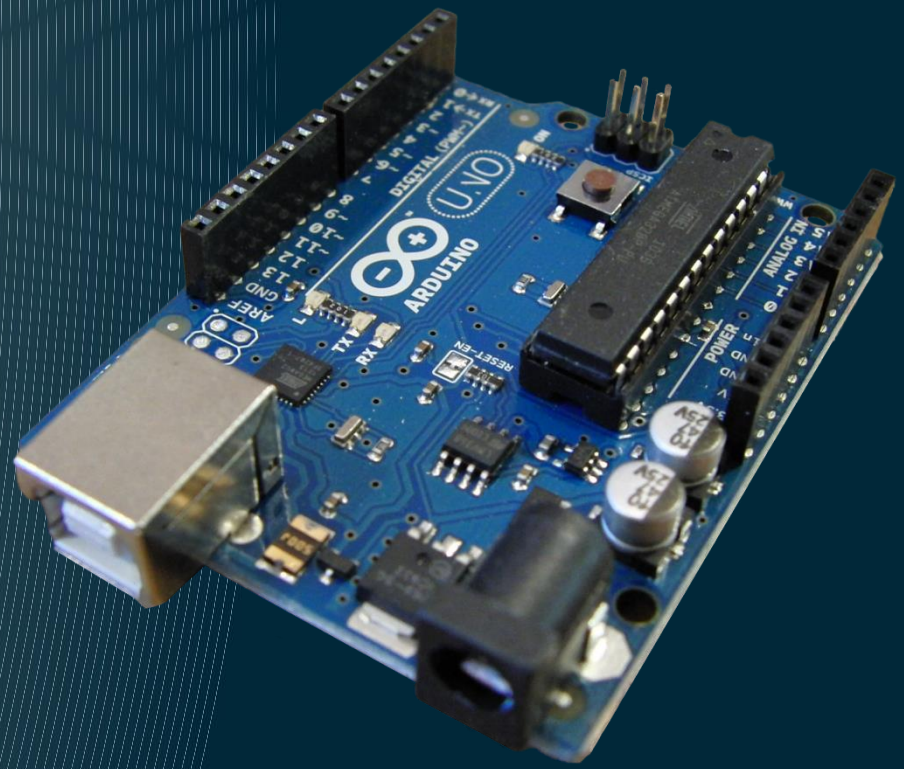
- Detect Gas leakage with MQ-135 sensor with Arduino
- Set up an SMS based alert system using GSM Module
- Display stats in an LCD using a 16x2 LCD monitor

PLANNING OF COMPONENTS

- MQ-135 –to sense LPG (use Digital Out to detect level status)
- Arduino
  - To read MQ-135 output and detect Gas Leak (through level comparison)
  - To activate outputs upon gas leak –Display Level and SMS alert
  - To send AT Commands to GSM Module
  - To send Status message commands to LCD Module
- GSM Module –for GSM Communication and to send SMS to mobile numbers
- LCD Module –to display status messages

ARDUINO

- Arduino Uno –an electronic prototyping platformOperates on +5 Volts
- 14 Digital I/O Pins (of which 6 are PWM)
- 6 Analog Input Pins
- 32 KB Flash Memory and 1KB EEPROM
- Serial Communication Enabled



MQ-135 SENSOR MODULE

- MQ-135 –is a generic gas sensor used to detect LPG presence
- The module has Digital Out and Analog Out
- Target Gas: Smoke/ Combustible Gas
- Detection Range: 200 ～ 10000ppm(flammable gas)
- Application: domestic gas leakage alarm, portable gas detector
- Can be used detect other gases like Methane and Alcohol as well
- Operated on +5 Volts

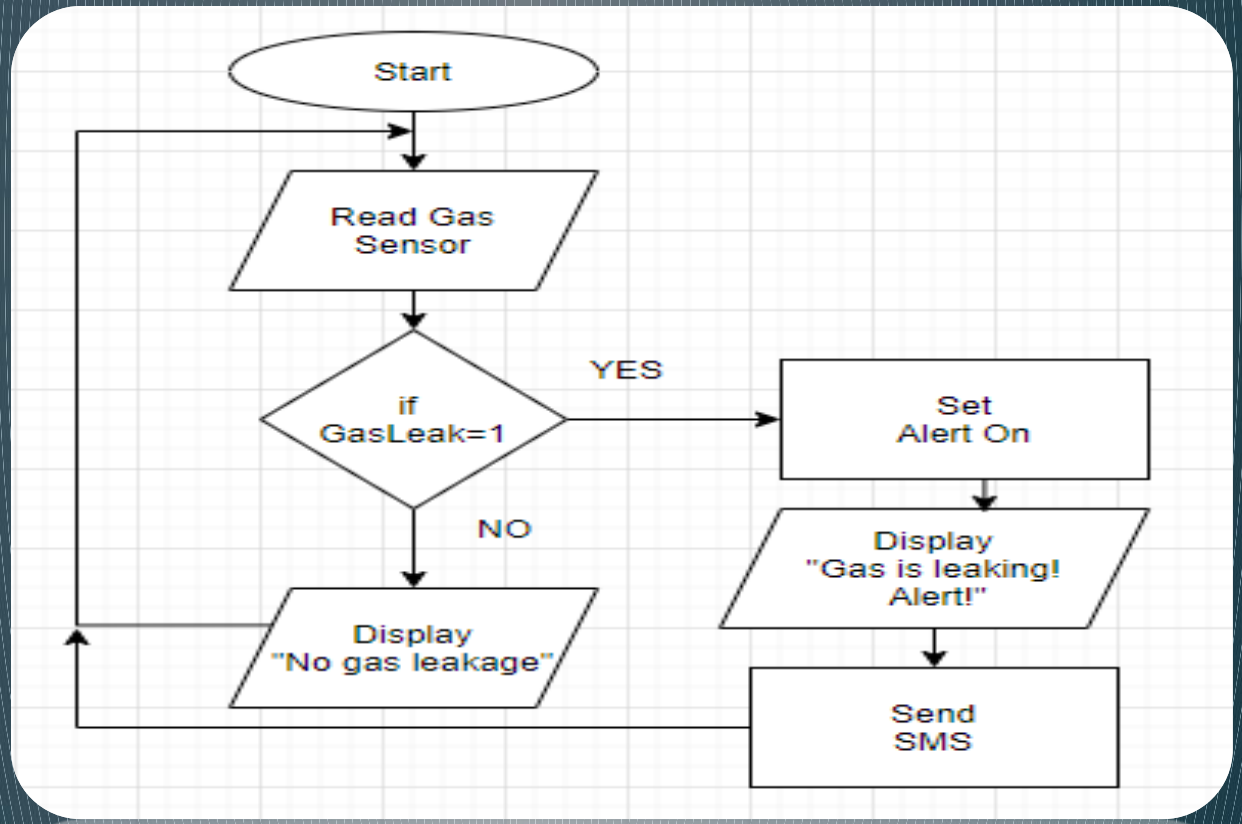
The Functionality of Major Components in our Proposed System.

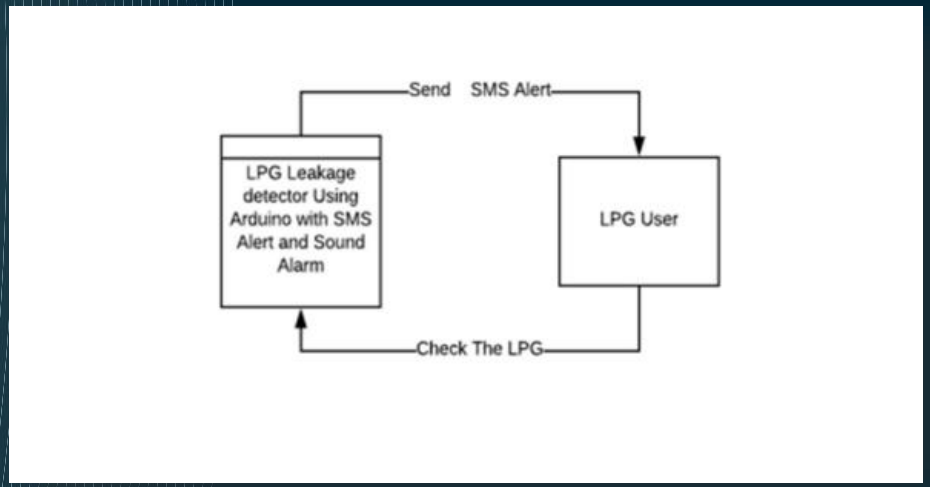
GSM Module

- Support voice calls
- Support SMS text messaging
- temperature -30 ℃to + 80 ℃
- Support GPRS data traffic, the maximum data rate, download 85.6Kbps, upload42.8Kbps;

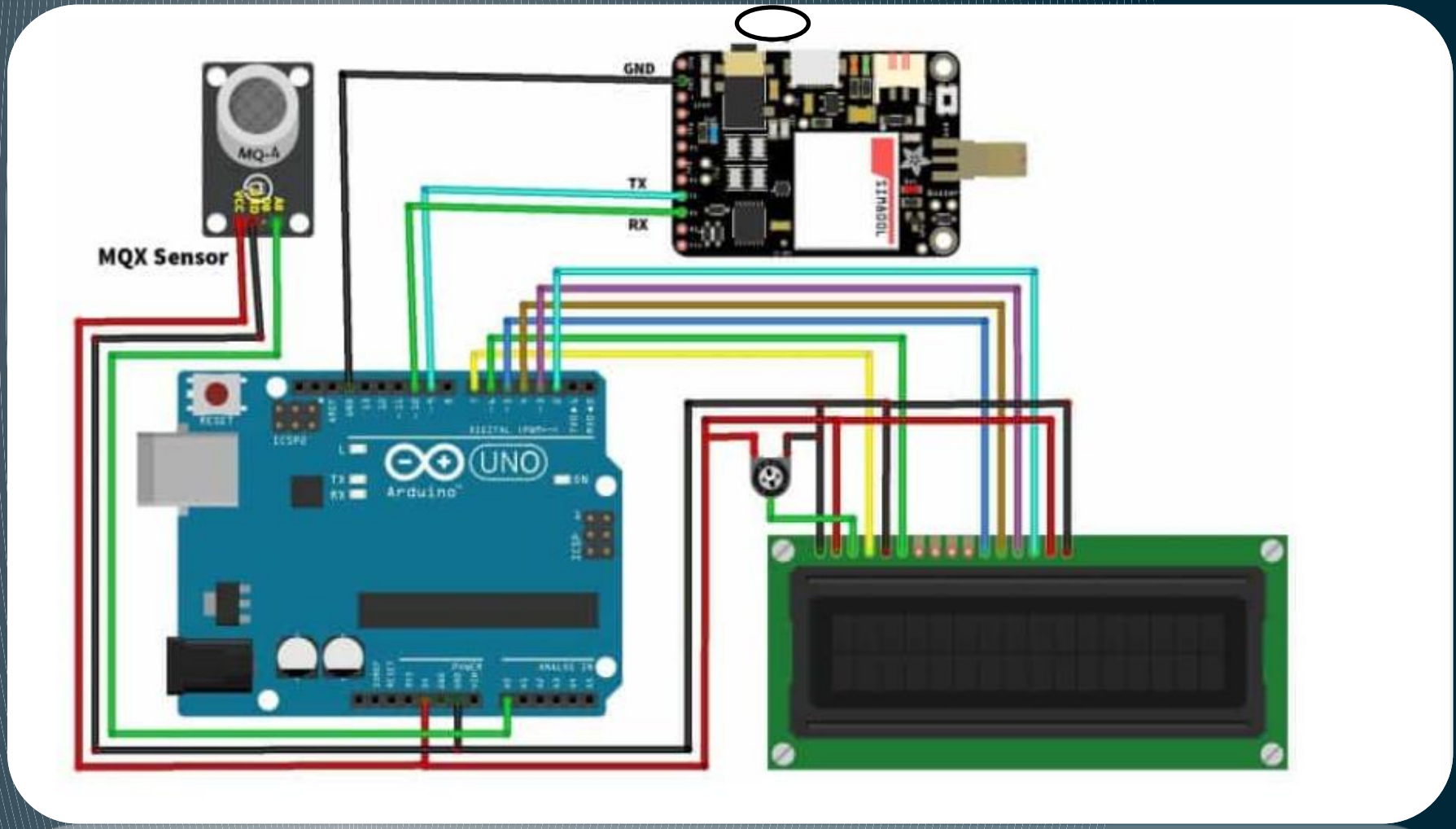
Working Principle of Our Proposed System

FLOW CHART


Start
Read Gas Sensor
if GasLeak=1
YES
NO
Set Alert On
Display "Gas is leaking! Alert!"
Send SMS
Display "No gas leakage"

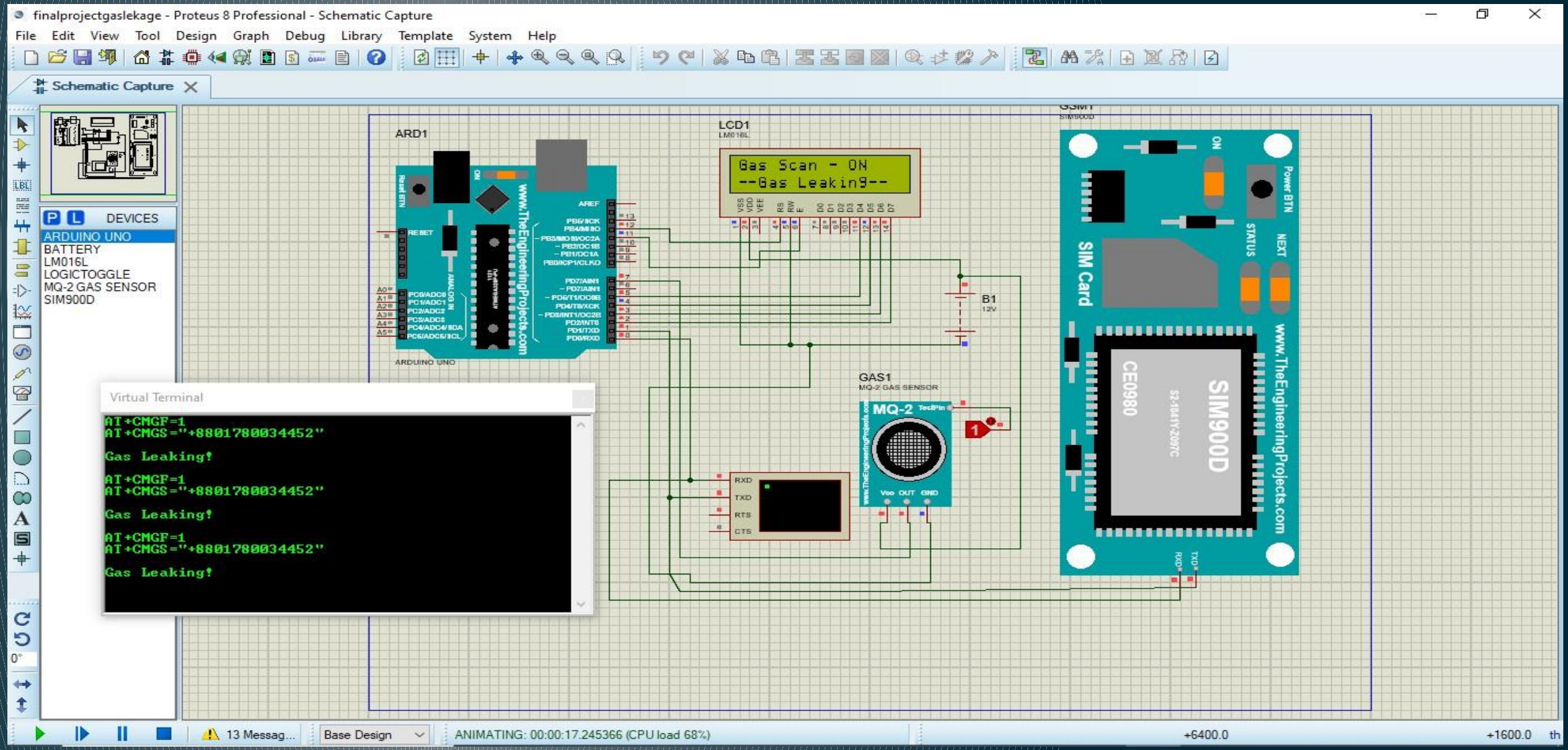

Send SMS Alert
LPG Leakage detector Using Arduino with SMS Alert and Sound Alarm
LPG User
Check The LPG

CIRCUIT DIAGRAM



Simulation

MQ 135 gas sensor sense 0 from Logic toggle



PROGRAM EXPLANATION-

- ScanGasLevel()
  - Scans the gas level from sensor MQ-135 and stores to temporary variable gas level
- SetAlert()
  - Sends 3 SMS to 2 Mobile numbers by calling SendTextMessage() inner subroutine
  - Outputs status message commands to LCD Module
- SendTextMessage()
  - Subroutine to send AT Commands to GSM Module for sending SMS

APPLICATIONS

- Home Security –can be used in homes (especially kitchen area) to prevent accidents due to gas leak
- Industrial Security –can be used in sensitive areas to prevent any accidents
- Enhancement –can be enhanced to measure specific gas levels to use in industrial applications
- Automation –can be enhanced to automate electrical cut off process to prevent short circuit

CONCLUSION

1. This project can be used in home and hotel utility (kitchen) area for safety purpose
2. Useful in domestic LPG water heater.
3. 3Very useful in LPG/CNG fitted car to avoid measure accident.
4. Prevent measure accident in gas agencies (gas station) where multi cylinder stored.

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Thank You