IOT GAS AND FIRE LEAKAGE MONITORING WITH SIREN ALERT

AIM:

Design and development of iot gas(MQ2) and fire(IR) leakage monitoring with siren alert for security purpose in industrial applications.

PURPOSE:

Fire(IR) and gas(Mq2) sensors designed to detect fire and gas to alert people. These sensors are very sensitive and respond immediately before spreading heavily. Also alerting with siren to immediate evacuation. IOT alerts to take action like fire engine service. These IOT links are public and can be monitor by public section like police, government officials and fire engine services.

DESCRIPTION:

This projects consists fire (IR), gas sensor (MQ2) along with WIFI (Esp8266/IOT module). Fire sensor and gas sensors connected to Arduino through digital IO pins. WIFI (Esp8266/IOT module) connected to Arduino through UART pins. Siren connected to Arduino through relay.

WORKING:

Whenever gas or fire occurred then sensor sense and immediately gives signal to Arduino. These sensors values displayed on 16X2 LCD continuously. Arduino detects sensor signal and sends data to IOT server through WIFI (ESP8266/IOT module). At the same time relay will be ON to make siren ON. User can see data through server from anywhere without any wired connection. This can alert before getting worse.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller   :   Arduino Uno

Crystal   :   16 MHz

LCD   :   16X2 LCD

WIFI   :   Esp8266 (IOT module)

Fire Sensor   :   Infrared Sensor

Smoke Sensor   :   MQ2

Relay   :   12v Coil type

Siren   :   12v
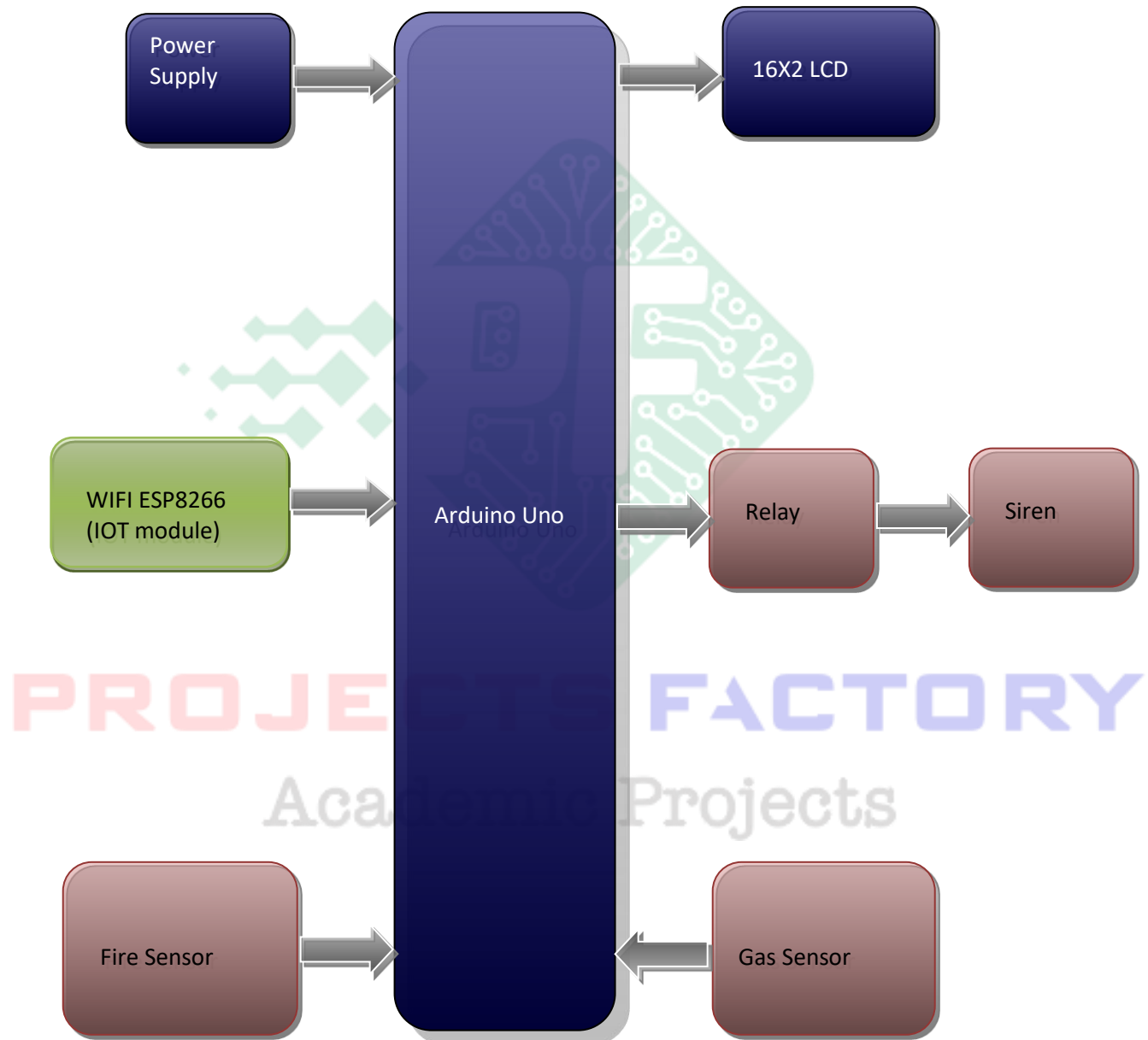
Power Source   :   12v,1 amp DC battery
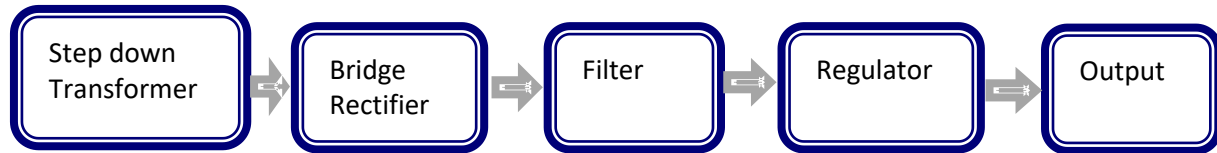
SOFTWARE:

Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

- ➢ Industries
- ➢ Building Management System (BMS)

BLOCK DIAGRAM:

POWER SUPPLY BLOCKDIAGRAM:

Step down Transformer → Bridge Rectifier → Filter → Regulator → Output

INTERFACES COVERD:

- In this project we have covered WIFI (ESP8266/IOT) module interfacing. Also Fire and Gas sensors along with siren.