

ZIGBEE AND GSM BASED WIRELESS FIRE AND GAS SECURITY

AIM:

Design and Development of Zigbee and GSM based wireless fire and gas security.

PURPOSE:

Everything becomes wireless and it gives lot of convenience and cost effective. General security systems are RS485 wired and required lot of wiring. This can support up to 800 meters. After that so many data loses occur. Wireless security system eliminates all these problems. Here we propose solution like ZIGBEE and GSM based wireless fire and gas security system.

DESCRIPTION:

This project includes Zigbee module (HC12), which is connected to Arduino through UART interface. GSM (SIM800C) connected to Arduino UART. Gas Sensor (MQ135) and Fire Sensor (IR) connected to Arduino digital pins. Siren will be controlled through relay which is connected to Arduino digital pin.

WORKING:

Here we have two sections, one is at transmitting side and other at receiving side. Gas and fire sensors at transmitting side, Zigbee and GSM connected to Arduino at transmitting side. When any sensor activates then siren will be ON and SMS will send. Sensors data transmitting to receiving side zigbee. Receiving side zigbee placed at monitoring side. Receiver side Zigbee connected to PC or Laptop through UAB to serial adaptor. We can see all sensors data in serial terminal.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Zigbee Module	:	HC12 - 433MHZ or 2.4Ghz
GSM	:	SIM800C
Gas Sensor	:	MQ135
Fire Sensor	:	IR sensor
Relay	:	12V DC
Siren	:	5V/12V DC
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

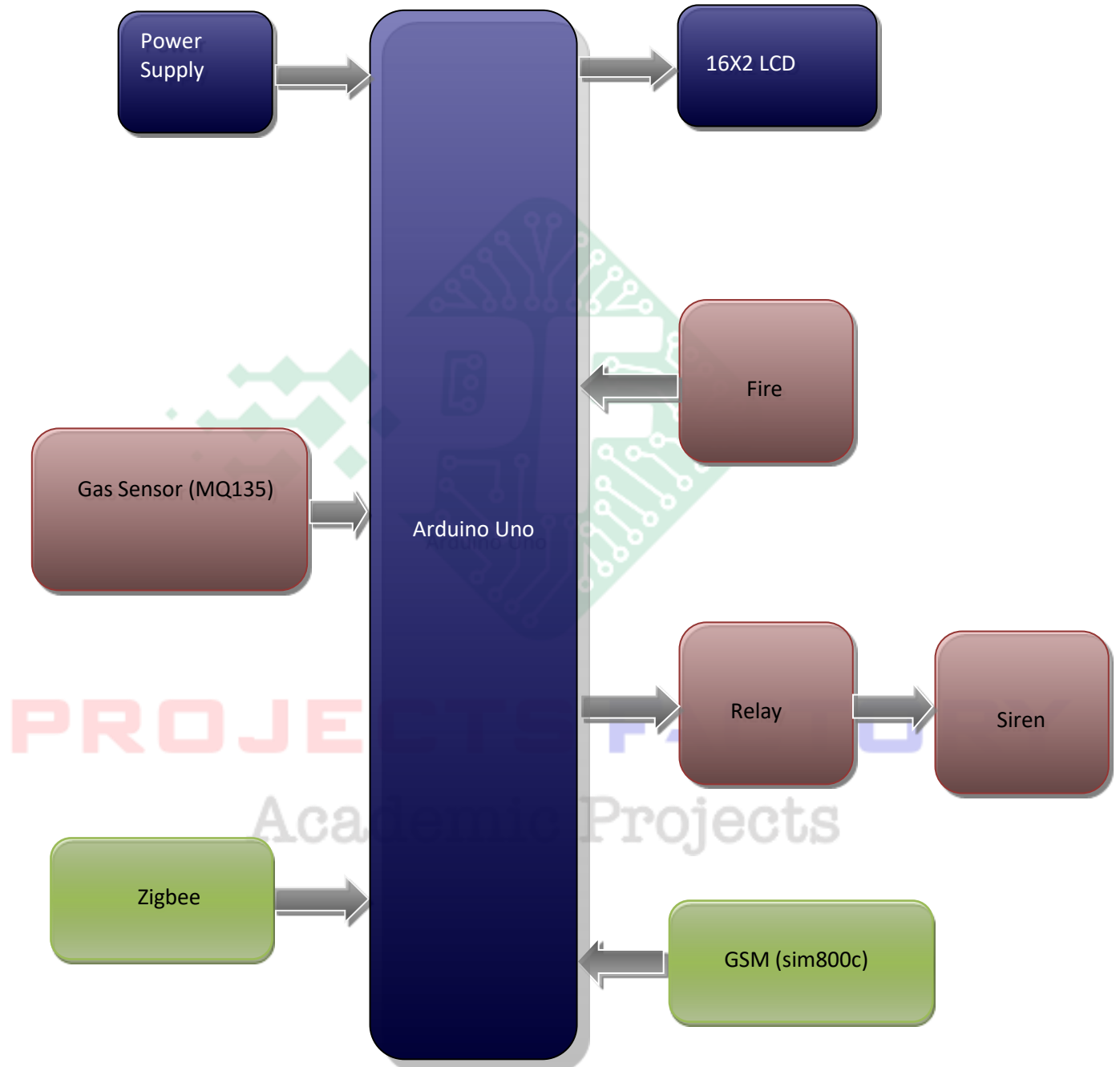
Arduino IDE

Proteus based circuit diagram

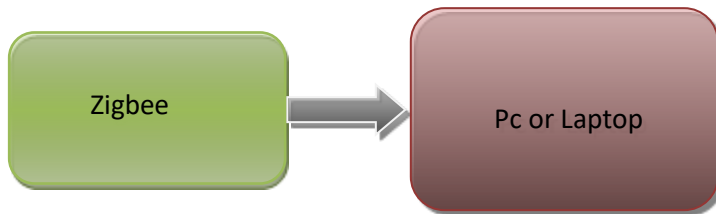
APPLICATIONS:

- Security Systems
- Industrial Security
- WSN Applications

BLOCK DIAGRAM:
Sensors panel:



Central Monitoring panel:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered Zigbee (433Mhz or 2.4Ghz – HC12) module Interfacing
- Smoke (MQ135) and Fire Sensors Interfacing
- Relay and DC Siren Interfacing

PROJECTS FACTORY
Academic Projects