ZIGBEE BASED FIRE AND SMOKE DETECTION SYSTEM

AIM:

Design and Development of Zigbee based fire and smoke detection system.

PURPOSE:

So many fire accidents happen around the world every day. There are several reasons behind fire accidents. Depends on operational environment fire accidents will happen. Some electronic fire alarms available in market and those are static. They will not update fire status to remote location. Here we want to design and develop wireless smoke and fire detection system using Arduino.

DESCRIPTION:

Arduino connected to Zigbee through UART port. Siren controlled by relay which is connected to Arduino digital pin. Fire and smoke sensors connected to Arduino digital pins.

WORKING:

This project has two sections. One is transmitter and another one is receiver. Transmitter contains Arduino, Zigbee, Fire and smoke sensors. Receiver contains Arduino, Zigbee and Siren. Smoke and fire sensor status always transmitted to receiver. At receiver side Arduino displays fire and smoke sensors status on LCD. If anyone sensor gets activated then Siren will be ON.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Zigbee Module	:	HC12 - 433MHZ or 2.4Ghz
Relay	:	12V DC
Siren	:	12V DC
Smoke Sensor	:	MQ135
Fire Sensor	:	IR Type
Power Source	:	12v 2 DC Adaptor

SOFTWARE:

Arduino IDE

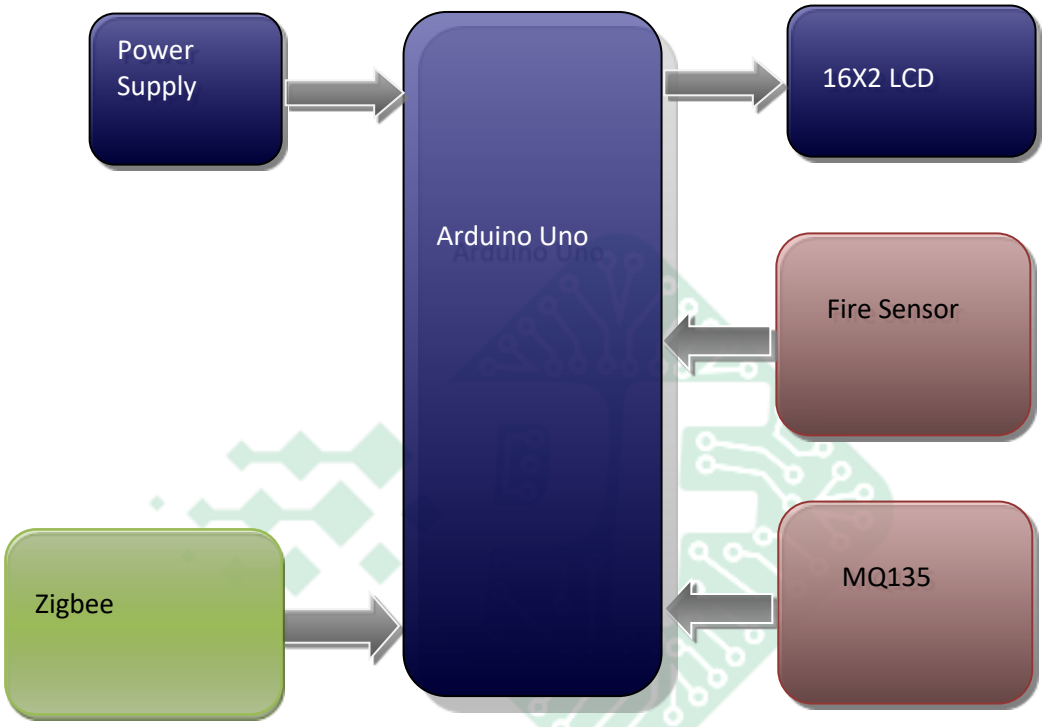
Proteus based circuit diagram

APPLICATIONS:

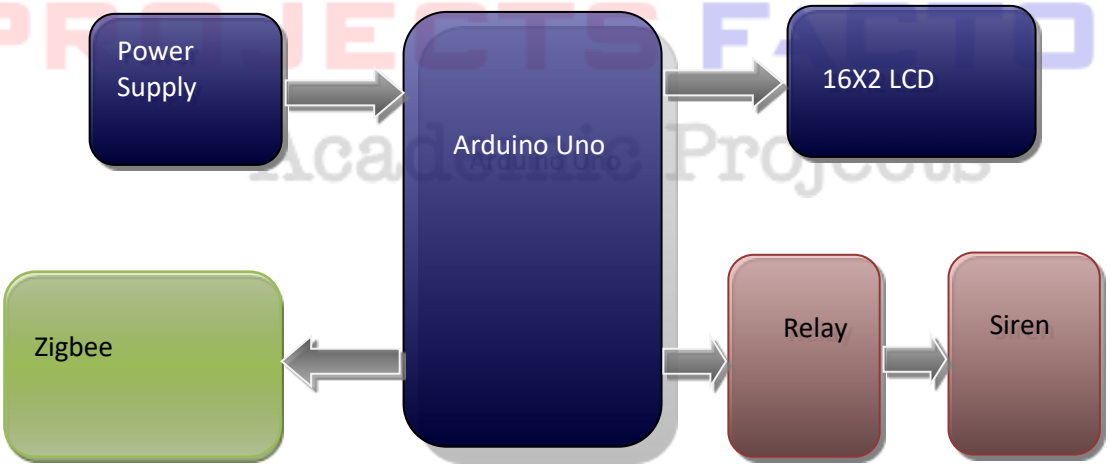
- Fire security systems
- Flammable protection applications

BLOCK DIAGRAM:

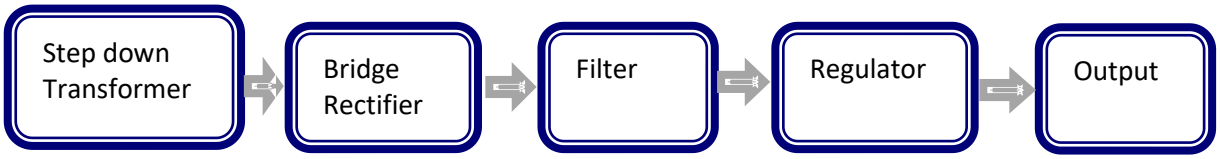
Transmitter:



Receiver:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered Zigbee (433Mhz or 2.4Ghz – HC12) module interfacing
- MQ135 (Smoke sensor) and Fire sensors interfacing