

## ZIGBEE BASED INDUSTRIAL PARAMETERS MONITORING

### AIM:

Design and Development of Zigbee based industrial parameters monitoring.

### PURPOSE:

Industrial parameters monitoring is very important for any kind of industries. SCADA and DCS systems already installed in industries. It is very difficult to add extra sensors to existing SCADA and DCS. Embedded based smart sensor networks always plays key role in this type of situation. They are easy to install and inexpensive. Here we propose solution like zigbee based industrial parameters monitoring.

### DESCRIPTION:

This project includes Zigbee module (HC12), which is connected to Arduino through UART interface. DHT11 connected to Arduino digital pin. LDR sensor connected to Arduino digital pin. Fire Sensor connected to Arduino digital pin. Siren controlled by relay which is connected to Arduino digital pin.

### WORKING:

Here Temperature and humidity monitored by DHT11. LDR sensor can detect day and night of environment. IR sensor acts as fire sensor and activated when fire occurs. All these sensor values displayed on 16X2 LCD display and transmitted to monitoring side Zigbee. This Zigbee connected to PC or laptop and all sensors data displaying in serial port. If any sensor values abnormal then buzzer will be ON.

## TECHNICAL SPECIFICATIONS:

### HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Zigbee Module	:	HC12 - 433MHZ or 2.4Ghz
Temperature Sensor	:	DHT11
Light Sensor	:	LDR
Fire Sensor	:	IR sensor
Relay	:	12v DC
Siren	:	5V/12V DC
Power Source	:	12v 2 amp Adaptor

### SOFTWARE:

Arduino IDE

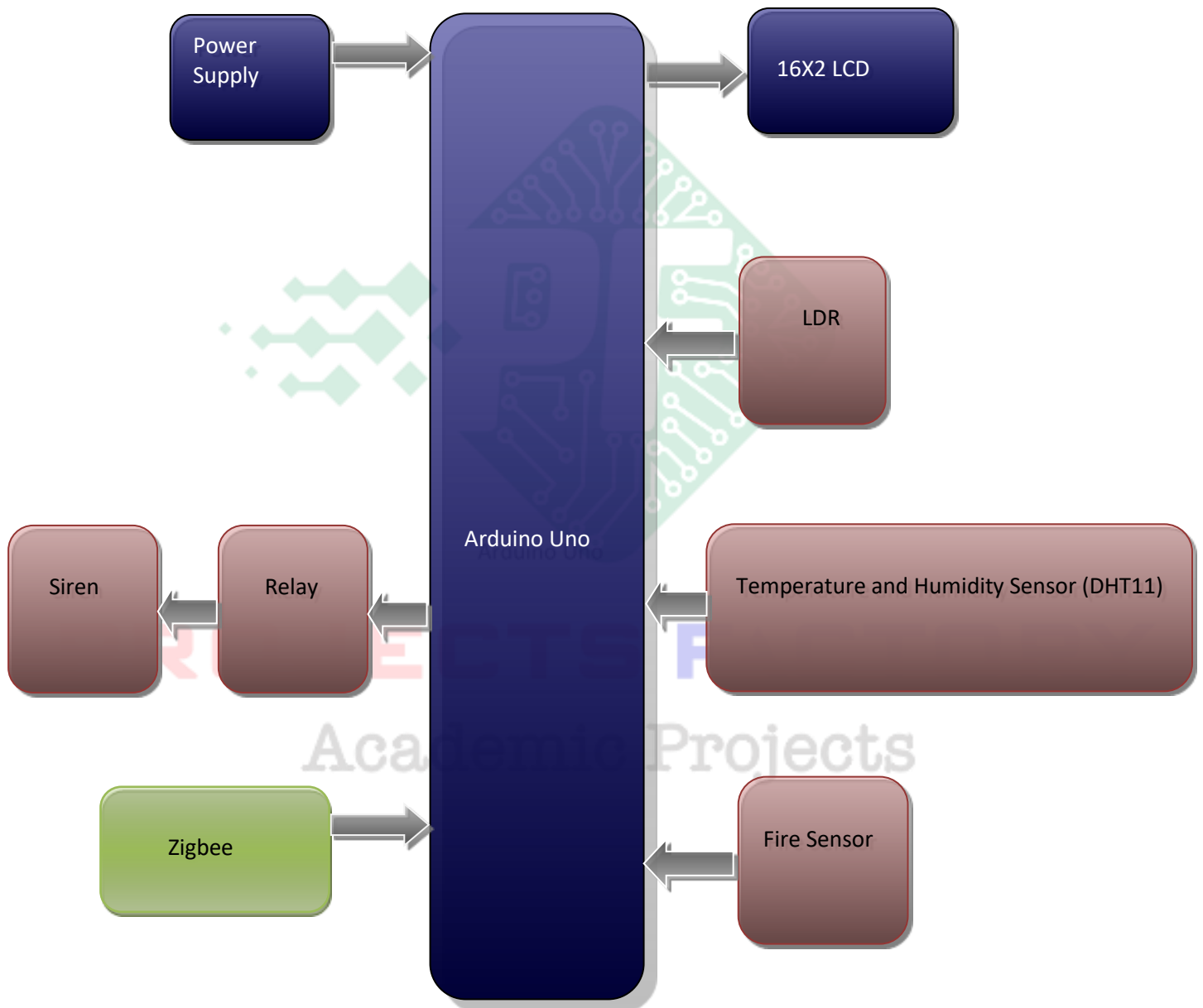
Proteus based circuit diagram

### APPLICATIONS:

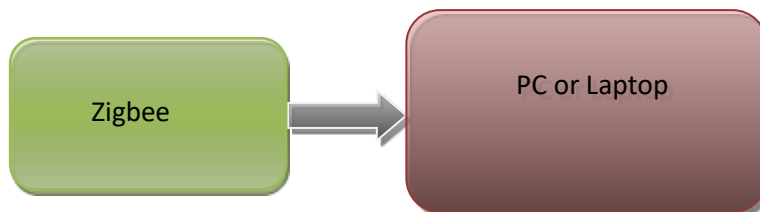
- Industrial parameters monitoring
- BMS application

## BLOCK DIAGRAM:

### Transmitter:



## Receiver:



## POWER SUPPLY BLOCKDIAGRAM:



## INTERFACES COVERED:

- We have covered Zigbee (433Mhz – HC12 or 2.4Ghz) module interfacing
- DHT11, Fire sensor and LDR sensors interfacing

**PROJECTS FACTORY**  
Academic Projects