

# IOT BASED MINING TRACKING AND WORKER SAFETY HELMET

## **AIM:**

Design and development of IOT based mining tracking and worker safety helmet using Arduino.

## **PURPOSE:**

Mines are very important for any country, they can boost country economy. There are many kinds of mines like coal, chemicals, minerals and other kinds. Now a days lot of machinery involves for underground mining. But still sufficient amount of man power needed for mining excavation. Safety is primary necessity for any kind of workers, especially for mine workers. Here we proposed a system that can track mine worker location and provide hazardous alert messages. Here the project title is IOT based mining tracking and worker safety helmet using Arduino.

## **DESCRIPTION:**

Two RFID readers (ESM-18) connected to Arduino UART ports. ESP8266 (IOT module) connected to Arduino UART port. RF receiver module connected to Arduino digital pins.

## **WORKING:**

In this project there are three sections. Main section consists of Arduino, RFID reader, ESP8266 and RF receiver. This section placed inside mine and two RFID readers placed at various locations to track miner's position. After entered into mine, workers need to swipe RFID card to reader to upload their location to server. Also two miners (mine workers) have helmets with RF transmitters. Using this they can intimate, if they have any hazardous situation. They need to press button and alert message will be uploading to IOT server.

## TECHNICAL SPECIFICATIONS:

### HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
WIFI	:	Esp8266 (IOT module)
RFID Reader	:	EM-18
RF wireless Module	:	433 MHz RF module
Power Source	:	12v 2 amp Adaptor

### SOFTWARE:

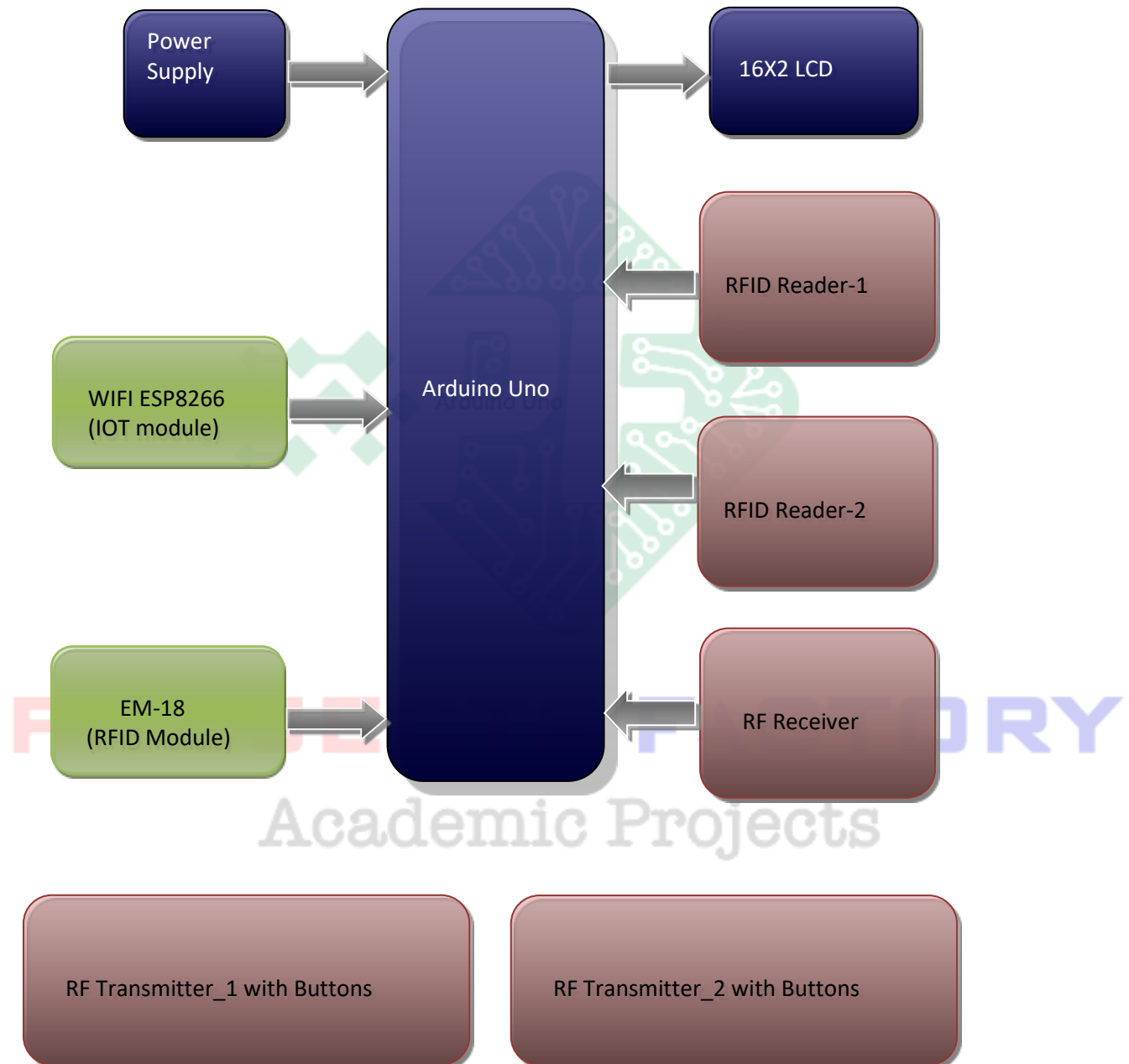
Arduino IDE  
Proteus based circuit diagram

### APPLICATIONS:

- Mining safety applications
- Miners tracking applications

**PROJECTS FACTORY**  
Academic Projects

**BLOCK DIAGRAM:**



## POWER SUPPLY BLOCKDIAGRAM:



## INTERFACES COVERED:

- We have covered WIFI (ESP8266/IOT) and RFID (EM-18) module interfacing
- RF (433Mhz) Wireless module interfacing

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