Overview of our Project

## **HARDWARE REQUIREMENTS**

* Nodemcu esp8266
* DHT22 Sensor ( measuring temperature and humidity abnormalities)
* MQ2 Sensor ( measuring smoke abnormalities)
* Flame Sensor
* LDR Sensor ( measuring high light abnormalities )
* Buzzer
* Jumper Wires
* Breadboard

## **SOFTWARE REQUIREMENTS**

* Arduino IDE
* ThinkSpeak application
* Firebase Real time Database

Control Room

Notification on Android

Telegram Bot

ThinkSpeak

Android

App

Firebase

(RealTime Database)

()

Buzzer

Temperature Sensoror

NODEMCU (Esp8266)

LDR Sensor

Flame Sensor

Humidity Sensoror

* Telegram
* Android App (made using Android Studio)

Smoke Sensoror

WHAT MAKES OUR HAZARD DETECTION KIT UNIQUE?

* Easy to install and monitor the current level of data from the control room.
* Cost-effective and cheaper compared to the products used in the market.
* Real-time, fast data is uploaded on the Android app.
* Notification from telegram on a hazard breakout.
* Emergency call system for the control room to contact with the metro hazard management team.

ESTIMATED COST OF OUR PROJECT:

* Nodemcu esp8266 ₹ 300
* DHT22 Sensor ₹ 250
* MQ2 Sensor ₹ 210
* Flame Sensor ₹ 100
* LDR Sensor ₹ 70
* Buzzer ₹ 40
* Jumper Wires ₹ 20
* Breadboard ₹ 200

Total Estimated Cost = ₹ 1200 (40% less than other products used in the market)

FUTURE ADD ONS

* Using an Electrochemical Oxygen Sensor module to detect the oxygen depletion during a fire breakout.
* Implementing an MPU6050 sensor to detect an earthquake.