BASIC DETAILS OF THE TEAM AND PROBLEM STATEMENT

Organization Name	: MINISTRY OF HOME AFFAIRS
PS Code	: SIH1308
Problem Statement Title	: THREAT ZONE OF AN EXPLOSION PARTICULARLY IN OIL AND GAS HANDLING INDUSTRIES OR REFINERIES
Team Name	: **DYNAMIC DRAGONS13**
Team Leader Name	: BOOBATHI RAJA K M
Institute Code (AISHE)	: C-37065
Theme Name	: DISASTER MANAGEMENT

IDEA /APPROACH DETAILS

- **INDUSTRY - SPECIFIC SECTORIZATION** : The software intelligently divides industries into sectors based on their unique perimeters on an interactive map.
- **RADIATION MAPPING** : It precisely distinguishes zones affected by fire and categorizes radiation levels as Very High, High, Medium, or Low, ensuring firefighter safety.
- **MACHINE LEARNING MODELS** : Utilized Machine Learning Models to predict the spread of radiation and blast waves.
- **ENVIRONMENTAL MONITORING** : It tracks Temperature, Pressure, Levels of Toxic Gases, Wind Speed and Direction in real-time to provide crucial data for firefighting strategies.

By analyzing environmental data, The software guides firefighters to the most effective and safe approaches to extinguishing the fire.

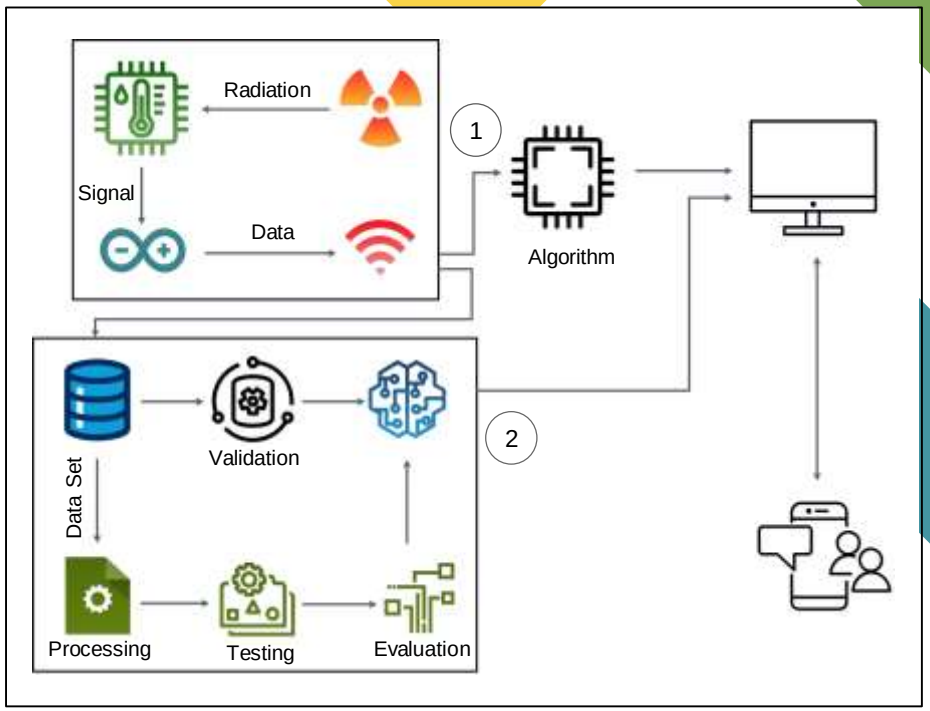
PRODUCT STATUS :

80% product built completed and further build is on progress. Testing and validation process are next to be undergone.

1 High Potential Risk Zone

2 Moderate Potential Risk Zone

3 Low Potential Risk Zone

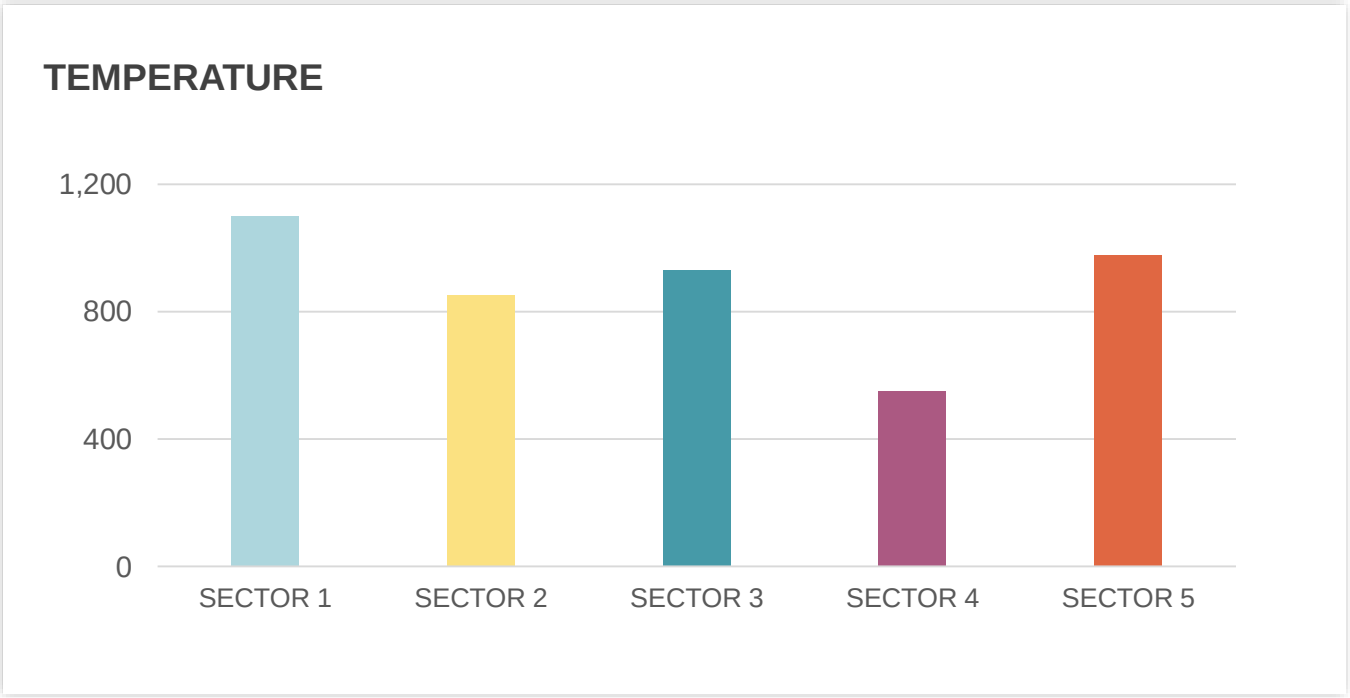


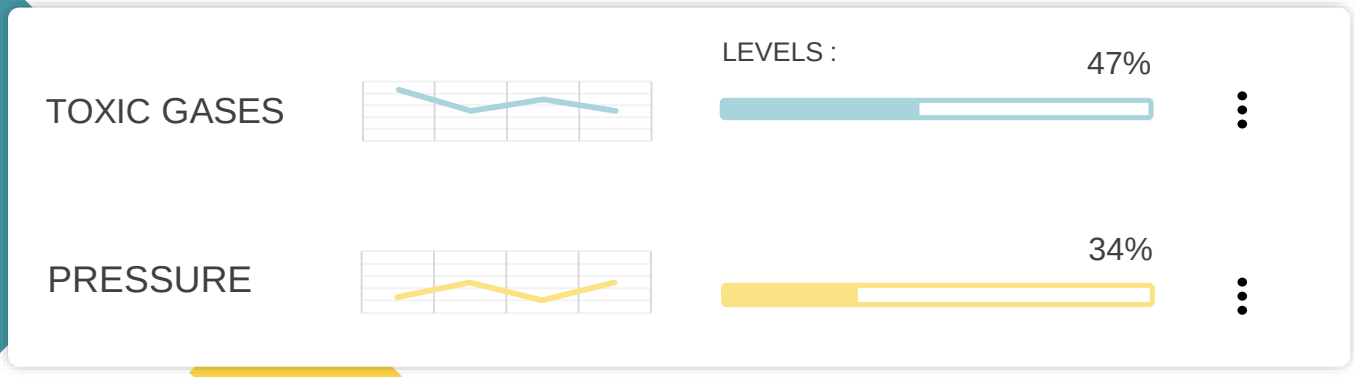
TECHNOLOGY STACK :

- HTML, CSS, JavaScript } User Friendly Interface
- GIS – Mapping Framework
- Machine Learning (Python) - Predictions

Video Link : https://youtu.be/ZYJN48eR8jU

IDEA /APPROACH DETAILS





G-Drive Link :
https://drive.google.com/drive/folders/1VII3rktOLY7UFm3lOQcwuxk7nNZfxE59?usp=sharing

USE CASES :

- **INDUSTRIAL SAFETY AND EMERGENCY RESPONSE** : Predict the extent of hazardous zones and radiation dispersion for industrial facilities storing volatile materials, such as chemical plants, refineries, and storage tanks.
- **FIREFIGHTING AND FIRST RESPONDER SUPPORT** : Provide real-time information to firefighters and first responders, enabling them to approach incidents safely and efficiently.
- **MILITARY AND DEFENSE APPLICATIONS** : Support military operations by providing intelligence on the potential impact of explosions and fires in combat zones.
- **PUBLIC SAFETY AND CIVIL DEFENSE** : Enhance public safety by providing information to local authorities and communities about the potential danger zones during incidents like terrorist attacks or large-scale accidents.

CHANNELS : Govt.Software, Industries, Organizations etc.

DEPENDENCIES :

- **GEOSPATIAL DATA**
- **HAZARDOUS MATERIAL DATA**
- **ENVIRONMENTAL FACTORS**
- **USER TRAINING AND SKILL DEVELOPMENT**

Revenue Streams : Service based model.

TEAM MEMBER DETAILS

Team Leader Name : Boobathi Raja K M

Branch : **B.E** Stream : **ECE** Year **II**

Team Member 1 Name : Dharshan S

Branch : **B.E** Stream : **ECE** Year **II**

Team Member 2 Name : Aadhavan G V

Branch : **B.E** Stream : **ECE** Year **II**

Team Member 3 Name : Brindha S

Branch : **B.E** Stream : **ECE** Year **II**

Team Member 4 Name : Alagu Divya Shree M

Branch : **B.E** Stream : **ECE** Year **II**

Team Member 5 Name : Dhivya V

Branch : **B.E** Stream : **ECE** Year **II**

Team Mentor 1 Name : Dr Maheswaran S

Category : **Academic** Expertise : **Embedded Systems, IoT** Domain Experience : **19 Years**

Team Mentor 2 Name : Indhumathi N

Category : **Academic** Expertise : **Embedded Systems** Domain Experience : **6 Years**