

## Project Initialization and Planning Phase

Date	15 November 2024
Team ID	739930
Project Title	Fireguardian yolov8 Empowered wildfire smoke surveillance
Maximum Marks	3 Marks

### Project Proposal (Proposed Solution) report

#### Requirements Resource

Resource Type	Description	Specification/Allocation
<b>Hardware</b>		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
<b>Software</b>		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Ultralytics, werkzeug.utils, pillow.
Development Environment	IDE	Google Colab, spyder ,visual studio code

Data		
Data	Source, size, format	Kaggle wildfire datasets, geospatial imagery in GeoTIFF format

### Project Overview

#### Objective

To leverage advanced YOLOv8 object detection capabilities for realtime, high-accuracy wildfire smoke detection and surveillance.

#### Scope

The scope includes integrating advanced machine learning, computer vision, and geospatial analysis techniques to develop a robust, scalable, and reliable wildfire smoke detection system for diverse terrains and environmental conditions.

### Problem Statement

#### Description

Wildfire smoke detection involves utilizing advanced computer vision models to identify smoke patterns in visual data, ensuring rapid response to mitigate wildfire damage.

#### Impact

A transformative impact on wildfire management by reducing response times, minimizing property and environmental damage, and enhancing community safety.

<b>Proposed Solution</b>	
Approach	A systematic process encompassing data collection from satellite and ground-level imagery, preprocessing, YOLOv8 model training, evaluation, and deployment.
Key Features	Real-time smoke detection, minimal false positives, adaptability to various environments, and scalable deployment.