

## Project Initialization and Planning Phase

Date	15 November 2024
Team ID	739653
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
<b>Data</b>		
Data	Source, size, format	Kaggle wildfire datasets, geospatial imagery in GeoTIFF format

<b>Project Overview</b>	
Objective	To leverage advanced YOLOv8 object detection capabilities for real-time, 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.
<b>Problem Statement</b>	
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.