Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	27 October 2022
Team ID	PNT2022TMID34546
Project Name	EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

Technical Architecture:

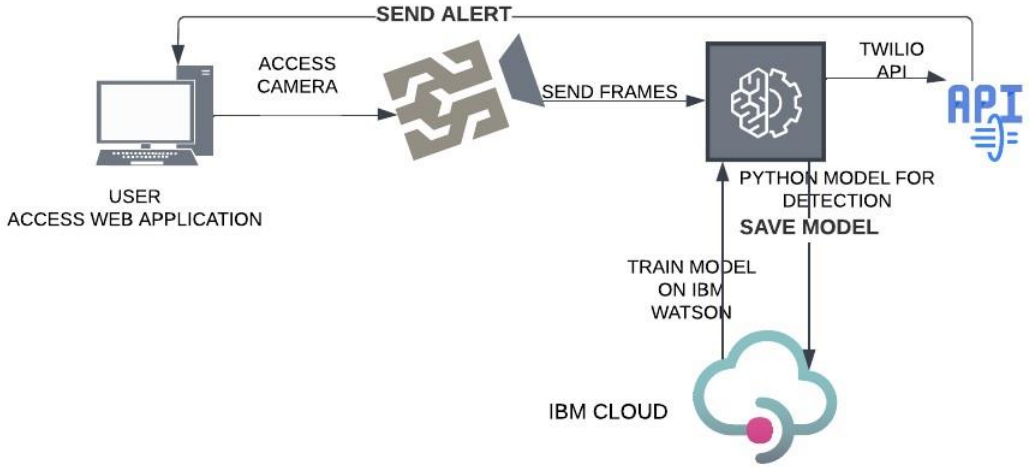

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with application through Web UI	Python flask/ HTML ,CSS
2.	Application Logic-1	To capture video and convert to frames	Python – opencv, YOLO
3.	Application Logic-2	To develop model with accurate detection results	CNN, IBM Watson
4.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
5.	Dataset	Dataset is split into training and testing and used to train the model	Dataset from cloud storage,Database
6.	External API-2	To send and receive messages	Twilio API
7.	Machine Learning Model	Machine learning model is used to detect forest fires	Jupyter notebook.
8.	Infrastructure (Server / Cloud)	Application is deployment on Cloud	IBM Cloud Foundry, Kubernetes.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python flask, Jupyter notebook	Used to develop python model and web UI
2.	Security Implementations	The application will have utmost security	e.g.SHA-256, Encryptions, IAM Controls
3.	Scalable Architecture	The project is highly scalable. A three tier architecture will be used	Web server- python Django,flask/html css Application server – anaconda,IBM Watson. Database server-IBM DB
4.	Availability	Load balancing will be done and apllcation will be available 99% of time	IBM load balancer

5.	Performance	IBM CDN will be used to increase performance	IBM Content Delivery Network