

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

Date	15 October 2022
Team ID	PNT2022TMID43779
Project Name	Emerging Methods for Early Detection Of Forest Fires
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

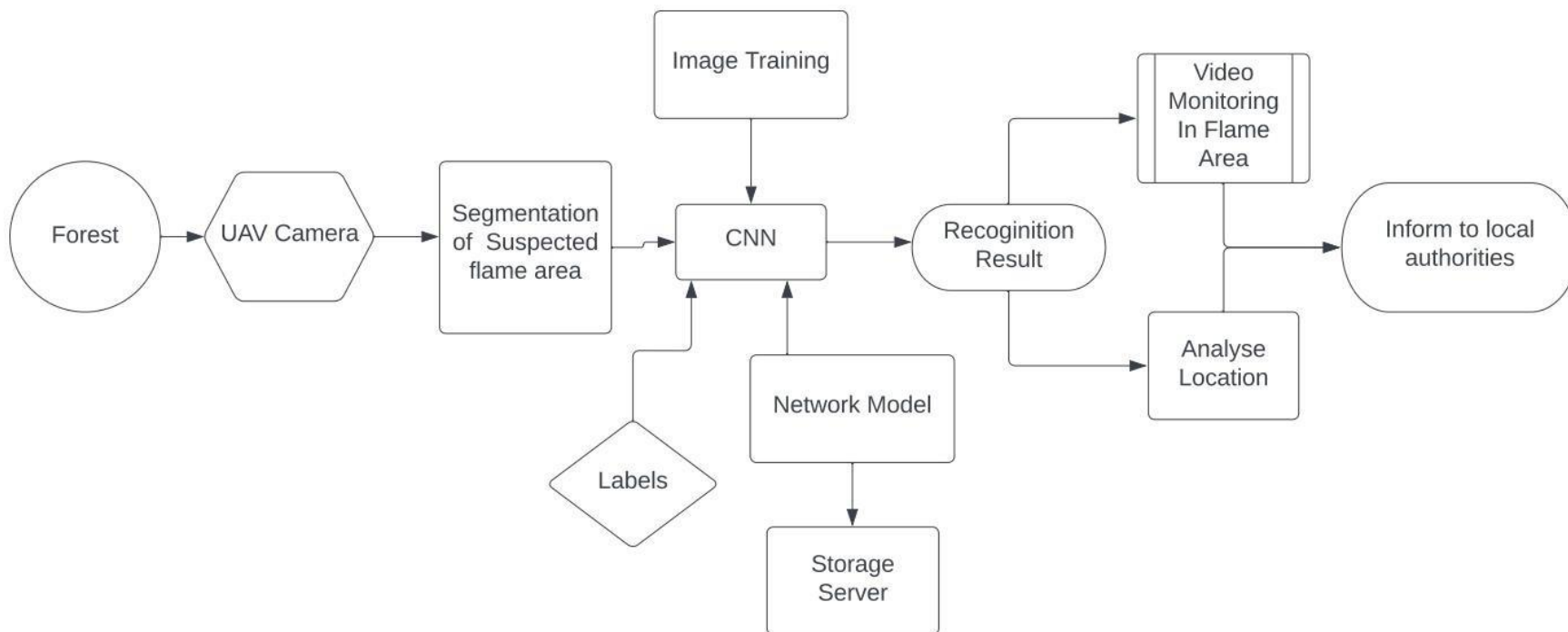


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	AOI API etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Web Application implemented is hosted by open platforms and Detection of forest fire is done by Open source Deep learning Algorithms and Libraries	XAMPP control panel, Apache Tomcat, Adobe XD, YOLO V3, Flask, Pytorch
2.	Security Implementations	For security precautions of this business model valid credentials of the registered users are stored in the data base using the Open source platform	Firebase, IBM cloud

3.	Scalable Architecture	Through comparison experiments with other YOLO-based networks such as YOLO-LITE, Tinier-YOLO, and other versions of YOLO the results show that the proposed network in this paper is effective and lightweight, and can achieve higher accuracy for forest fire detection.	CNN
4.	Availability	Unlike previous studies with disadvantages in the proposed models that lead to inefficiency and inability to produce accurate results The image processing and video processing and monitoring is available as part of the CNN effectively by Open source libraries	Open CV, Tensor Flow
5.	Performance	This effective approach of CNN based v3 is designed by trained with classified datasets so, With improved neural network model proposed has good recognition accuracy and speed, which significantly reduces the memory usage of the model and achieves a good lightweight effect.	YOLO v3(You Only Look Once)