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

Date	20 October 2022
Team ID	PNT2022TMID13036
Project Name	Emerging Methods for Early Detection of Forest Fires

Technical Architecture:

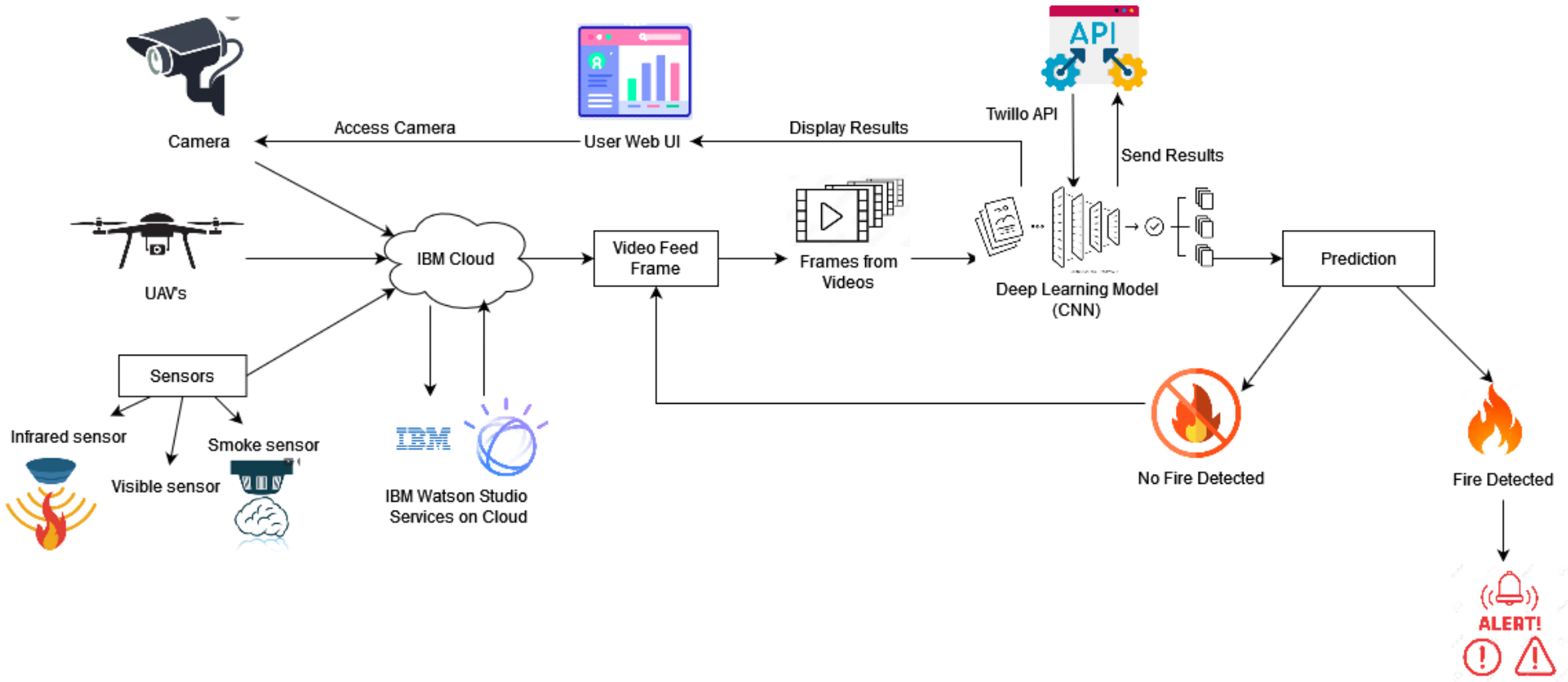

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user uses the console to access the interface	Python/HTML, CSS, JavaScript and react.Js
2.	Input	Video Feed	Web Camera/Video on a site
3.	Conversion	Video inputted is converted into Frames	Frame Converter
4.	Feeding the Model	The Frames are sent to the Deep learning model	Our Model
5.	Dataset	Using Test set and train set , train the model	Data set from Cloud Storage , Database
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant
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
9.	External API-2	Purpose of External API used in the application	User authentication
10.	Deep Learning Model(CNN)	Gets the image, processes it, and detects the presence of fire	Faster RCNN, R-FCN, SDD, YOLO V3
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Java/python, React.Js, JavaScript, HTML, CSS, IBM Cloud, OPEN CV, Anaconda Navigator, Local.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python Flask framework is used	Technology of Opensource framework
2.	Security Implementations	Mandatory Access Control (MAC) and Preventative Security Control is used	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	High scalability with 3-tier architecture	Web server – HTML ,CSS ,JavaScript Application server – Python , Anaconda Database server –IBM DB2
4.	Availability	Use of load balancing to distribute traffic across servers	IBM load balancer
5.	Performance	Enhance the performance by using IBM CDN	IBM Content Delivery Network