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

Date	18 October 2022
Team ID	PNT2022TMID06174
Project Name	Project - 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

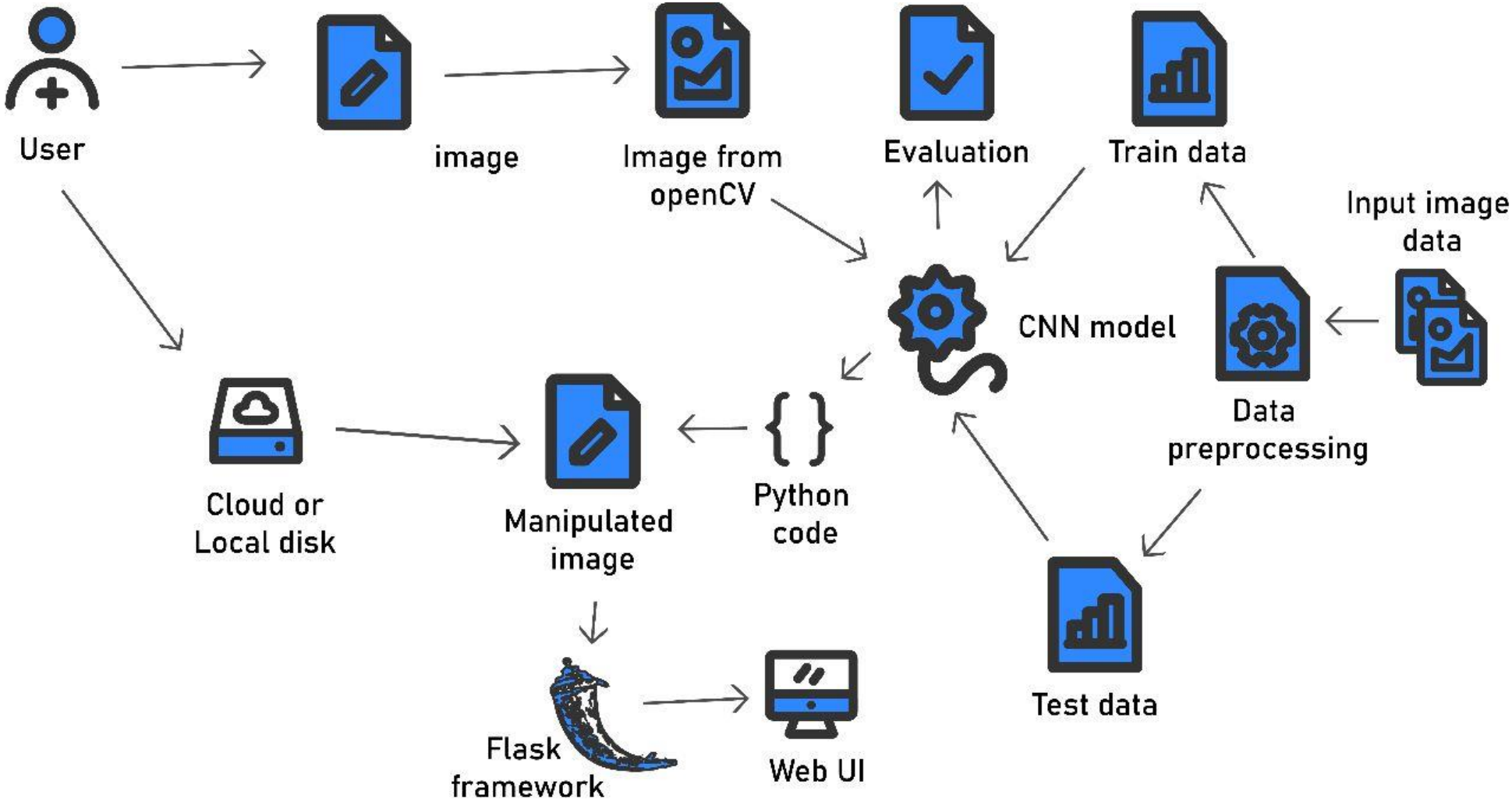
User
image
Image from openCV
Evaluation
Train data
Input image data
CNN model
Data preprocessing
Cloud or Local disk
Manipulated image
Python code
Test data
Flask framework
Web UI

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User can give video feed input to the model.	HTML, CSS, JavaScript
2.	Backend Program	Program for building the model	Python
3.	Input Pre-processing	Converting video feed to frames	IBM Watson STT service
4.	Feeding input to model	Frames are fed to deep learning model	IBM Watson Assistant
5.	Dataset	Model is trained with test set and train set	Data set from Cloud Storage , Database Local system
6.	Cloud Database	Database Service on Cloud	IBM Cloudant
7.	File Storage	Cloud / Local system	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Infrastructure (Server / Cloud), API	To run and Build AI models	IBM Watson API
9.	Neural Network Model	Image and Object Recognition	Convolution Neural network Model
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: OPEN CV, Anaconda Navigator, Local/Cloud Server Configuration : IBM Cloudants

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	Python Flask Open Source framework
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	We can use JS frameworks in the future when the app grows and with Flask, web UI templates can be easily changed.	OpenCV, Modern javascript, Flask HTML templates
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	Provides site users with faster content load time and speed and data protection to deliver AI insights from IBM Watson	IBM Content Delivery Network