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

Date	17 October 2022
Team ID	PNT2022TMID01211
Project Name	Emerging methods for early detection of forest fires
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the application .	Python
2.	Application Logic-1	The Logic for performance of the process to execute the desired output	Python
3.	Application Logic-2	IBM is used to deploy the CNN model	IBM service
4.	Database	(Pictures) Composite Data Type	MySQL.
5.	Cloud Database	Database Service on Cloud	IBM Cloudant etc.
6.	File Storage	Files like dataset for the use of training and testing can be stored in local system.	IBM Block Storage or Other Storage Service or Local Filesystem
7.	External API-1	Purpose of External API used	IBM API, twilio rest API
8.	Machine Learning Model	Purpose of Machine Learning Model is it allows the user to feed a computer algorithm an immense amount of data and have the computer analyze and make data-driven recommendations and decisions based on only the input data.	Object Recognition Model, CNN
9.	Infrastructure (Server / Cloud)	Application Deployment on Cloud	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open-source frameworks Twilio service, IBM cloud,	Technology of IBM cloud is software as a service & Infrastructure as a service, technology of twilio service is TwiML.
2.	Security Implementations	The securities are mainly related to the cloud services, they have strict security across the network.	Twilio is certified under ISO/IEC/27001, and it supports TLS 1.2 encryption. IBM cloud encrypts the data in
S.No	**Characteristics**	**Description**	**Technology**
		And the Twilio service also maintains standards to ensure data is appropriately stored.	databases and storage with built-in encryption.
3.	Scalable Architecture	Many fire risk models make use of forest fire databases to construct and assess the probabilistic model. It is an effective way to minimize the damages caused by forest fire in the early detection of forest fire.	As artificial intelligence is used it gives appropriate detection of fire occurrence in the forest.
4.	Availability	As the functional requirements are mostly open sources, they are highly available to all. Anyone can make use of it.	(Open source) python

5.	Performance	After repeated training and testing, the forest fire prediction results based on the convolution neural network would be found to be appropriate in most of the times. When the fire in the forest is detected the alerting message will be sent to the customers (clients). So that they can prevent the major damages caused by the fire.	IBM cloud makes the process more feasible.