Technical Architecture

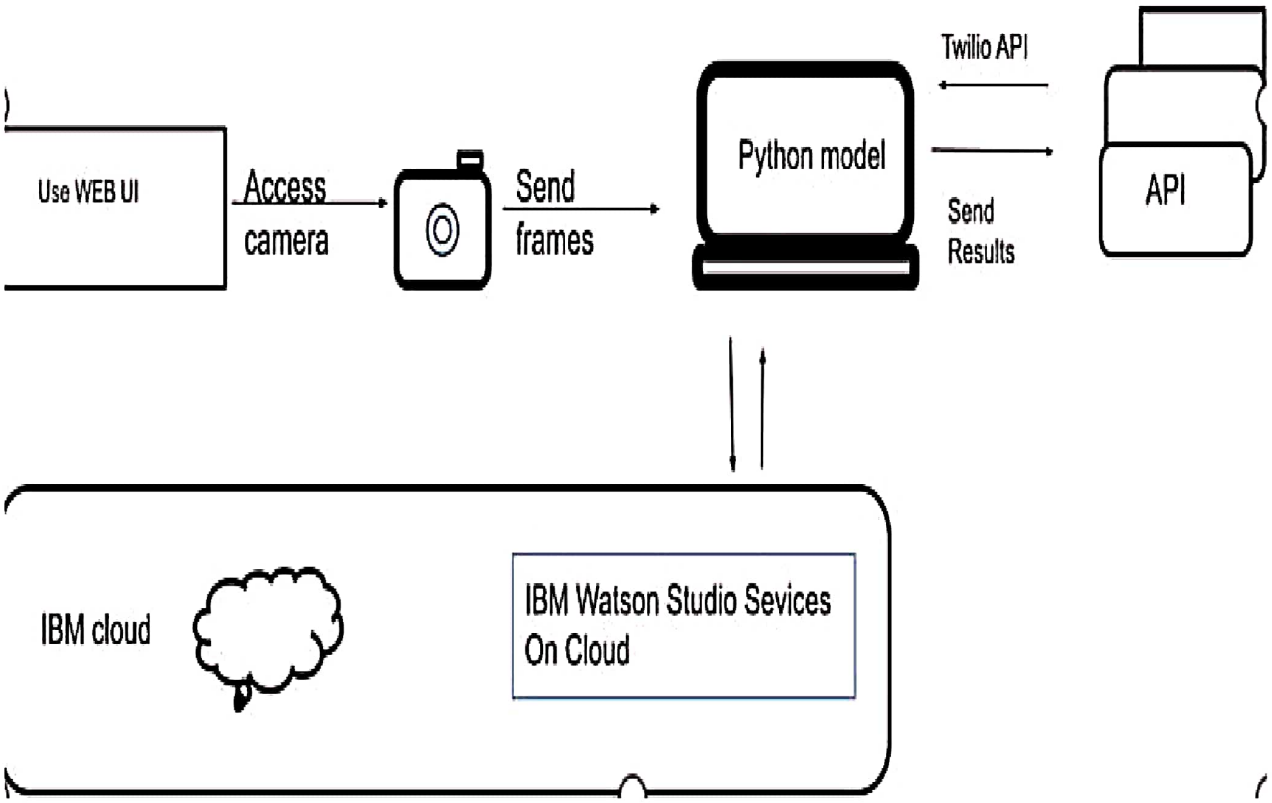

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Sensor	Rotates the camera 360 degree every 4 to 6 minutes a day OSS at the tower has wireless connections to the users computer	Optical Sensor can be used
2.	User Interface	The user uses the console to access the interface	Python/HTML ,CSS , Javascript and react.Js
3.	Input	Video Feed	Web Camera/Video on a site
4.	Conversion	Video inputted is converted into Frames	Frame Converter
5.	Fire system	Identifying smoke by clustering motions with a time input to reduce the number of false alarm	Ura Fire System
6.	Dataset	Using Test set and train set , train the model	Data set from Cloud Storage , Database
7.	Cloud Database	Database Service on Cloud	IBM Cloud ,Python Flask.
8.	Infrastructure (Server / Cloud), API	Application Deployment on Local System / Cloud Local ,Cloud Server Configuration , Twilio API to send messages	Java/python ,React.Js ,JavaScript ,HTML ,CSS ,IBM Cloud ,OPEN CV ,Anaconda Navigator ,Local.
9.	Detector	It will send an alert sound if the CNN detects the fire	Sound Alarm
10.	CNN	Gets the image process it and finds whether fire occurs or not	Four algorithms are used Faster-RCNN,R-FCN,SDD,YOLO V3

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
6.	Open CV	Open – Source Library for image processing	PYTHON Programing Language