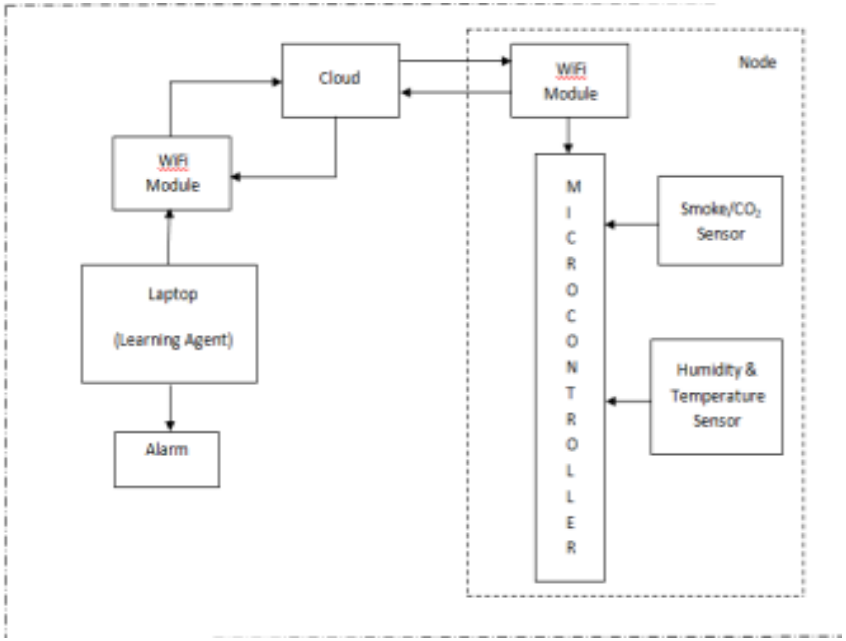
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	19 November 2022
Team ID	PNT2022TMID30863
Project Name	Project -Emerging method for early detection of forest fire
Maximum Marks	4 Marks

Technical Architecture:



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User interface	By WWAN ,user interacts with application e.g.Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Database	Phyton,keras,tensorflow,Natural language processing	MySQL, NoSQL,ResNet-50 with SVM , etc.
3.	Cloud Database	Analysis Database Service on Cloud	IBM DB2, IBM Cloudant etc.
4.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
5.	WIFI module	wireless router creates a wireless network for your WiFi-enabled devices to connect to the Internet	WWAN 802.11,ESP8266
6.	Micro-controller	samples data from each sensor at regular intervals.	Open source,integrated circuit designs
7.	Laptop	Learning agent	Intel Core i7 8th Gen.
8.	Sensors	(Humidity & Temerature,Smoke & CO2)It sense the changes in air atmosphere.	IBM Weather API, etc.
9.	External API	(Alarm)sending out signals to a central monitoring station when sensors are faulted.	Wireless Alarm Systems, etc.
10.	Machine Learning Model	Machine Learning and Transfer Learning to recognise fires in images/video frames.	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration:Operating system Cloud Server Configuration : Cloud Hosting Services	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	It is publicly available for commercial and non-commercial use under various open source licenses	Tensorflow,RNN
2.	Security Implementations	Use of alarm and sensors for security purpose.	Wireless Alarm Systems,Infrared (IR),Ionization/Photoelectric sensors
3.	Scalable Architecture	Well monitoring system with accurate indication.	Artificial Intelligence(AI)
4.	Availability	Use of micro-controller	C++ , Java,etc
5.	Performance	application is affordable, robust, reliable and provides high performance	Machine(or)deep learning