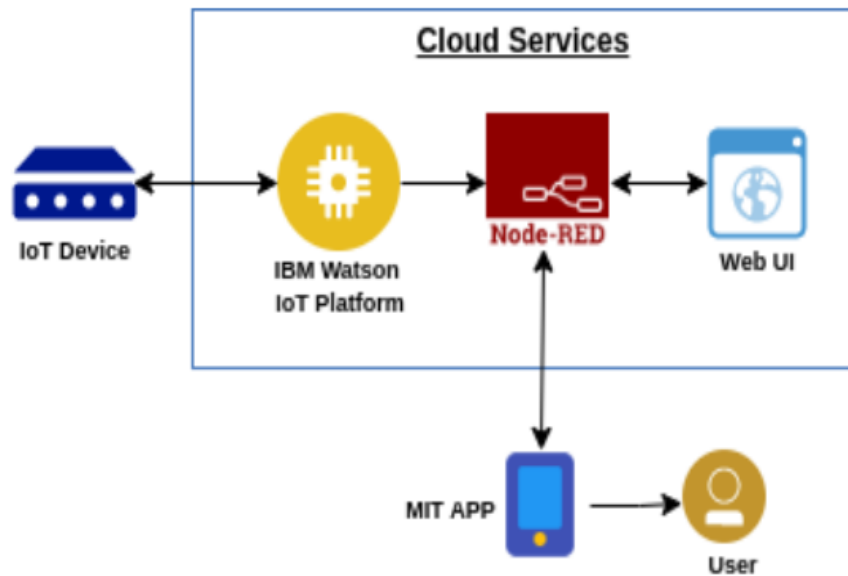


## Project Design Phase-II Technology Stack (Architecture & Stack)

Date	17 October 2022
Team ID	PNT2022TMID51110
Project Name	Project - IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	4 Marks

### TECHNICAL ARCHITECTURE:



### Guidelines:

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

Application Layer

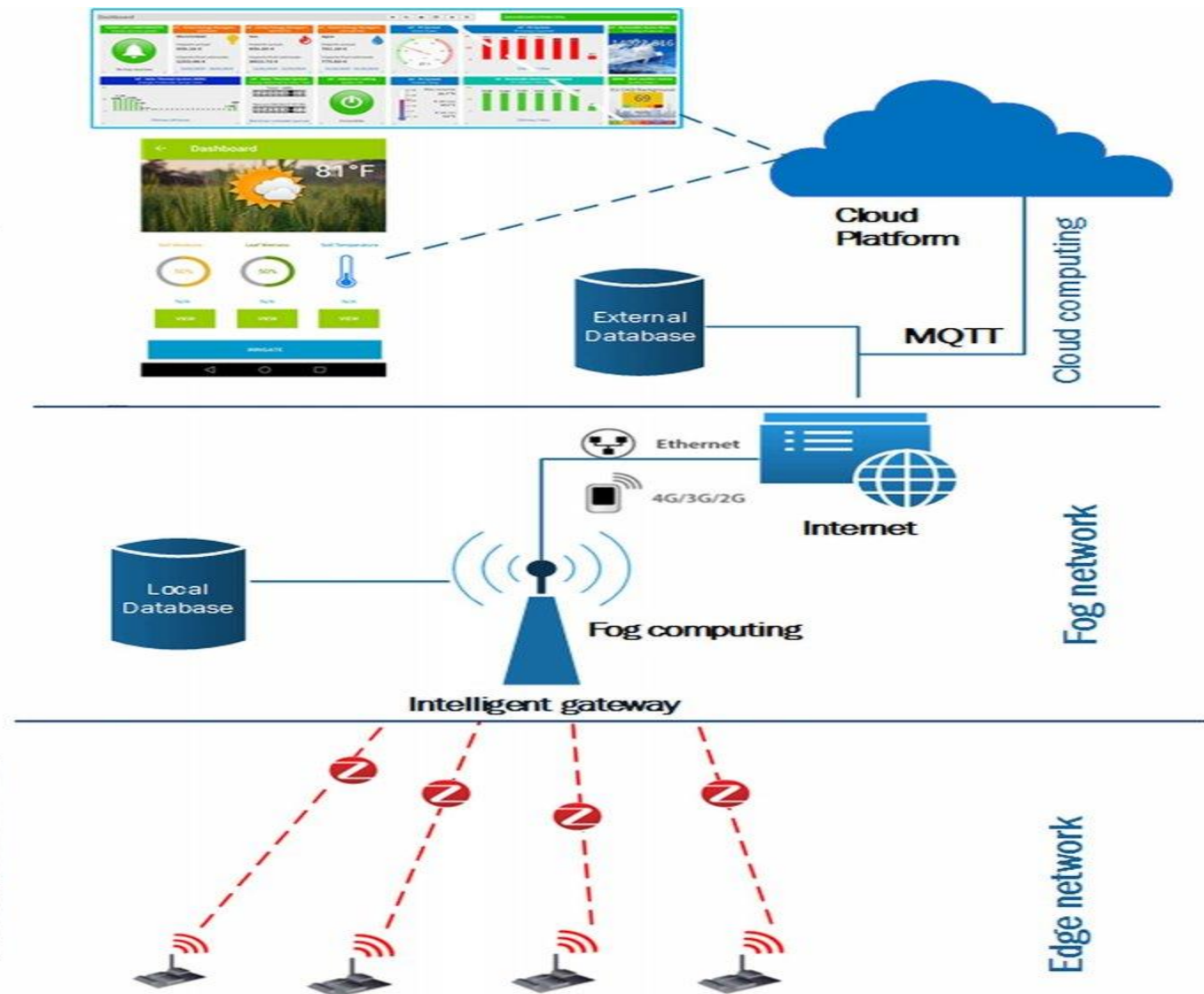
Data Acquisition & Processing Layer



Communication Layer



Sensing Layer



**Table-1 : Components & Technologies:**

S.No	COMPONENTS	DESCRIPTION	TECHNOLOGY
1.	User Interface	Mobile App	IoT
2.	Application Logic-1	When a movement is detected by the proximity sensor, a constant noise is produced.	IoT
3.	Application Logic-2	The camera will turn on whenever movement is detected and take pictures.	Camera
4.	Application Logic-3	In the event of any detection, the buzzer will activate and make noise.	Buzzer
5.	Database	The image is captured by the camera and is saved in the microcontroller.	Microcontroller
6.	Cloud Database	Smart barcodes are used in RFID tags, a sort of tracking device, to identify objects. using radio frequency technology, RFID tags	C++/ Python
7.	File Storage	IoT credentials are stored in the microcontroller.	IBM microcontroller
8.	External API-1	To get the status of movement detected or not	IBM Proximity sensor
9.	External API-2	To get the message from camera which is stored in IBM DB2.	GSM
10.	Machine Learning Model	To convert the movement of detection and image capture into text.	LCD display.
11.	Infrastructure (Server / Cloud)	To host the cloud and application	Cloud

**Table-2: Application Characteristics:**

<b>S.No</b>	<b>CHARACTERISTICS</b>	<b>DESCRIPTION</b>	<b>TECHNOLOGY</b>
1.	Open-Source Frameworks	<ul style="list-style-type: none"><li>Physical items with sensors, processing power, software, and other technologies that link to and share data over the Internet with other systems and devices</li></ul>	IoT, Arduino, IBM cloud, Python
2.	Security Implementations	<ul style="list-style-type: none"><li>Highly safe because only the user's cell phone would receive the info. The only person who can view the data is the owner.</li></ul>	Authentication, authorization, accessibility
3.	Scalable Architecture	<ul style="list-style-type: none"><li>By utilising the sensors, this solution is adaptable enough to work with the IOT-based Smart Crop Protection System for Agriculture.</li></ul>	Internet of Things
4.	Availability	<ul style="list-style-type: none"><li>The device's availability can be increased if it is properly maintained. The device has a minimum lifespan of two years..</li></ul>	Based on the hardware device
5.	Performance	<ul style="list-style-type: none"><li>It is operational around-the-clock. Data changes are updated fairly quickly. The user cannot alter the data that is sent to them. The sensor technology is precise and reliable. The device performs well all around.</li></ul>	Python