MEPCO SCHLENK ENGINEERING COLLEGE

Department of Electronics and Communication Engineering

IBM NALAIYA THIRAN

DESIGN PHASE 2

TEAM ID : PNT2022TMID18128

TITLE : Smart Farmer- IoT Enabled Smart Farming Application **DOMAIN**

NAME : Internet of Things

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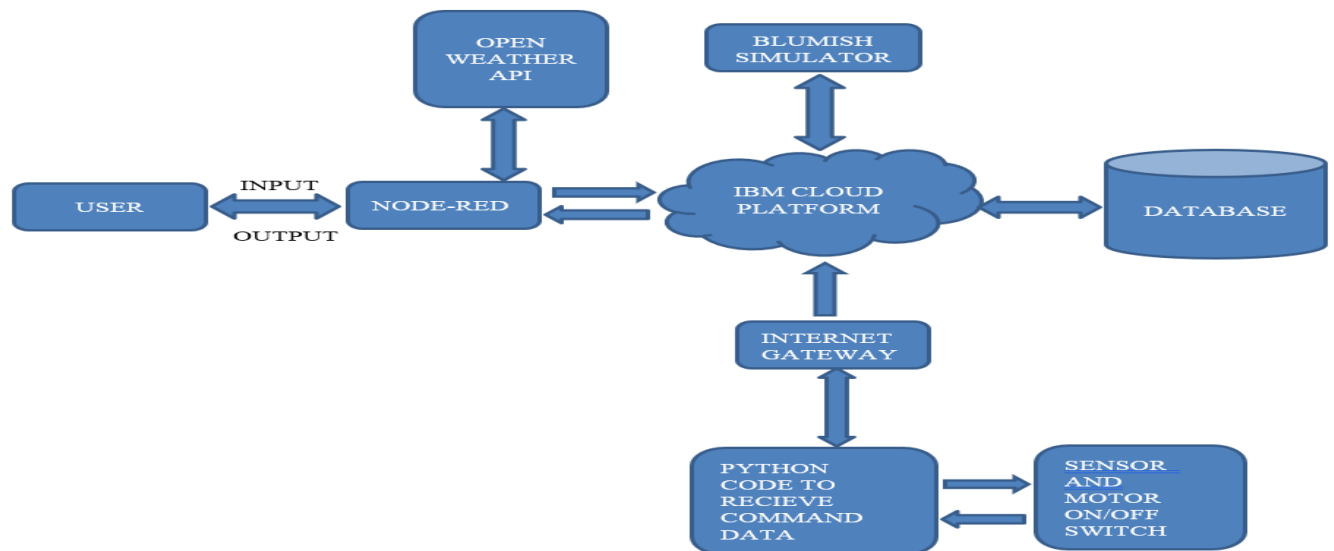
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TECHNOLOGY ARCHITECTURE

1. The different soil parameters like temperature, soil moisture and humidity are sensed using different sensors and obtained values are stored in the IBM cloud.

2. Arduino UNO is used as a processing Unit that process the data obtained from the sensors and data from the weather API.

3. NODE-RED is used as a programming tool to write the hardware, software and APIs.

4. The MQTT protocol is followed for communication process. Communicating between cloud and the user (Farmer).

5. All the collected data are provided to the user through a mobile application that was developed using the MIT app inventor.

Table 1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	The communication protocol being used might act as an interface	MIT App Inventor
2.	Arduino UNO	It is used as a processing Unit	Python
3.	MQTT protocol	The data to be collected and sent to the farmer via MQTT protocol providing the data to easily monitor the crops	IBM Watson IOT service, IBM Watson Assistant
4.	Database	Data Type, Configurations	Firebase
5.	Cloud Database	Database Service on Cloud	IBM Cloud
6.	External API	To monitor the weather	Open Weather API

Table 2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MQTT protocol	python
2.	Security Implementations	Sensitive and private data must be protected from their production until the decision-making and storage stages.	Node-Red, Open weather App API, MIT App Inventor
3.	Scalable Architecture	Scalability is a major concern for IoT platforms. It has been shown that different architectural choices of IoT platforms affect system scalability and that automatic real time decision-making is feasible in an environment composed of dozens of thousand.	Node-Red service
4.	Availability	Available feasible	Open weather API
5.	Performance	Design consideration for the performance of the application.	MIT app inventor