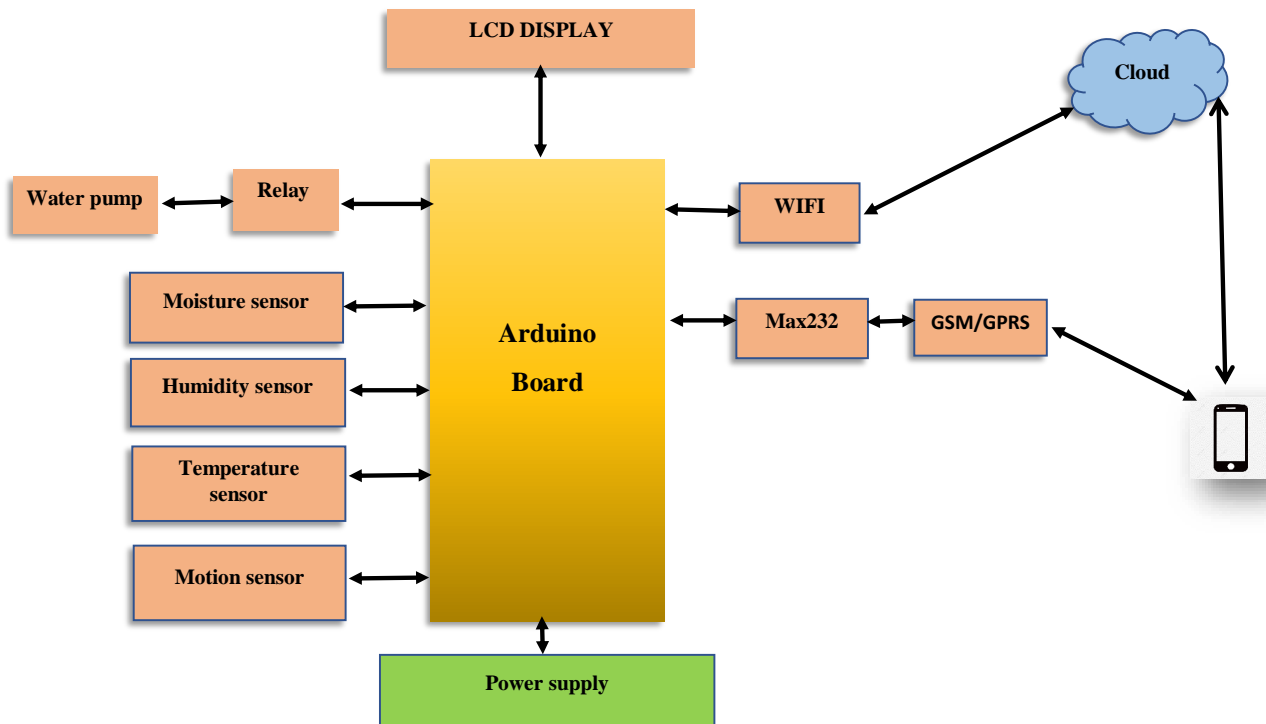# TECHNOLOGY ARCHITECTURE

TECHNICAL ARCHITECTURE:

The deliverable shall include the architectural diagram below and the information as per the table1 & table2.

LCD DISPLAY

| Water pump | ← | Relay | | Arduino Board | | WIFI | → | Cloud |

| Moisture sensor | | Max232 | | GSM/GPRS |

| Humidity sensor |

| Temperature sensor |

| Motion sensor |

| Power supply |

GUIDELINES:

- ❖ Include all the processes (as an application logic/technology block)
- ❖ Provide infrastructural demarcation (logic/cloud)
- ❖ Indicate external interfaces (third-party API etc.)
- ❖ Indicate Data Storage components/services
- ❖ Indicate interface to the machine learning models (if applicable)

DESCRIPTION:

- ➢ The different soil parameters temperature, soil moisture, and then humidity is sensed using different sensors, and the obtained value is stored in the IBM cloud.
- ➢ Arduino UNO is used as a processing unit that processes the data obtained from the sensors and whether data firs om the weather API.
- ➢ All the collected data are provided to the user through a mobile application that was developed using the MIT app inventor. The user could plan through an app, whether to water the crop or not depending upon the sensor values. By using the app, they can remotely operate the motor switch.

TABLE-1:

COMPONENTS & TECHNOLOGIES

S. N0	COMPONENTS	DESCRIPTION	TECHNOLOGY
1	User Interface	How the user interacts with the application e.g., Web UI, Mobile App.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2	Application Logic-1	The logic for a process in the application.	Python
3	Application Logic-2	The logic for a process in the application.	IBM Watson IoT service.
4	Application logic-3	The logic for a process in the application.	IBM Watson Assistant.

5	Database	Data type, configurations, etc.	MySQL, NoSQL, etc.
6	Cloud Database	Database service on the cloud.	IBM cloud.
7	File Storage	File storage requirements.	IBM block storage or other storage service or local filesystem
8	External API-1	Purpose of external API used in the application.	IBM weather API, etc.
9	Machine Learning Model	Purpose of Machine Learning Model.	Object Recognition Model, etc.
10	Infrastructure (server/cloud)	Application Deployment on Local System/Cloud Local Server Configuration: Cloud Server configuration:	Local, Cloud Foundry, Kubernetes, etc.

TABLE-2:
APPLICATION CHARACTERISTICS:

S.NO	CHARACTERISTICS	DESCRIPTION	TECHNOLOGY
1	Open-Source Frameworks	List the open-source frameworks used.	The technology of the Opensource framework.
2	Security Implementations	Sensitive and private data must be protected from their production until the decision-making and storage stages.	e.g., Node-Red, Open weather App API, MIT App Inventor, etc
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.	Technology used.
4	Availability	Automatic adjustment of farming equipment is made possible by linking information like crops/weather and equipment to auto-adjust temperature, humidity, etc.	Technology used.

5	Performance	The idea of implementing integrated sensors with sensing soil and environmental or ambient parameters in farming will be more efficient for overall monitoring.	Technology used.