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

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|---|---|
| Date | 27 October 2022 |
| Team ID | PNT2022TMID08774 |
| Project Name | IoT based smart crop protection system for agriculture. |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

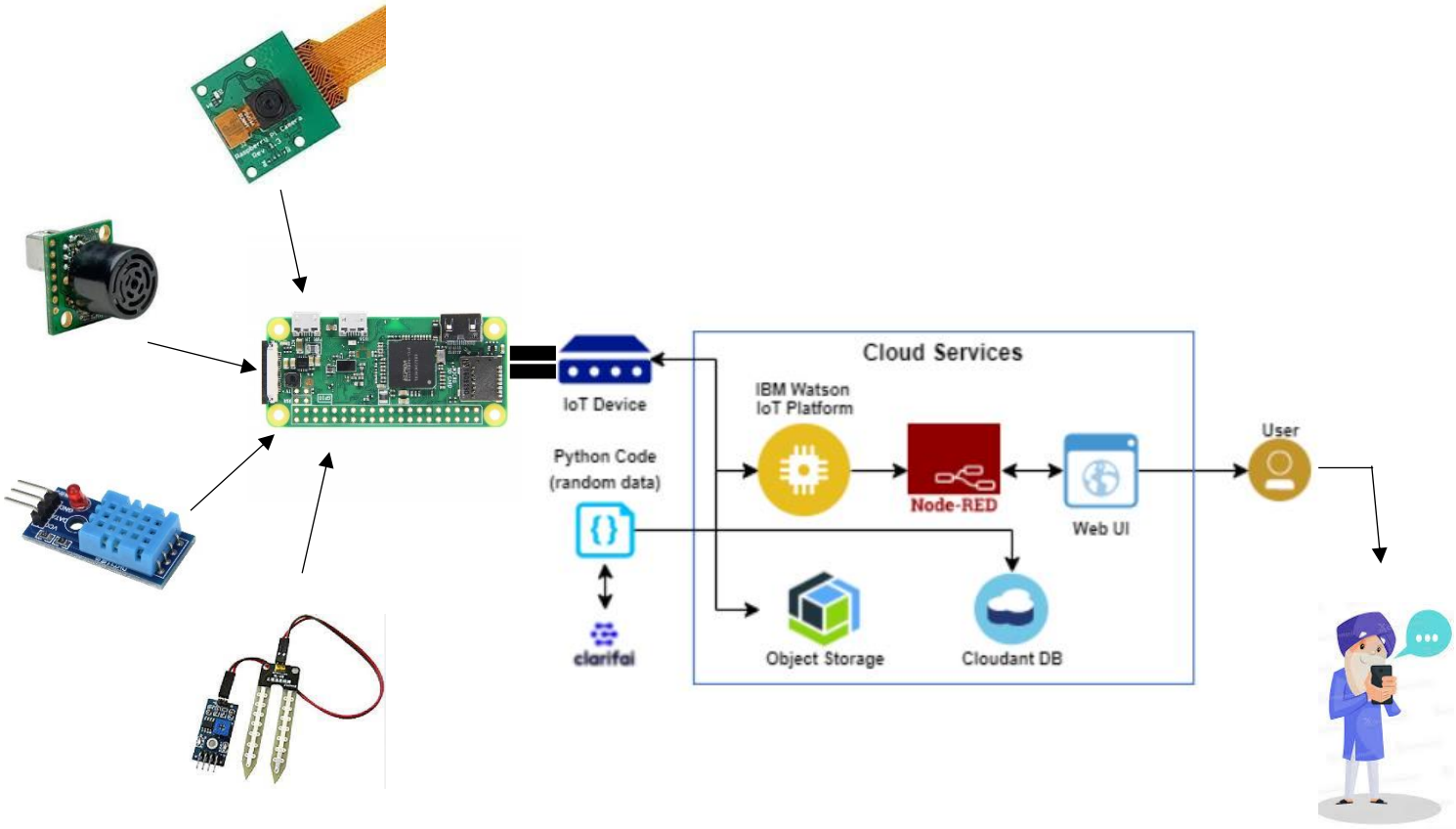

**Table-1: Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | User interacts through mobile app | HTML, CSS, JavaScript / Angular Js Or MIT App Inventor |
| 2. | Application Logic-1 | Used to measure the temperature and humiditylevel. | Python |
| 3. | Application Logic-2 | It is used to build conversational interfaces into any application or device. | IBM Watson Assistant |
| 4. | Database | MongoDB is a source-available cross-platform document-oriented database program. It uses JSON-like documents with optional schemas. | MongoDB |
| 5. | Cloud Database | Cloudant is a non-relational distributed database service which handles software and hardware provisioning, management and scaling and support | IBM Cloudant |
| 6. | File Storage | The collected data's are stored in the IBM BlockStorage. | IBM Block Storage |
| 7. | External API-1 | Purpose of this IBM weather API is collect therequired data from the cloud. | IBM Weather API etc. |
| 8. | Machine Learning Model | An intelligent system that protects crop from animals by identifying it via camera and it also measures temperature, soil moisture, humidity level .It also enables the remote monitoring and control of motors. | Object Recognition Model, etc. |
| 9. | Infrastructure (Server / Cloud) | Application Deployment on Local System / CloudLocal Server Configuration | Local, Cloud Foundry, Kubernetes, etc. |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Thingspeak, Ubidot | Wifi / GSM,GPRS |
| 2. | Security Implementations | Mandatory access control, Discretionary access control, Role-based access control. | e.g. SHA-256, Encryptions, IAM Controls, OWASP etc. |
| 3. | Scalable Architecture | It refers to a system, network or process that is designed to handle a workload that may change inscope. | Kubernetes, Elastic storage, Loadbalancer. |
| 4. | Availability | It is a metric used to measure the percentage oftime a machine can be used. | Technology used |
| 5. | Performance | Need to simulate devices from different locationswith required network technologies. | Machine Learning Alogorithm |