**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

|  |  |
| --- | --- |
| Date | 15 October 2022 |
| Team ID | PNT2022TMID20272 |
| 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** |
|  | User Interface | Interacts with IOT Devices | HTML, CSS, JavaScript / Angular Js / React Js etc. |
|  | Application Logic-1 | Logic for a process in the application | Python |
|  | Application Logic-2 | Logic for a process in the application | IBM Watson STT service |
|  | Application Logic-3 | Logic for a process in the application | IBM Watson Assistant |
|  | Database | Data Type, Configurations etc. | MySQL, NoSQL, etc. |
|  | Cloud Database | Database Service on Cloud | IBM DB2, IBM Cloudant etc. |
|  | Infrastructure(Server/Cloud) | Application Deployment on Local System/Cloud local configuration | Local, Cloud foundry, Kubernetes,etc. |
|  | File Storage | File storage requirements | IBM Block Storage or Other Storage Service or Local Filesystem |
|  | External API-1 | Purpose of External API used in the application | IBM Weather API, etc. |
|  | IOT Model | Purpose of IOT Model for integrating the sensors with user interface. | IBM IOT Model, etc. |

**Table-2: Application Characteristics:**

| **S.No** | **Characteristics** | **Description** | **Technology** |
| --- | --- | --- | --- |
|  | Open-Source Frameworks | List the open-source frameworks used | Python |
|  | Security Implementations | List all the security / access controls implemented, use of firewalls etc. | e.g. SHA-256, Encryptions, IAM Controls, OWASP etc. |
|  | Scalable Architecture | Justify the scalability of architecture (3 – tier, Micro-services) | Web UI Application server-python, clarify database server-IBM cloud services Technology. |
|  | Availability | Justify the availability of application (e.g. use of load balancers, distributed servers etc.) | IBM cloud services |
|  | Performance | Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN’s) etc. | IBM cloud services |

**References:**

[**https://c4model.com/**](https://c4model.com/)

[**https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/**](https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/)

[**https://www.ibm.com/cloud/architecture**](https://www.ibm.com/cloud/architecture)

[**https://aws.amazon.com/architecture**](https://aws.amazon.com/architecture)

[**https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d**](https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d)