**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

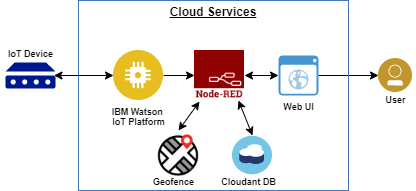
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| --- | --- |
| Date | 03 October 2022 |
| Team ID | PNT2022TMID18337 |
| Project Name | Project - IoT Based Safety Gadget for Child Safety Monitoring and Notification |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

**Example: Order processing during pandemics for offline mode**

**Reference:** [**https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/**](https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/)



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API’s etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

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

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Component** | **Description** | **Technology** |
|  | User Interface | Interaction of the user with the application using Web UI | Node Red |
|  | Application Logic-1 | Tracking of user’s location and monitoring of the  same | Python |
|  | Application Logic-2 | Sending notifications to the registered mobile number | IBM Watson STT service |
|  | Application Logic-3 | Send alert when user crosses the geo-fence mentioned | IBM Watson Assistant |
|  | Database | Data provided by the user in the account and geo- fence range | MySQL, NoSQL, etc. |
|  | Cloud Database | Handles software and hardware provisioning, management and scaling and support. | IBM DB2, IBM Cloudant etc. |
|  | File Storage | High performance while dealing with large amount of unstructured data | IBM Block Storage or Other Storage Service or Local Filesystem |
|  | External API-1 | API’s offer the convenience and transparency needed to connect users to ideal experiences | IBM Weather API, etc. |
|  | External API-2 | Communication with both the user and the application is taken care of by API’s | IBM API Connect |
|  | External API-3 | Easy user interface. | MIT App inventor |
|  | Machine Learning Model | Used to differentiate user’s features | Feature Differentiation Model |
|  | 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** |
| --- | --- | --- | --- |
|  | Open-Source Frameworks | A software for which the original source code is made freely available and may be redistributed and modified according to the requirement of the user. | Watson IoT platform, Wokwi, Node red. |
|  | Security Implementations | Secure monitoring of the user’s location without open-source access | IBM encryption services |
|  | Scalable Architecture | Presence of location sensors to quickly scale the user’s current location. | GPS, IBM alert notification service |
|  | Availability | Usage of data and location tracked in the  account anytime with high availability. | Node RED |
|  | Performance | Less amount of power consumption with high storage cache present. | Watson assistant |

**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)