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

Date	03 October 2022
Team ID	PNT2022TMID27938
Project Name	Project - Hazardous Area Monitoring for Industrial Plant powered by IoT
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/
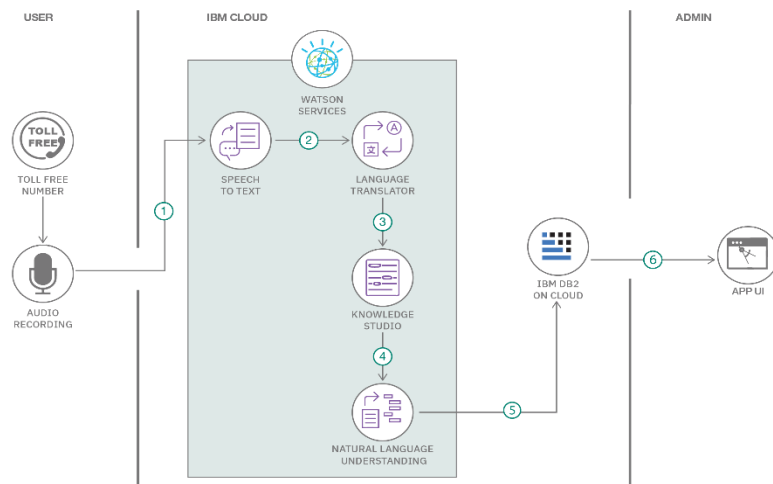
Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)
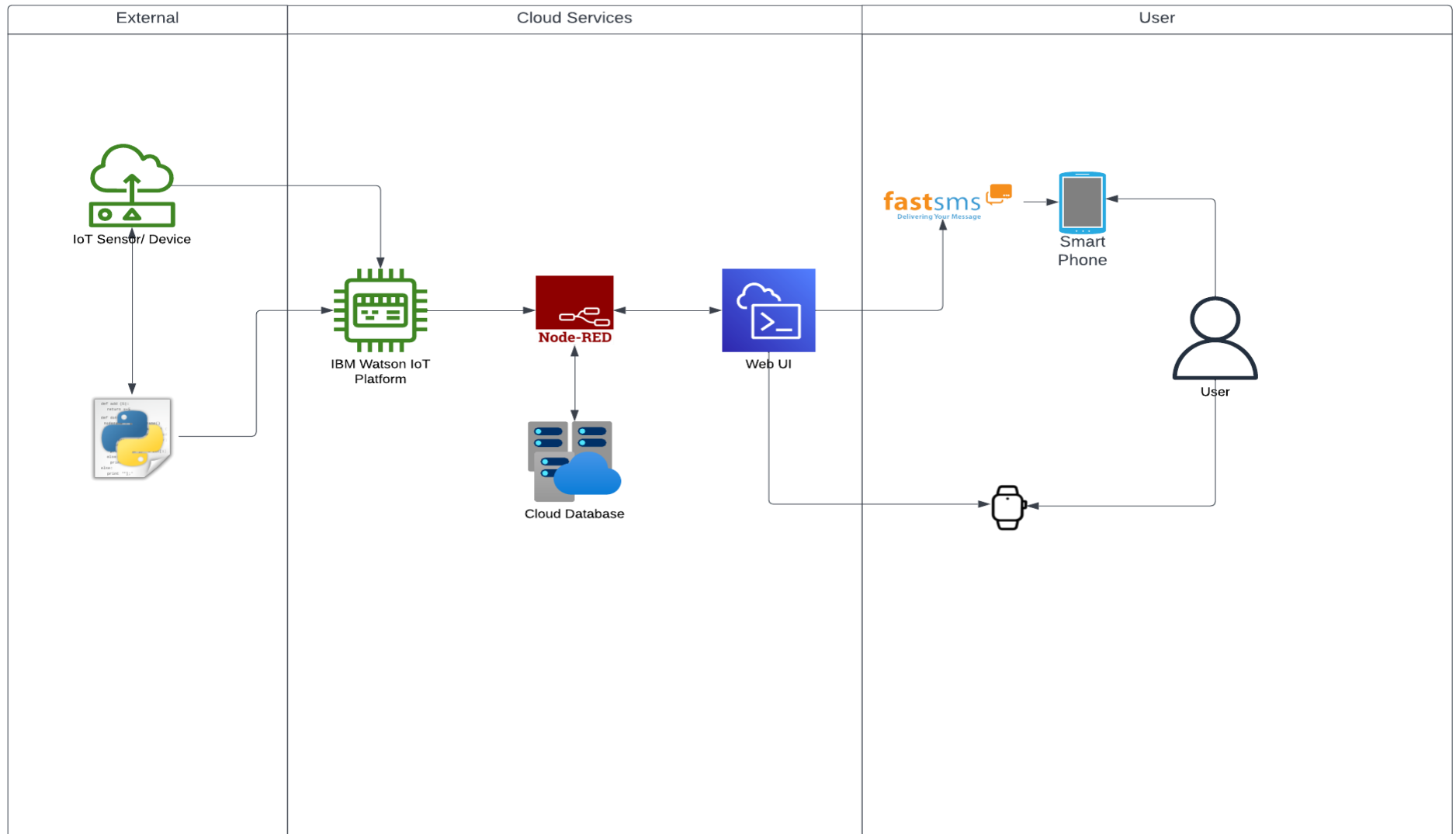
Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI, SMS Alert Mobile App, and Wearable device	Node-RED, MIT App Inventor, and Fast SMS
2.	Application Logic-1	Getting Input from Smart Beacons	Python
3.	Application Logic-2	Process Data in the cloud	IBM Watson IoT Platform, Node-RED, and Cloudant DB
4.	Application Logic-3	Display data to the user	Web UI and Fast SMS
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Realtime database	Cloudant DB
7.	File Storage	Database service on cloud	IBM Cloudant
8.	External API-1	To send SMS to user	Fast SMS
9.	External API-2	Code for the functioning of the Smart Beacon device to collect the environmental data	Python Modules
10.	Smart Beacon	To collect the data from the surrounding environment	NodeMCU, Sensors, Python Code
11.	Infrastructure (Server / Cloud)	Application/Data deployment on cloud	IBM Cloud Services

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Node-RED opensource framework is used to build web applications and also make them interact with the hardware.	Node-RED Framework
2.	Scalable Architecture	Scalability of architecture (3 – tier, Micro-services) as it has a separate user interface, application tier, and data tier	IBM Watson Studio
3.	Availability	Web application is highly available (in the presence of good network connectivity)	IBM Cloudant
4.	Performance	The performance of the web UI is improved using cache, security services	IBM Cloud Services

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d