

Project Design Phase-II

Technology Architecture & Stacks

Date	30 October 2022
Team ID	PNT2022TMID26639
Project Name	Smart Solutions for Railways
Maximum Marks	4 Marks

Technical Architecture:

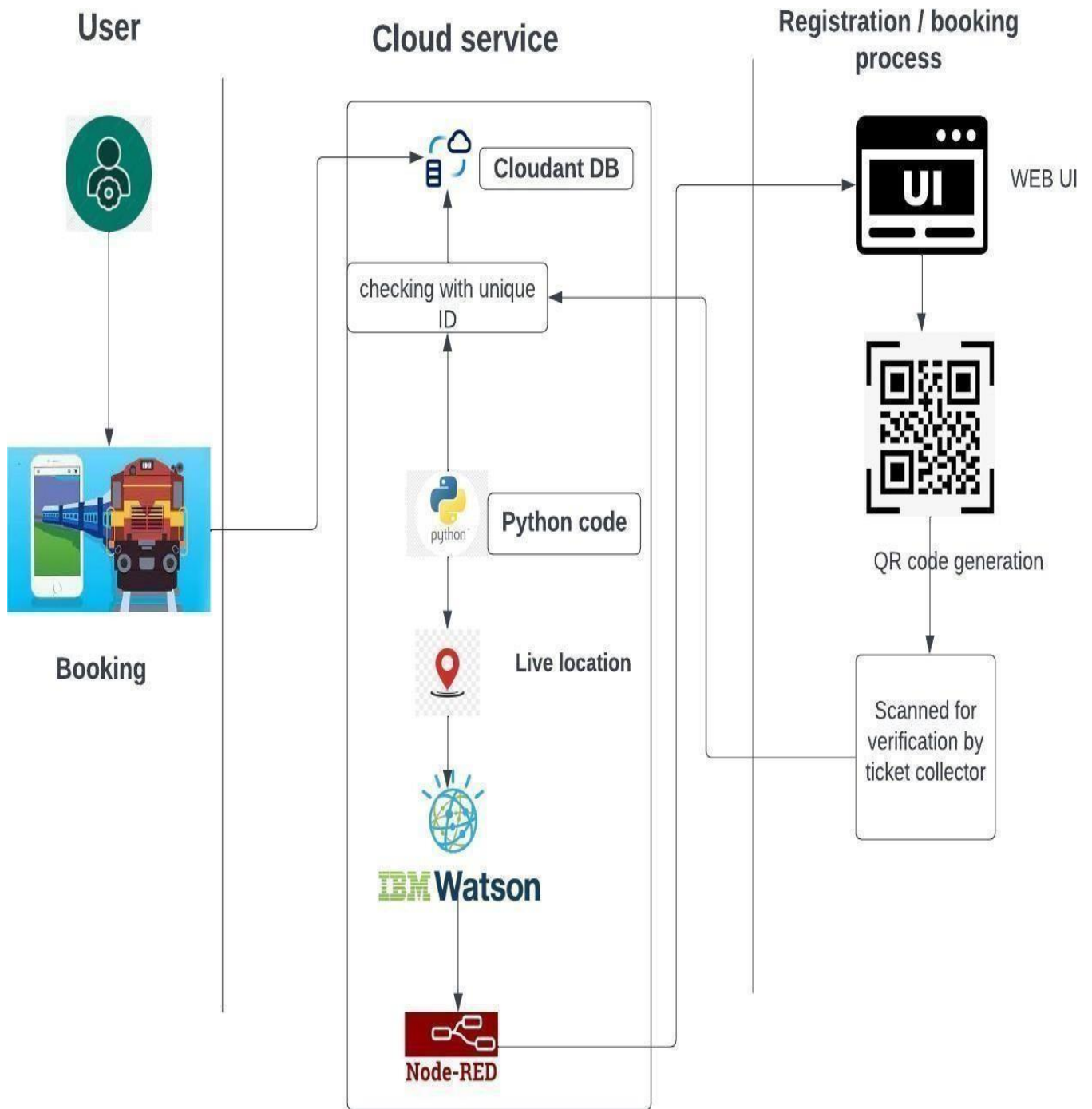


Table-1 : Components & Technologies:

S.NO	COMPONENT	DESCRIPTION	TECHNOLOGY
1.	<i>User interface</i>	Web & Mobile Application	Node red UI and MIT App Inventor
2.	<i>Application logic-1</i>	Sending Random Latitude and Longitude for the train location tracking.	Python
3.	<i>Application logic-2</i>	Generating QR Code which holds the unique ID.	Node RED.
4.	<i>Database</i>	Data Type, Configurations etc.	MySQL & Maria Database
5.	<i>Cloud Database</i>	Database Service on Cloud	IBM Cloudant
6.	<i>File Storage</i>	File storage requirements	IBM Block Storage
7.	<i>External API-1</i>	To show the current location of the Train using the map api.	World Map API
8.	<i>External API-2</i>	Used to send the Email for the user which is used for the verification.	Email Sending API,
9.	<i>Infrastructure (Server / Cloud)</i>	Application Deployment on Server.	Kubernetes.

Table-2: Application Characteristics:

S.NO	COMPONENT	DESCRIPTION	TECHNOLOGY
1.	<i>Open-Source Frameworks</i>	MIT App Inventor, Flask	Block Based Programming Language, python
2.	<i>Security Implementation</i>	User Details and Entered Data will be Encrypted.	Industry-Standard AES-256 encryption
3.	<i>Scalable Architecture</i>	The Scanner code written are highly scalable where any implementation or modifications can be done when ever it required.	Python.
4.	<i>Availability</i>	As 90% of the process is done by Cloud service, The Application is available at any time required.	IBM Cloud Service & IBM Load Balancer
5.	<i>Performance</i>	Thus The Process are complete done through Cloud Service and the Data's are stored in IBM Cloudant Database, the Performance of this project is high.	IBM Cloud Service, IBM Cloudant Database and Distributed Service.