SMART SOLUTIONS FOR RAILWAYS

Introduction:

Mainline and metro transit railways provide reliable, safe, on-time, journeys for millions of people and products every day - playing a critical role in our communities and our economies. Now, with a transformed, digital railway, you can deliver new and fully connected rail experiences. With a reliable, secure communications network at work for you, you can benefit from new levels of “connectedness” and automation – while reducing costs, improving efficiency and enhancing overall service. With powerful communications, you can achieve the full opportunities of industrial IoT and advanced analytics – helping you predictively maintain your operations, intelligently manage assets and automate intelligence. Discover how Nokia can help you transform your digital railway and see what it means to travel at the speed of life.

Project Objectives

- Gain knowledge of Watson IoT Platform.
- Connecting IoT devices to the Watson IoT platform and exchanging the sensor data.
- Gain knowledge on IBM Cloudant DB
- Explore Python client libraries of Watson IoT Platform.
- Explore Python library for integrating OpenCV for accessing the Live Camera Input
- Scan the QR code in live streaming and retrieve the QR code details
- Gain knowledge on web application development.
- Gain knowledge of storing the data in Cloudant DB
- Generating QR codes with the required data.

Skills Required :

Python ,IBM Cloud, Node- RED,IBM IoT Platform, MIT App Inventor, IBM Cloud DB

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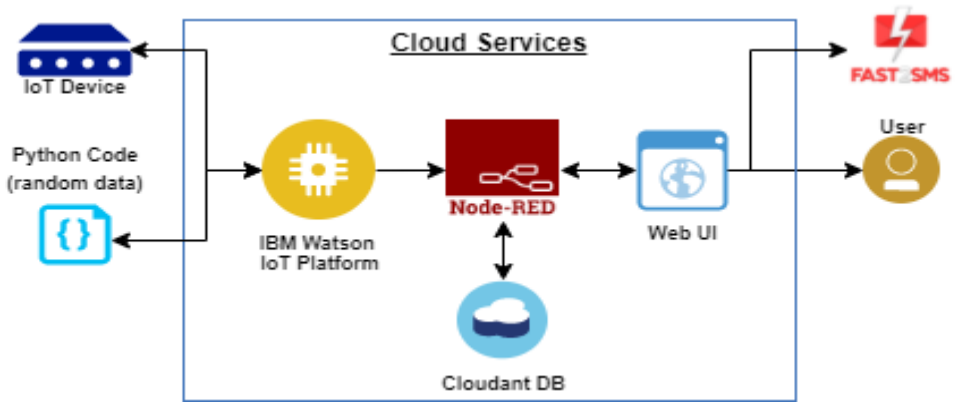
Technical Architecture:



Skills Required

Python ,IBM Cloud, Node- RED,IBM IoT Platform, MIT App Inventor, IBM Cloud DB

Project Flow

- Using the Web application, a user books a ticket based on the availability of the seats by giving the general required information.
- Once a user clicks on the submit button, a QR code is generated with a Unique ID and the data is stored in the Cloudant DB with that Unique ID.
- Users can save the QR code for further process.
- In python code, a Ticket collector can scan the QR code and extract the information from the QR Code i.e., Unique ID. With that Unique ID, data is fetched from the Cloudant DB, if it is not found, then it displays Not a Valid Ticket.
- Also, the live location of the train will be published to IBM IoT platform using python code
- The train location can be tracked from a Web Application.

To accomplish this, we have to complete all the activities and tasks listed below:

- Create and configure IBM Cloud Services
  - Create IBM Watson IoT Platform and Device
  - Create Node-RED service
- Develop the Python Script
  - Develop the Python Script
- Develop a web Application using Node-RED Service.
  - Develop the Web application using Node-RED
  - Testing the Web UI by giving the required inputs

Project Structure:

- Dataset folder contains the training and testing images for training our model.
- We are building a Flask Application which needs HTML pages stored in the templates folder and a python script app.py for server side scripting
- we need the model which is saved and the saved model in this contentis gesture.h5
- The static folder will contain js and css files
- Whenever we upload a image to predict, that images is saved in uploads folder.

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