Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:
Ministry of Housing and Urban Affairs

PS Code: SIH1515

Problem Statement Title: Smart and Effective realtime Management of street parking

Team Name: Future Pioneer's

Team Leader Name: Shreyash Rajkumar Nandurkar

Institute Code (AISHE): C-43031

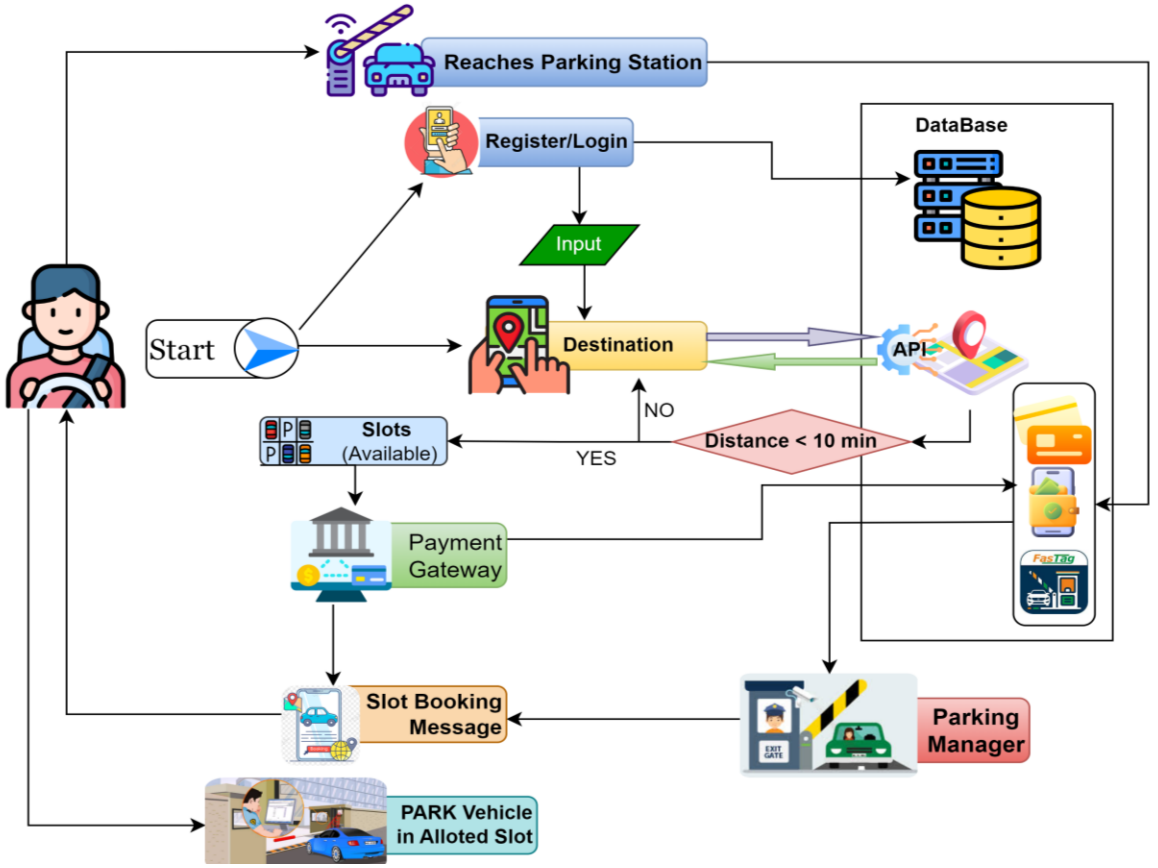
Institute Name: P.R. Pote Patil College of Engineering and Management, Amravati

Theme Name: Smart Automation

Idea/Approach Details

Describe your idea/Solution/Prototype here:

- By solving this problem we are improving traffic flow, reduce congestion, reduce air pollution, and improve safety.
- According to the ResearchAndMarkets.com India's Smart Parking Market is growing at a CAGR of 11.11% (Industry Value by 2028: $327M)
- We're building a next-gen parking app to make parking easier and more efficient for everyone. Our app will use real-time data and find parking spots quickly and easily.
- **Features of the application:**
  - Identifying available parking spots
  - App supports latest car infotainment features like **Android Auto** and **Apple CarPlay**.
  - Allowing **seamless online payment gateway** to users such as availability of **FASTag** technology to effectively manage their payment.
  - Technologies used for **Computer Vision like TensorFlow, PyTorch and OpenCV** will help administrators and **city official's** to automate **real time scanning** of available parking spots



Describe your Technology stack here:

- HTML, CSS, JavaScript, **Python**
- **OpenCV, PyTorch**
- **Flutter**, **Kotlin**, MongoDB
- **FASTag**/UPI, G-Maps, Cameras and Sensors
- Intellij Idea, VS Code, Jupyter Notebook**, Arduinos**

Idea/Approach Details

Describe your Use Cases here

➢ **For Citizens (Drivers)**

i. Find an available parking spot and **Get Direction** quickly and easily, even in congested areas.
ii. Receive **real-time updates** on parking availability and pricing

➢ **For City Administrators (Officials)**

i. Reduce traffic congestion and illegal parking
ii. **Generate revenue** from parking fees
iii. Identify areas with **high demand for parking** and make necessary adjustment to parking policies and infrastructure
iv. Identify the areas where parking is congested and **improve parking availability** in those areas

➢ **For Parking Monitor's**

i. **Monitor Parking availability** and **utilization** in real time
ii. Can add and edit **parking facilities**, set parking rates, and **manage availability**.
iii. **Troubleshoot** issues reported by users.

Describe your Dependencies / Show stopper hear

➢ **Car Functionality:** To run app in cars infotainment displays cars must support **Android Auto** or **Apple Carplay**.

➢ **Maps**: The app would need to use a mapping API to display a map of parking spots and directions to those spots.

➢ **Machine Learning:** The app could use ML Algorithm(KNN) to predict demand and to optimize parking pricing.

➢ **Accessibility:** The app needs parking data, such as availability and rates, from city governments, garages, and other sources.

➢ **Cameras**: Cameras will help to process parking data in real time using Image processing.

➢ **Sensors**: Used to monitor parking lots significantly to utilize parking spaces more efficiently.

Team Member Details

Team Leader Name: **Shreyash Rajkumar Nandurkar**

Branch: B.E. Stream: AI&DS Year: III

Team Member 1 Name: **Shivam Manish Lad**

Branch: B.E. Stream: AI&DS Year: III

Team Member 2 Name: **Vinay Ganesh Kakad**

Branch: B.E. Stream: AI&DS Year: III

Team Member 3 Name: **Akhilesh Vijay Thakare**

Branch: B.E. Stream: AI&DS Year: III

Team Member 4 Name: **Aishwarya Vinayak Bathe**

Branch: B.E. Stream: EXTC Year: III

Team Member 5 Name: **Tanvi Gajanan Karale**

Branch: B.E. Stream: AI&DS Year: III

Team Mentor 1 Name: **Prof. A. R. Ladole**

Category: Academic Expertise: AI&ML Domain Experience: 10

Team Mentor 2 Name: **Dr. A. B. Gadicha**

Category: Academic Expertise: AI&ML Domain Experience: 14