Project Planning Phase

Technology Stack (Architecture & Stack)

Date	17 November 2023
Team Id	Team-592467
Project Name	AI Enable car parking using OpenCV
Maximum Marks	4 Marks

Technology Architecture:

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

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)

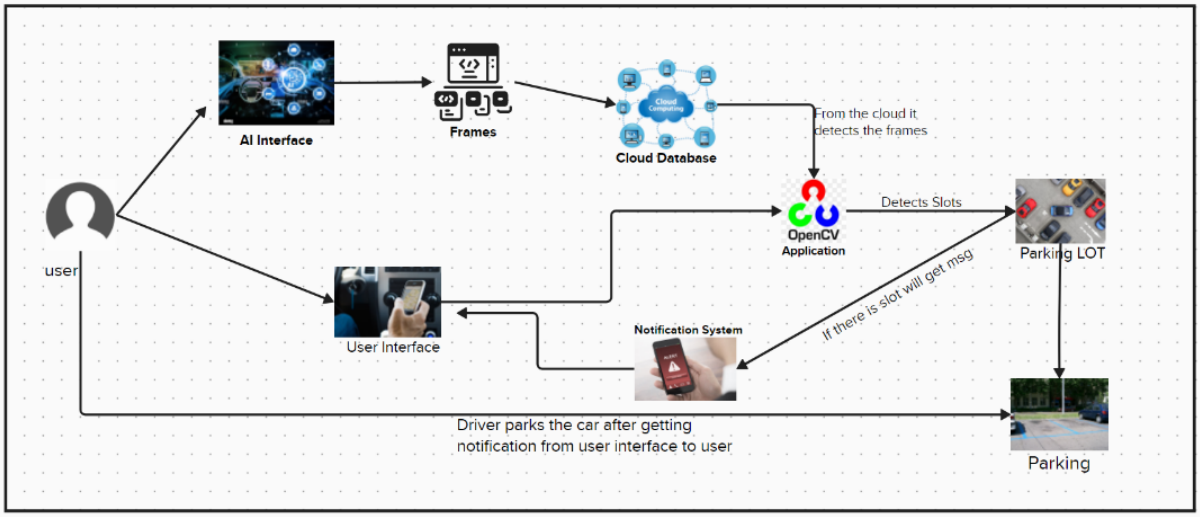

Table-1: Components & Technologies:

S. No.	Component	Description	Technology
1	User Interface	User Interface is used by user in mobile application or In Build in car display itself	HTML, CSS, JavaScript / Angular JS / React JS etc.
2	User Logic-1	Framework used for design the software	Python, python-flask
3	User Logic-2	Access the software in the car by the driver to detect spot	Python, Open CV
4	Application Logic-1	Open CV is an open source platform for providing real time computer vision technology	Open CV
5	Database	Contains images and video frames stores in data base	MySQL, NoSQL, etc.
6	Cloud Database	Data Base Service on cloud	IBM DB2, IBM Cloud etc.
7	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or local File system
8	External API-1	They make it easy for developers to store manage and deploy container images	Container registry
9	Machine Learning Model	Uses test and trained data images and video to learn the environment	Object recognition models, etc.
10	Infrastructure (Server/Cloud)	Application Development on Local system / cloud	Local, cloud Foundry, python-flask, etc.

Table-2: Application Characteristics:

S. No.	Component	Description	Technology
1	Open-Source Frameworks	The utilization of open-source frameworks to build core components of the system.	Open CV, Tensor Flow, Django, MQTT, SQLite, React
2	Security Implementation	Measures implemented to ensure the security of the application and user data.	Encryption, Secure Storage, User Authentication, API Key, Firewalls, etc.
3	Scalable Architecture	Design considerations and implementations for a scalable and flexible architecture	Microservices Architecture, Load Balancing, Auto-Scaling, Elastic Scaling
4	Availability	Measures taken to ensure continuous system operation and high availability.	Redundancy, Content Delivery networks (CDN), Backup Systems and Data.
5	Performance	Techniques and strategies employed to optimize system performance.	Caching Mechanisms, Database Indexing, Content Compression, Regular Monitoring, Performance Tuning