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

Date	19 May 2023
Team ID	NM2023TMID10156
Project Name	AI enabled car parking using OpenCV

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user interface component provides a visual representation of the parking area and relevant information to drivers or administrators.	HTML, CSS, JavaScript
2.	Cameras	Cameras or sensors are used to capture images or data from the parking area	CCTV camera
3.	Image Processing	The captured images are processed to extract relevant information for parking management.	OpenCV
4.	Object Detection and Recognition	This component is responsible for detecting and recognizing objects in the parking area, such as cars and parking spaces.	YOLO (You Only Look Once)
5.	Parking Space Detection	This component identifies and analyzes available parking spaces	Edge detection, Contour analysis
6.	Data Storage and Management	This component handles storage and management of parking data, including occupancy records and free spaces..	IBM Db2

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Real-time Processing:	The system should be capable of processing data in real-time to provide immediate feedback and parking assistance.	OpenCV
2.	Accuracy and Reliability	The system should provide accurate and reliable detection and recognition of vehicles and parking spaces to ensure effective parking management.	OpenCV's robust computer vision algorithms, coupled with regular updates and model training.
3.	Scalable Architecture	The system should be able to handle a large number of parking spaces and accommodate future expansion.	IBM Db2
4.	Adaptability	The system should be adaptable to different parking lot configurations, lighting conditions, and camera angles.	OpenCV - camera calibration and parameter tuning
5.	User-Friendly Interface	The system should have an intuitive and user-friendly interface for drivers, administrators, and parking attendants.	HTML, CSS, JavaScript