

PROJECT DESIGN PHASE I

PROPOSED SOLUTION

Date	04/11/2023
Team ID	Team-592404
Project Name	AI Enabled CAR Parking Using OPENCV
Maximum Marks	4 Marks

AI ENABLED CAR PARKING USING OPEN CV:

AI-enabled car parking systems, harnessing the power of OpenCV, are a game-changer in modern urban mobility. By employing computer vision and machine learning, these systems detect, monitor, and optimize parking spaces. OpenCV facilitates real-time object recognition, space occupancy tracking, and license plate recognition. This not only simplifies the parking process for drivers but also enhances security and revenue for operators. With the ability to guide drivers to available spots and automate payment, these systems reduce congestion, save time, and minimize environmental impact. However, they come with initial implementation costs and privacy considerations. Nevertheless, AI-enabled car parking using OpenCV represents a smart, data-driven solution for efficient and convenient parking management in our increasingly crowded cities.

PROPOSED SOLUTION:

SL. No.	PARAMETER	DESCRIPTION
1.	Problem Statement (Problem to be solved)	In busy urban areas, drivers often face the common problem of struggling to find available parking spaces, leading to frustration, anxiety, and potential delays in their schedules. The situation becomes especially challenging during peak hours, such as when visiting a shopping mall. As drivers approach crowded parking lots, the lack of available spots and the sight of other cars circling in search of parking spaces add to their stress.

2.	Idea / Solution description	We propose the development of an AI-enabled car parking system utilizing OpenCV, a computer vision-based approach. The primary objective of this project is to automate the parking process by creating an intelligent system capable of identifying and counting empty parking spaces within a given parking lot.
3.	Novelty / Uniqueness	This AI-powered parking solution excels by seamlessly combining the power of OpenCV with real-time video streams to provide drivers with accurate and up-to-date parking numbers. Its innovative approach not only reduces driver frustration, but also improves the overall parking experience by promoting more efficient use of parking resources and reducing traffic congestion in urban areas.
4.	Social Impact / Customer Satisfaction	The implementation of this AI-based parking solution will have a major social impact by reducing traffic congestion and pollution in urban areas. Drivers' customer satisfaction improves when they are provided with reliable information about parking options, which reduces time spent searching for parking spaces and ultimately contributes to a more comfortable and environmentally friendly urban environment.
5.	Business Model (Revenue Model)	Revenue model for this application can be based on a pay-per-use model, in which drivers pay a price based on the duration of the parking and the payment can be processed through payment gateway making the process convenient and faster.
6.	Scalability of the Solution	<p>The AI-enabled car parking solution described has inherent scalability, allowing it to adapt and expand to meet the needs of various parking facilities and urban environments. Here's how it can be scaled:</p> <p>1. Multi-Locations: The solution can be</p>

		<p>deployed across multiple parking facilities in different locations, whether they are standalone parking lots, shopping malls, or commercial complexes. Centralized monitoring and management can accommodate diverse sites.</p> <p>2. Variable Parking Lot Sizes: The system is adaptable to parking lots of varying sizes, from small, privately-owned lots to large, public spaces. The infrastructure can be tailored to each site's requirements.</p> <p>3. Maintenance and Support: Provide scalable maintenance and support services to ensure the system's continued reliability and performance as it expands to additional locations.</p>
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