PROJECT DESIGN PHASE I

DETERMINE THE REQUIREMENTS (DATA FLOW DIAGRAM)

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.

WHAT IS DATA FLOW DIAGRAM?

A **data-flow diagram** is a visual aid used to illustrate how data moves through a system or process. Information regarding each entity's inputs and outputs as well as the process itself are also provided by the DFD. There are no decision rules or loops in a data-flow diagram, so there is no control flow.

Level 0 DFDs, also known as context diagrams, are the most basic data flow diagrams. They provide a broad view that is easily digestible but offers little detail.

Level 1 DFDs are still a general overview, but they go into more detail than a context diagram. In level 1 DFD, the single process node from the context diagram is broken down into sub-processes.

Level 2+ DFDs simply break processes down into more detailed sub-processes. In theory, DFDs could go beyond level 3, but they rarely do.

DIAGRAM:
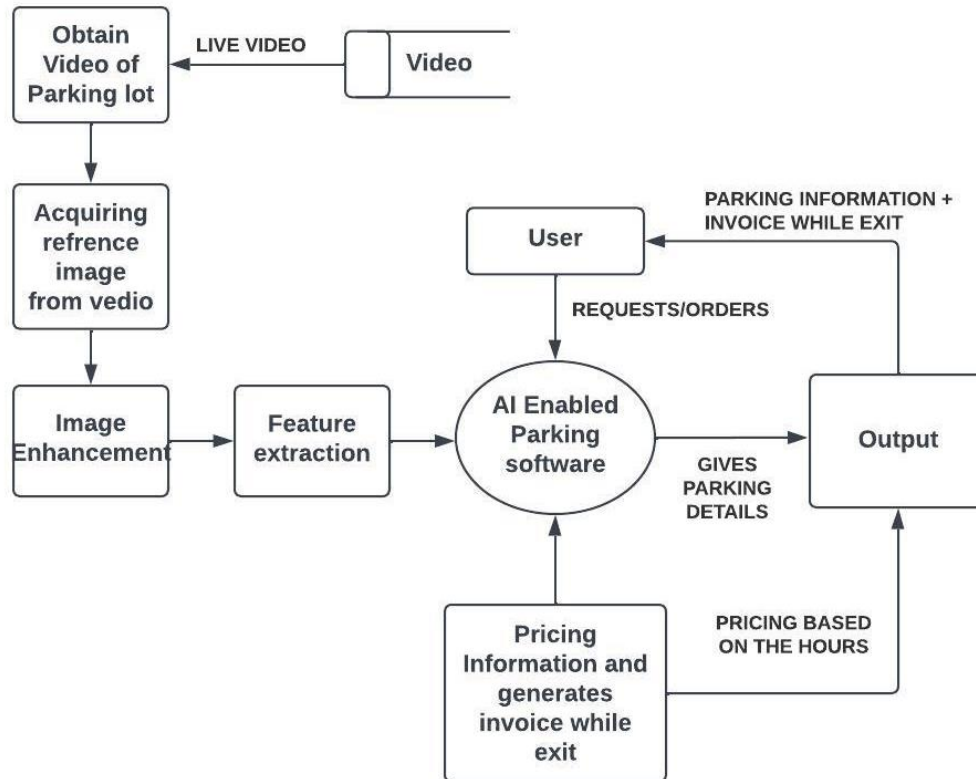
USER STORIES:

USER TYPE 1:

Customer (Driver) Functional Requirement (Epic)

STORY NUMBER	USER STORY / TASK	ACCEPTANCE CRITERIA	PRIORITY	RELEASE
ACP-1	As a driver, I want the AI-enabled car parking system to assist me in finding an available parking spot when I enter the parking area.	-	High	Sprint-1

ACP-2	As a driver, I want the system to guide me accurately into the parking space using OpenCV for visual cues on my in-car display.	-	High	Sprint-1
ACP-3	As a driver, I want the AI system to provide real-time information on parking spot availability through a mobile app or in-car display.	I can see real-time parking spot availability.	High	Sprint-1
ACP-4	As a driver, I want to reserve a parking space in advance through the AI system and have it guaranteed when I arrive.	-	Medium	Sprint-2
ACP-5	As a driver, I want a seamless and contactless payment and exit process using OpenCV to recognize my license plate.	-	High	Sprint-1
ACP-6	As a driver with accessibility needs, I want the AI system to offer features that assist me in parking, such as guidance for accessible parking spaces.	-	Low	Sprint-2
ACP-7	As a driver, I want the system to provide guidance on leaving the parking space safely.	-	Medium	Sprint-2

USER TYPE 2:

Parking Lot Owner/Manager Functional Requirement (Epic)

STORY NUMBER	USER STORY / TASK	ACCEPTANCE CRITERIA	PRIORITY	RELEASE
ACP-8	As a parking lot owner, I want the AI system to provide real-time data and analytics on parking spot occupancy, revenue, and trends.	I can view reports and analytics on the parking facility's performance.	High	Sprint-1
ACP-9	As a parking facility owner, I want the AI system to notify me of any maintenance or security issues detected by OpenCV in the parking area.	I receive real-time alerts for maintenance and security issues.	High	Sprint-1
ACP-10	As a parking facility manager, I want to customize parking rates and rules through the AI system.	I can modify parking rates and rules through the management interface.	Medium	Sprint-2