

Ideation Phase
Brainstorm & Idea Prioritization

Date	18 October 2023
Team ID	Team-593009
Project Name	AI-enabled car parking system using OpenCV
Maximum Marks	4 Marks

Defining our problem statement and brainstorming ideas

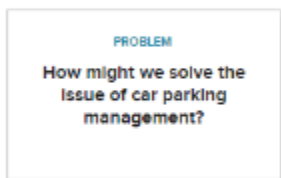
Brainstorming ideas is a creative process where a group generates a list of potential solutions, suggestions, or concepts for a specific problem or project.

1

Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes



The objective of this brainstorming session is to generate creative and practical ideas to address the issue of car parking systems. Car parking is a common problem faced by drivers in busy urban areas. We aim to provide sustainable solutions and help society overcome the issue.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

TIP



You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Abha

Parking Attendant Assistance: Employ parking attendants to guide drivers to available spots and assist with parking maneuvers.

Drone-Based Surveillance: Employ drones equipped with cameras to survey parking areas and identify vacant spots, especially in large or remote locations.

Using Computer Vision Techniques (OpenCV): Install cameras with a top-down view of the parking area. Utilize computer vision algorithms to analyze the video feed and identify vacant parking spaces.

Shraddha

Ground-Level Sensors: Employ ground-level sensors, such as ultrasonic or magnetic sensors, to detect the presence or absence of vehicles in individual parking spots.

Crowdsourcing: Allowing drivers to share information about available parking spots on app with others .

Aryan

Parking Data Analytics: Analyze parking data to identify usage patterns and occupancy enabling data-driven parking management decisions.

Parking Spot Markings: Use clear and visible parking spot markings to make it easier for drivers to identify vacant spaces.

Parth

Parking Sensors with Lights: Install sensors that activate lights above or near vacant parking spots, providing visual cues for drivers.

Parking Reservation System: Implement a system that allows drivers to reserve parking spots in advance

Clustering the ideas

Clustering involves grouping ideas of similar categories together.

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Ideas requiring manual assistance

Crowdsourcing: Allowing drivers to share information about available parking spots on app with others.

Parking Attendant Assistance: Employ parking attendants to guide drivers to available spots and assist with parking maneuvers.

Parking Reservation System: Implement a system that allows drivers to reserve parking spots in advance.

Ideas requiring tools such as sensors

Ground-Level Sensors: Employ ground-level sensors, such as ultrasonic or magnetic sensors, to detect the presence or absence of vehicles in individual parking spots.

Parking Sensors with Lights: Install sensors that activate lights above or near vacant parking spots, providing visual cues for drivers.

Ideas making use of AI and ML techniques

Parking Data Analytics: Analyze parking data to identify usage patterns and occupancy enabling data-driven parking management decisions.

Drone-Based Surveillance: Employ drones equipped with cameras to survey parking areas and identify vacant spots, especially in large or remote locations.

Using Computer Vision Techniques (OpenCV): Install cameras with a top-down view of the parking area. Utilize computer vision algorithms to analyze the video feed and identify vacant parking spaces.

Parking Spot Markings: Use clear and visible parking spot markings to make it easier for drivers to identify vacant spaces.

Idea Prioritization

Idea prioritization is the process of ranking or assessing ideas based on specific criteria (in this case importance and feasibility) to determine which ideas should be implemented or pursued first.

4

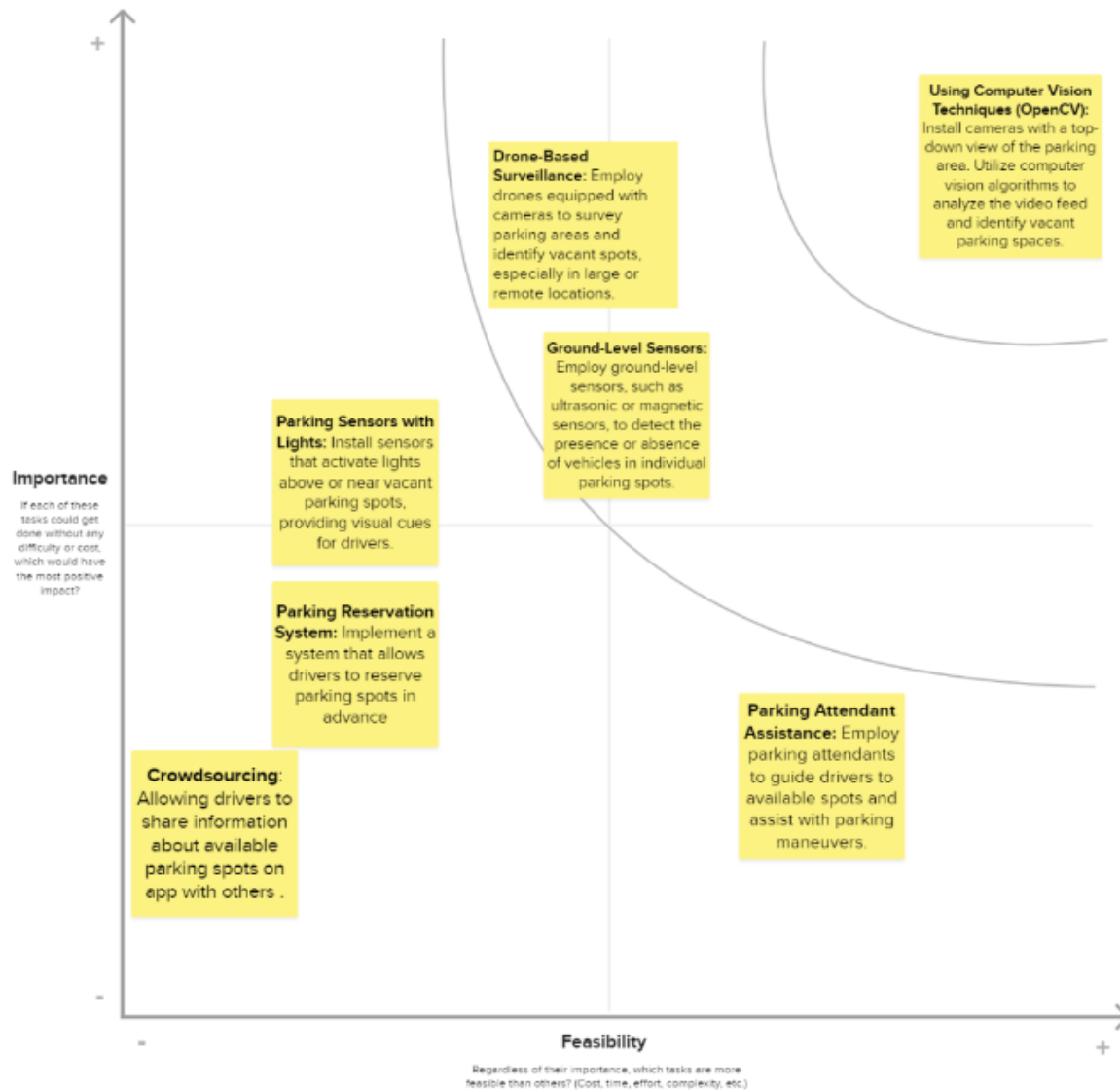
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

🕒 20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H** key on the keyboard.



From the prioritization process, we can see that an AI-enabled car parking system using OpenCV is a compelling choice and would be the best approach.

Firstly, this idea addresses a significant and prevalent issue in urban areas: parking congestion and inefficiency. By leveraging artificial intelligence and computer vision, we can optimize parking space utilization, reduce driver frustration, and improve overall traffic flow. This means that drivers in urban settings will see a substantial reduction in time and effort spent trying to find parking spots.

Moreover, OpenCV is a well-established and widely used open-source library for computer vision applications. This provides a robust and accessible foundation for developing our parking system, reducing development costs and time to market.

Additionally, this project aligns with our commitment to smart city initiatives and sustainable transportation solutions. By streamlining parking processes, we can reduce vehicle emissions from unnecessary searching, minimize congestion-related pollution, and promote a more efficient transportation infrastructure.

Lastly, this initiative presents an opportunity for innovation and technological advancement. By developing an AI-powered parking system, we not only address a pressing urban challenge but also position ourselves as leaders in the field of smart parking solutions.

In conclusion, the selection of an AI-enabled car parking system using OpenCV as our project is a strategic decision based on its high impact potential, feasibility, and alignment with our smart city goals. We are confident that this choice will contribute to a more efficient, sustainable, and user-friendly urban transportation landscape.