AI enabled car parking using open CV

Date	29.04.2023
Team ID	**NM2023TMID18860**
Project Name	AI enabled car parking using open CV
Maximum Marks	2 Marks

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A lot of people are not used to the parking management system. As a result, it may be difficult for them to make use of, thereby causing further complications during parking.	For many new users who are not familiar with the parking management system, it could be a little confusing for them to operate at first. This problem, of course, can be overcome with familiarity and a little education. If they ask questions on the operation procedures and are educated on the advantages that come with making use of the system, they get the hang of it with time.	Making use of the parking management system has a lot of advantages for many of the parties involved. But then, it comes with some disadvantages. These disadvantages are reasons why some people have had second thoughts about making use of the parking management system. Nonetheless, these disadvantages are not ones that cannot be handled at any time.	The cost of having a sound, working parking management system is usually high. This is because of the various components that go into making the system work. Components such as the statistical feature, automated ticketing, and statistical reports, and many others make it all expensive. Some organizations may not be able to afford such.	Frustrated
PS-2	For the parking management system to be used, there is a need for a level of knowledge about the building. What happens if that is not available? The system cannot be installed, or installation without knowledge of building structures may lead to dangers and irregularities.	Dealing with this is quite easy as the building's blueprint may be used, or the manager could decide to map out the necessary parts of the building, which deals with the parking area. To get started, you can use a service like Booking Ninja offers	Making use of the parking management system has a lot of advantages for many of the parties involved. But then, it comes with some disadvantages. These disadvantages are reasons why some people have had second thoughts about making use of the parking management system. Nonetheless, these disadvantages are not ones that cannot be handled at any time.	The system is automated; however, it still requires several regular maintenances from the company. This is to ensure that the system is working perfectly and that nothing has gone wrong. The maintenance could be once in months.	Frustrated

miro

Kaviya.T -Team Leader

Studying traffic behavior to predict future events

Utilizing devices such as cameras and sensors to gather the information as mentioned above

Praveen Kumar.P - Team Member 1

Analysis of traffic direction and flow

Recording peak timings

Naveen.P - Team Member 2

Urbanization has exponentially increased with an equal rise in vehicle population in recent years. Hence, this is an optimum time for parking management businesses to set their feet in the market.

Furthermore, the smart system can deliver extensive services and opportunities to the driver's community.

In the future, drivers can find closer parking spots within less time. Furthermore, the biggest perk the invention offers is the "minimum hassle".

The monetary gains are high as the market is still emerging. Hence, anyone with enough guts and an innovative mindset can become the Bill Gates of the AI-based parking management business.

Overall Idea Of Automated Car Parking

Utilizing devices such as cameras and sensors to gather the information as mentioned above

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Empathy map canvas

Use this framework to empathize with a customer, user, or any person who is affected by a team's work. Document and discuss your observations and note your assumptions to gain more empathy for the people you serve.

Originally created by Dave Gray at

XPLANE

Develop shared understanding and empathy

Summarize the data you have gathered related to the people that are impacted by your work. It will help you generate ideas, prioritize features, or discuss decisions.

GOAL

WHO are we empathizing with?

Here is a list of some of the hassles an average citizen has to face when maneuvering their cars through crowds:
- High population resulting in little to no parking space
- Incompetent parking skills resulting in poor space utilization
- Wastage of resources and time
- Congestion of traffic, resulting in increased travel-time
- Inconvenience in looking for an appropriate parking spot
- Incompetent parking price models
- Unclear policies regarding parking
- Unnecessary strain on the environment thanks to excessive burning of fuel
- Private parking spaces that aren't used and end up wasting valuable parking space
- Unauthorized utilization of business parking by commuters
- Handicapped spaces being used improperly

What do they HEAR?

There was a time when vehicles were scarce, and maneuvering the roads was a breeze. However, recent trends have seen a rise in vehicle purchasing. Whatever the reason behind these massive purchases may be, one thing is sure. More cars mean less space on the roads. This not only applies to main roads but also to parking spaces. Nowadays, a driver's biggest stress is finding a good parking spot. But unfortunately, in addition to an abundance of cars, we also face an abundance of irregularly parked cars. So what's the solution? Like other sectors of our lives, technology has come to save the day here. In this scenario, AI-based smart parking is the most innovative and convenient solution to our problems.

What do they THINK and FEEL?

PAINS

Normal parking not only consumes your precious time but fuel as well. Statistics state that vehicles spend up to 1,000,000 barrels of oil supply daily looking for a parking spot. Furthermore, irregularly parked cars are more prone to road accidents.

GAINS

AI-based parking is an innovative combination of modern technology and creative human intelligence. The system works on constant real-time data collection. So how does the system accomplish smart parking?
- By analysis of traffic direction and flow
- By recording peak timings
- By studying traffic behavior to predict future events
- Utilizing devices such as cameras and sensors to gather the information as mentioned above

What other thoughts and feelings might influence their behavior?

What do they DO?

This concludes our brief guide on the potential of Artificial Intelligence in parking management. As technology progresses, the future of parking and traffic could become much brighter. Furthermore, this smart tech will pave the way for smart cities and enhance planning efficiency. Moreover, even though the industry is still in its initial stages, its role is promising. The system will make the lives of citizens more comfortable and provide practical solutions to everyday problems.

What do they need to DO?

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What do they SEE?

Urbanization has exponentially increased with an equal rise in vehicle population in recent years. Hence, this is an optimum time for parking management businesses to set their feet in the market. Furthermore, the smart system can deliver extensive services and opportunities to the driver's community. In the future, drivers can find closer parking spots within less time. Furthermore, the biggest perk the invention offers is the "minimum hassle". Moreover, the monetary gains are high as the market is still emerging. Hence, anyone with enough guts and an innovative mindset can become the Bill Gates of the AI-based parking management business.

What do they SAY?

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