**Project Proposal**

**Intelligent Parking System**

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**Motivation:**

Unoccupied parking spaces are difficult to come by in most cities, especially in popular and well-trafficked areas such as retail malls, sports arenas, and other tourist attractions. This situation must deteriorate, particularly at peak hours, whether it is the holiday season, carnival sales, or another fiesta. Most of the time, this problem arises because customers arrive in their own vehicles, resulting in enormous quantities of traffic or competition for limited parking spaces.

The Artificial Intelligence parking system was used in a number of countries, including Europe, the United Kingdom, and even Asia, to address this issue as early as the 1970s. Artificial Intelligence parking solutions are designed to solve specific parking management issues by leveraging technological advancements that will undoubtedly aid in their resolution. Using Artificial Intelligence and Artificial Neural Networks, this study proposes an improved automobile parking system.

**Significance:**

A driver can find a parking spot fast and easily with no frustration thanks to an AI-based parking management technology. It allows users to have a unified experience, from finding a parking spot to receiving real-time notifications to paying all at once. Smart parking makes it simple to attain safety and security.

This AI-based parking system can quickly recognise a vehicle and provide automated access, eliminating the need to click a button, obtain a parking ticket, and so on. It has a parking system that does not require tickets. This improves the flow of vehicles entering and exiting the parking lot as well as the parking experience.

**Objectives:**

In recent years, we have seen improvements in parking systems that prevent traffic congestion and thereby save a significant amount of fuel and time. The smart parking system is achieved by a variety of means. Sensors, image processing, Machine Learning, and Artificial Intelligence approaches like Artificial Neural Networks can all be used to achieve this. When we utilise a sensor-based model, there are several disadvantages, including expense and reliance on environmental conditions. For improved results, the latest strategies are to use ML techniques that are equipped with Mask RCNN, YOLO, and Transfer Learning.

**Features:**

* Parking has been optimised.
* There is less traffic.
* Pollution is reduced.
* User Experience Improvements
* New sources of revenue.
* Payments and point-of-sale integration.
* Enhanced security.
* Real-time data and analysis of trends.
* Reduced Management Expenses
* Service and brand image have improved.

The deployment of a smart parking solution would undoubtedly be a terrific investment for any local government or enterprise, based on only these top 10 benefits. The fact that there are around four parking places per vehicle in the United States demonstrates our existing parking inefficiencies. We still can't find a spot! As the world's population grows and urbanises, it's critical to put in place a well-thought-out, convenience-driven parking solution that can be used globally.

**References:**

[1] Lin T., Rivano H. and Mouel F.L, A Survey of Smart Parking solutions, IEEE Transactions on Intelligent Transportation Systems, 18(12), pp. 3229–3253, 2017.

[2] <https://parkingtelecom.com/en/ai-based-smart-parking-solutions/>

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