Perfect Parking, An AI Application to Assist Drivers Finding Parking in Busy Cities

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Technology Used

Abstract

Perfect Parking aims to create a parking system that will replace outdated systems and help stop the widespread problem that is parking in our cities. The goal of this project is to improve the effectiveness of finding parking spaces and to also relieve the stress of the users looking for parking by implementing new and innovative features. This will be done by building a client-server API and website that will show the user exactly where the parking is. The server will be supported by parking monitor clients powered by OpenCV to detect if a parking spot has been filled or made empty.

Problem Statment

Ineffective ways of finding an available parking space which is a waste of time, very fuel consuming and causes traffic jams. hen road users are looking to find an available parking space they end up wasting time and using a lot of fuel from them driving around the car park or the block multiple times hopping to find a space, on average people spend 17 hours per year driving around looking for parking spaces (Quellmalz, 2021). By Page 11 of 72 developing Perfect Parking, it is hoped to make the parking process in college campus and in the city seamless and stress free, by doing this I'm hoping to eliminate the time and fuel waste road users encounter while looking for parking

Aim and Objectives

Perfect Parking application aims to develop a user-friendly parking system that utilizes object detection technology. The technology watches a video feed and allows the user to query for parking spaces in parking areas. Once the parking monitor detects a change to a parking space it pushes an update to the website with a probability of parking being available. This application could be used in parking lots and towns nationwide.

Primary Objectives:

- To provide a solution that can determine the status of the parking spots i.e., free or occupied. •
- To reduce the time motorists spend looking for parking in cities.

Developed Solution

The developed solution is an AI application to assist drivers finding parking in busy cities. The applications are written in Python; The server is built on Django framework and, the client use the OpenCV library to achieve computer object detection

The source code for the application Can viewed on Github:
https://github.com/Rhys-LIT/perfect-parking-fyp

Conclusion

Based on the research and analysis conducted in this project, it can be concluded that the use of AI and object detection in images is an effective solution for identifying the status of parking spots (free/taken) in towns and cities such as Limerick. By implementing this technology, it is possible to monitor car parks in real-time,

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