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Crowdsourced Real-time Parking Availability Application

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Background

A common daily problem for drivers is the time and gas wasted on searching parking spots during peak hours of the day in traffic congested area. Our startup's mission is to bring real-time parking availability information through sensors with various capabilities on parking spots to track their occupancies. However this can be costly so we're exploring other options such as crowdsourcing the information. This has been attempted in the past with applications such as Google's Open Spot. We want to revive the efforts by bringing better user experience, functionalities, and analytics.

Solution

The idea is to implement a crowdsourcing system which turns smartphones into passive sensors capable of tracking the location and movements of drivers. This requires zero user interaction or ground infrastructure, and running effectively without the phone leaving the user's pocket. The system would detect arrivals and departures by utilizing activity recognition algorithms, and our backend would crunch the aggregate user actions to determine the likelihood that a lot has an open space.

Furthermore, we can account for *hidden drivers*, which are drivers that are not part of the system. To achieve this, we can implement estimator that maintains a probability model for each parking lot by incorporating events generated from existing clients. In the long run, we will also be able to leverage machine learning algorithms to predict availability with our data.