Abstract

As the world’s population keeps increasing and the attention of cars in cities rises, our civilians face the significant challenge of global congestion. Parking plays a most important role in the key to this problem, given that around 30%-35% of the cars driving on a city’s paths at any given instant are looking for a parking space. The proposed system solves the current parking problems by proposing certain parking reservations with the lowest possible cost and searching time for drivers and the highest income and resource utilization for parking supervisors.

In this work QR-Code applied to store and update the reservations status. The new system is based on mathematical modelling using mixed-integer linear programming (MILP) with the objective of reducing the total financial cost for the drivers and exploiting the utilization of parking resources. The system presents a new smart car parking system, named iParker, with static resource planning, dynamic resource allocation and pricing models, to optimize the parking system for both parking managers and drivers. The assistances of the work include:

a)
increasing parking resource utilization, b) increasing parking revenue, b) improving parking experience of drivers by lowering cost, parking spot searching and walking times. The new concept is to combine real time reservations with share time reservations, thus a driver can reserve a spot while heading to it e.g., few minutes away and also can reserve it at any time earlier e.g., many days away.

References

1. iParker—A New Smart Car-Parking System Based on Dynamic Resource Allocation and Pricing Amir O. Kotb, Yao-Chun Shen, Xu Zhu, Senior Member, IEEE, and Yi Huang, Senior Member, IEEE newline


Index Terms

Computer Science

Information Systems

Keywords

Data centre, Central request centre (CRC), QR code reader, Mixed integer linear programming (MILP), Possions distribution, exponential distribution, Smart car parking.