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Identification and recommendation of vacant parking slot: A case study

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ABSTRACT

Finding a vacant parking slot became time-consuming and frustrating; the advent of mobile apps and sensor technologies on vehicle parking slots paved much attraction. An android app has been developed to identify appropriate parking slots, which helps the users in many ways; locating free parking slots, finding the location where a particular vehicle is parked, and suggesting appropriate parking slots based on parking patterns. The existing parking area in the Faculty of Technology (FOT), the University of Ruhuna, was selected as a case study. Spotting a vacant parking slot was a three-step process. The first step spotted a parking slot within the area where we selected. In the second step, check whether the slot is already occupied. The final step was to recommend the parking slots to the driver based on the frequently used parking slots. Among them, the most crucial part is recommending a suitable parking slot to a particular vehicle, based on the frequency of its parking in particular parking slots. To effectively handle this, the data of parking frequency in each vehicle in each parking slot should be updated in a database by allotting each column for each parking slot and each row for each vehicle that has been parked so far. The user records the vehicle number selected for parking and the frequency of parking slots in the record as elements in an array. A bubble sorting algorithm was used to find the most frequent parking slot of each vehicle that has been parked in the FOT parking premises. This application is expected to provide efficient and reliable solutions to the users who use the parking lots of FOT.

Keywords: Bubble sorting, Mobile app, Parking slots.