

A GIS-Based Parking Lot Management and Dissemination System

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ABSTRACT

Parking is dynamic. One minute a parking space is engaged and the next ten or so minutes it's vacant. Finding a parking space has thus become a nightmare in many cities. There are many Parking Guidance Information Systems, PGIS meant to alleviate a driver's pain of finding or reserving a parking space but they operate as standalone systems and therefore disseminate information only to a selected few at a given time. The aim of this study is to have a Geographic Information System, GIS that will enhance the components of a PGIS so that it runs on a mobile phone platform thereby allowing a driver to access parking information whenever and wherever he is. The GIS-based PGIS will provide the driver with a view of the near real time parking situation of his destination, allow him to reserve a space as well as have his smart phone enabled to notify him once he approaches a vacant space or even perform routing functions. Thirty parking spaces were collected within Jomo Kenyatta University of Agriculture and Technology, (JKUAT) classified, mapped and published in a web map server. A Quick Response Code, QR was installed on each parking space and a SMS server established to monitor the reports and requests of drivers. An Android smart phone application was created that was able to reap parking information from the map server. The system greatly reduced the trial and error involved while in search of a parking space thus increasing a driver's confidence, cutting down on the amount of parking time and the emotional stress associated with finding a parking space.

Keywords—Android, Parking, PGIS, QR Codes