Universiti Teknologi MARA (Perak)

Real Time Outdoor Parking Guidance System Using Image Processing

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Project submitted in partial fulfilment of the degree of
Bachelor of Science (Hons.) Computer Science with the
supervision of Dr Mohamed Imran Bin Mohamed Ariff
. Faculty of Computer and Mathematical Sciences

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SUPERVISOR'S APPROVAL

Real Time Outdoor Parking Guidance System
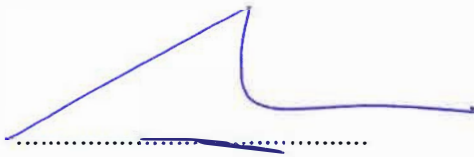## Using Image Processing

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This project was prepared under the direction of project supervisor, Dr Mohamed Imran Bin Mohamed Ariff. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Science (Hons) Computer Science.

Approved by:

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DR MOHAMED IMRAN BIN MOHAMED ARIFF
PROJECT SUPERVISOR

JANUARY 2015

DECLARATION

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or person.

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ABSTRACT

The main purpose of this project is to develop a real time outdoor car parking guidance system using image processing technique. With the problems of increasing traffic congestion and shortage of space, difficulties in locating parking spots are a common problem faced by car users. These parking spots are required to be well equipped with appropriate technology in order to assists car users in locating empty parking spot more efficiently. Goals of the outdoor parking guidance system include providing locations of vacant parking spots and real time information about changes in parking spots. The proposed system detects empty parking lots through images instead of using electronic sensors planted on the ground. A camera is installed at a point where all of the parking lots can be fitted in a single camera frame. Each parking lot is planted with a floating balloon that is attached with a string to the ground that acts as parking indicator. These balloons are totally visible to car user and camera vision while the lot is not occupied and are hidden when a car occupy the lot. The parking system determines the changes in parking lots by processing number of visible balloons captured by the installed camera and the processed information is provided to incoming car user through display at the entry point of the parking lot. In the future, the author planned to improve the parking guidance system by adding automatic HSV setter and using better equipment for both image capture device and output display device.