

**Study on influencing factors over the existing user friendly
car parking system and a forecasting model for “Micro-
Location” in Sri Lanka**

Prepared by

SIVASITHAMPARAM RAJIVKANTH

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Faculty of Information Technology

University of Moratuwa

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**Dissertation submitted for the partial fulfilment of the requirements of the
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In

Information Technology

Faculty of Information Technology

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2018

Declaration

We declare that this thesis is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Name of the student

Signature of the student

.....

.....

Date:

Supervised by:

.....

Mr. B. H. Sudantha

Senior Lecturer and Supervisor,

Department of Information Technology

Faculty of Information Technology

University of Moratuwa

Sri Lanka.

Date:

*Affectionately dedicate this book to the one who is
going to utilize this system and modify this
approach for further studies and implementation
in future.....!*

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Abstract

In the developing world people are very hurry to jump over their responsibilities within the allocated time which is obviously known done to achieve their mission, effectively. And also, transport is one of the mode makes people to feel easy and comfort to promote the rate of efficiency in the quality as well as quantity where it contributes more on the development of the nation in the economic basis. As a developing country, Sri Lanka has needs to perform on a dynamic growth and development throughout the easiest mode of newly introduced parking system to neglect the wastage of time, traffic jam and ensure the convenience of the passengers where it has the scope on the increased contribution of National GDP by the individuals. Therefore, present study was focused more to understand the factors which influence more on the gap between the owners who has car as their major transporting mode and the goal which they need to accomplish within a short while. For that, study was conducted in Colombo District where 250 respondents were randomly selected for understanding the satisfactory level of both manual and automatic existing car parking system and finally, the results were correlated with the assistance of SPSS (version 22) software for further concerns in order to indicate the accurate location (Micro-Location), as well.

According to the results gained from the survey; education level, age and income level were focused more into the fundamental information (personal) over the forecasting model for Micro-Location adjoined Car Parking System where the education level (ICT) had a positive significant relationship ($p < 0.01$, $r = 0.745$) with the level of perception and willingness of the respondents. Not only that, but the income level also determined the incorporation of new technologies which showed the direct link on their payment through postpaid mobile accounts or the accounts on banks ($p < 0.05$, $r = 0.645$). Access and understanding the technologies such as Image Processing ($r = 0.789$), sensor application ($r = 0.568$), GPS and IOT ($r = 0.690$), Mobile Applications ($r = 0.896$), Web Application ($r = 0.658$) and Payment Transaction ($r = 0.498$) had the positive significant relationship ($p < 0.05$) with the youngsters and the knowledge which they possess with. More than 90% of the respondents mentioned that those techniques are common in existing Car Parking sites. However, nearly 89% of the respondents preferred to affix Geo-fencing and Distance Matrix for the Micro-

location with the existing one. It was evidenced by the respondents (92%) that they are interested on finding the parking avenues in tiny deviation spotted by Distance Matrix. Though they knew well (79%) about Geo-fencing, more than 67% of the respondents were poor on understanding the Distance Matrix where the knowledge showed the positive significant relationship ($r= 0.868$) with its application and adaptation as well. And also, Parking Administrators also showed the same responses as Car Owners did at the study. This system was welcomed by the Car owners (89%) as being more accurate on finding the parking location too. As the whole, existing user friendly Smart Car Parking System which was incorporated with Geo-Fencing and Distance Matrix was elected as the forecasting model via the pre-tested questionnaire survey among the car owners.

Key words: Distance Matrix, Geo-fencing, GPS, Micro-Location

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Abbreviation

01	GSM	Global System for Mobile Communication
02	GPS	Global Positioning System
03	SMS	Short Message Service
04	PGI	Parking Guidance Information
05	IoT	Internet of Things
06	RFID	Radio Frequency Identification
07	PGIS	Parking Guidance and Information System