MECHATRONICS BOOK SERIES

SYSTEM DESIGN AND SIGNAL PROCESSING

VOLUME 2

Editors
Md. Raisuddin Khan
Md. Mozasser Rahman
Muhammad Mahbubur Rashid
Shahrul Na'im Sidek

IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

ISBN: 978-967-418-132-1

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN.BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan
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CHAPTER 35

DEVELOPMENT OF AUTO PARKING SYSTEM & AUTO BILLING SYSTEM USING IMAGE PROCESSING TECHNIQUE (PART 3)

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35.1 Introduction

Matlab [1-3] software is used for the development of Automatic Parking System. Matlab has many toolboxes that can deal with simple and complex engineering calculation. Toolboxes are comprehensive collections of Matlab functions (M-files) that extend the Matlab environment to solve particular classes of problems. Areas in which toolboxes are available include signal processing, control systems, neural networks, fuzzy logic, wavelets, simulation, and many others [4, 5].

For the case of auto parking system, the *image processing toolbox* can be used to pre-processing the image acquire from the CCD camera which is the sub-system Image Acquisition and Plate Number Recognition [6, 7]. Thus, the image will be read by the software and the next process is done according to algorithm proposed.

35.2 Methodology

The objective of this project is to recognize the number plates in parking system. Main files for image processing are 1.Databases of characters development, 2.Characters to matrix processing, 3. Databases of real car plate images, 4. Characters recognition using MSE and other techniques, 5. Graphical User Interface of the system. Each phase needs different approach and coding. Thus, all the phases are very crucial to the system. Fig. 35.1 shows the flowchart of the whole system.