SELECTED TOPICS IN ADVANCED ELECTRONICS

Edited by

Khalid A. S. Al-Khateeb

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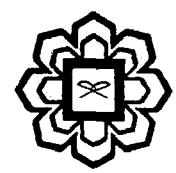

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CHAPTER 27

DYNAMIC TRAFFIC LIGHT SEQUENCE ALGORITHM USING RFID

By

Khalid A. S. Al-Khateeb, Jaiz A.Y. Johari and Wajdi F. Al-Khateeb
Department of Electrical and Computer Engineering,
Faculty of Engineering,
International Islamic University Malaysia,
Kuala Lumpur, Malaysia

Synopsis

Traffic congestion and tidal flow management were recognized as major problems in modern urban areas, which have caused much frustration and loss of man hours.
In order to solve the problem an intelligent RFID traffic control has been developed. It has circumvented or avoided the problems that usually arise with systems such as those, which use image processing and beam interruption techniques. RFID technology with appropriate algorithm and data base were applied to a multi vehicle, multi lane and multi road junction area to provide an efficient time management scheme. A dynamic time schedule was worked out for the passage of each column.
The simulation has shown that, the dynamic sequence algorithm has the ability to intelligently adjust itself even with the presence of some extreme cases. The real time operation of the system emulated the judgment of a traffic policeman on duty, by considering the number of vehicles in each column and the routing proprieties.
RFID together with Internet and GSM technologies are anticipated to create a revolution in traffic management and control systems. The data base contains online statistical information, which can be used by operators and planners to develop better models in the future.

1. Introduction

The operation of standard traffic lights which are currently deployed in many junctions, are based on predetermined timing schemes, which are fixed during the installation and remain until further resetting. The timing is no more than a default setup to control what may be considered as normal traffic. Although every road