HARDWARE IMPLEMENTATION OF INTELLIGENT TRAFFIC LIGHT CONTROLLER

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HARDWARE IMPLEMENTATION OF INTELLIGENT TRAFFIC LIGHT CONTROLLER

by

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Report submitted in partial fulfillment
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APPROVAL AND DECLARATION SHEET

This project report titled Hardware Implementation of Intelligent Traffic Light Controller was prepared and submitted by Noorrashikin Bt Jaafar (Matrix Number: 031030353) and has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Electronic Engineering) in Universiti Malaysia Perlis (UniMAP).

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MENGAPLIKASIKAN PERKAKASAN PENGAWAL LAMPU ISYARAT PINTAR

ABSTRAK

Lampu isyarat pintar pengawal memainkan peranan yang sangat penting dalam pengurusan dan mengawal isyarat dalam bandar bagi mengurangkan kesesakan dan kemalangan di jalan raya. Ia adalah contoh terbaik untuk mengatasi masalah di jalan raya pada masa kini .Kawalan lampu isyarat pintar adalah mesin jujukan yang boleh digunakan untuk menganalisis dan mengaturcara melalui pelbagai proses. Peranti-peranti yang terdapat dalam analisis ini adalah merangkumi mesin berjujukan untuk mengawal turutan lampu isyarat, masa yang segerak dan pengenalan kepada operasi sintesis kerlipan lampu isyarat jujukan. .Kaedah yang digunakan dalam projek ini adalah melukis litar, menulis kod aturcara, menganalisis, sintesis dan mengaplikasikan menggunakan perkakasan. Dalam projek ini, perisian QuartussII telah dipilih untuk merekabentuk skematik menggunakan fail skematik, tulis satu pengekodan menggunakan Verilog HDL (Bahasa penggambaran perkakasan) teks dan mengaplikasikan litar menggunakan get logik.

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ABSTRACT

Traffic signal controller is playing more and more important roles in modern management and controls of urban traffic to reduce the accident and traffic jam in road. The traffic light controller is a sequential machine to be analyzed and programmed through a multi step process. The device that involves a analysis of existing sequential machines in traffic lights controllers, timing and syhronization and introduction of operation and flashing light synthesis sequence. The methods that are used in this project are design the circuit, write a coding, simulation, synthesis and implement in hardware. In this project, QuartussII Software was chosen to design a schematic using schematic edit, writes a coding using Verilog HDL (Hardware Description Language) text editor and implements the circuit using gate logic.

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Tw	Time width
R	Resistance
C	Capacitance
HDL	Hardware Description Language
FPGA	Field Programmable Gate Array
SOPC	system-on-a-programmable-chip
AHDL	Altera Hardware Description Language
VHDL	(VHSIC – Very High Speed Integrated Circuit Hardware Description Language)
IC	Integrated Circuit