UNIVERSITI TEKNOLOGI MARA

DESIGN AND DEVELOPMENT OF DATA LOGGER WITH MULTIPLE SD CARDS FOR PHOTOVOLTAIC SYSTEM

NAJWA NASUHA BINTI MAHZAN

Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science

Faculty of Electrical Engineering

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CONFIRMATION BY PANEL OF EXAMINERS

I certify that a Panel of Examiners has met on 14th June 2016 to conduct the final examination of Najwa Nasuha Binti Mahzan on her Master of Science thesis entitled "Design and Development of Data Logger with Multiple SD Cards for Photovoltaic System" in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The panel of Examiners was as follows:

Norsuzila Ya'acob, PhD
Associate Professor
Faculty of Electrical Engineering
Universiti Teknologi MARA
(Chairperson)

Wahidah Mansor, PhD
Associate Professor
Faculty of Electrical Engineering
Universiti Teknologi MARA
(Internal Examiner)

Teddy Surya Gunawan, PhD
Associate Professor
Department of Electrical and Computer Engineering
International Islamic University Malaysia
(External Examiner)

DR MOHAMMAD NAWAWI
DATO' HAJI SEROJI
Associate Professor
Dean
Institute of Graduates Studies
Universiti Teknologi MARA
Date : 10th August, 2016

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I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

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Name of Student	:	Najwa Nasuha Binti Mahzan
Student I.D. No.	:	2011141313
Program	:	Master of Science (Electrical Engineering) – EE780
Faculty	:	Electrical Engineering
Thesis Title	:	Design and Development of Data Logger with Multiple SD Cards for Photovoltaic System
Signature of Student	:	.....
Date	:	August 2016

ABSTRACT

Monitoring system has been a crucial process in any system which relates to the observing and examining the system in detail. The needs of having the monitoring system are sometimes to improve the system itself, to observe the vital changes that will affect the system or anything related, and to look for the system's performances for future reference. Thus, it is essential to have a good data logger which able to capture plenty of data from many sensors where all the data will be stored in huge data storage by means of having a bigger size of memory storage without being supervised frequently. A proposed data logger which implied a microcontroller of ATmega 2560 is introduced where it equips with many channels for taking data from stacks of sensors and definitely is having a gigantic size of memory to store the received data; two SD cards with the size of 4GB each are used throughout the project. The proposed data logger can be used in any systems which are related to electrical as well as in meteorological system provided that the sensors have electrical output that can be read directly or through signal conditioning. Based on the result testing from the proposed data logger, it has shown the low sampling rate in logging process where it could contribute much in logging stage under users' preferences, the low swapping time between two SD cards as low as 1.40 ms when error occurred which can activate the second memory storage immediately without hassle, and lastly the workability of the data logger performances via its characteristics.

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