

PRELIMINARY DEVELOPMENT OF DATA  
ACQUISITION SYSTEM OF SOLAR ENERGY  
ASSESSMENT

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FACULTY OF MARITIME STUDIES AND  
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**PRELIMINARY DEVELOPMENT OF DATA ACQUISITION SYSTEM OF  
SOLAR ENERGY ASSESSMENT**

**BY**

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**Research Report Submitted in Partial Fulfillment of the Requirements  
for the Degree of Bachelor of Applied Science (Maritime Technology)**

**Department of Maritime Technology  
FACULTY OF MARINE SCIENCES AND MARITIME STUDIED  
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**2013**



DEPARTMENT OF MARITIME TECHNOLOGY  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT  
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:  
**Preliminary Development of Data Acquisition System of Solar Energy Assessment by Balqis Binti Sulaiman, Matric No. UK 21136** have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment towards obtaining the **Bachelor Degree of Applied Science (Maritime Technology)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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## DECLARATION

I hereby declare that this thesis entitled “Preliminary Development of Data Acquisition System of Solar Energy Assessment” is my own research except as cited in the references.

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# **PRELIMINARY DEVELOPMENT OF DATA ACQUISITION SYSTEM OF SOLAR ENERGY ASSESSMENT**

## **ABSTRACT**

Performance, quality and reliability issues are becoming more and more important for the emerging photovoltaic market world. A computer based data acquisition system to collect and monitor photovoltaic power generation system using Aduino has been design and implemented in fish house. Prior to designing the data acquisition system, a small sized PV power generation system, consisting of 8 module of PV panel, a charger controller and a DC to AC inverter, has been assembled. At the same time, Data-acquisition systems are widely used in renewable energy sources (RES) application in order to collect data regarding the installed system performance, for evaluating purposes. In this study, the development of a computer based system for RES system for collecting data is described. The data analysed here are derived from analytical monitoring data, hourly values and 15-minute- value in 24 hours. The proposed system consists of a set of sensor for measuring both meteorological (temperature sensor and ambient light sensor), storage data (microSD card) and electrical parameters (photovoltaic voltage and current).

## **PERKEMBANGAN AWAL SISTEM PENGAMBILAN DATA TAKSIRAN TENAGA SOLAR**

### **ABSTRAK**

Prestasi, kualiti dan kebolehpercayaan isu menjadi lebih penting untuk photovoltaic muncul dalam pasaran dunia. Sebuah komputer berasaskan sistem pemerolehan data untuk mengumpul dan memantau sistem penjanaan kuasa photovoltaic menggunakan Aduino telah di reka bentuk dan dilaksanakan di rumah ikan. Sebelum merekabentuk sistem pemerolehan data, sistem PV bersaiz kecil penjanaan kuasa, yang terdiri daripada 8 modul PV panel, pengawal pengecas dan penyongsang DC ke AC , telah dipasang. Pada masa yang sama, sistem pemerolehan data digunakan secara meluas dalam aplikasi sumber-sumber tenaga (RES) dalam usaha untuk mengumpul data mengenai prestasi sistem yang dipasang, untuk menilai tujuan. Dalam kajian ini, pembangunan sistem berasaskan komputer untuk sistem RES untuk mengumpul data diterangkan. Data yang dianalisis di sini diperolehi daripada data pemantauan analisis, nilai setiap jam dan 15-minit-nilai dalam masa 24 jam. Sistem yang dicadangkan terdiri daripada satu set sensor untuk mengukur kedua-dua meteorologi (sensor suhu dan sensor cahaya), penyimpanan data (microSD kad) dan parameter elektrik (voltan dan arus photovoltaic).