

COMPUTER AIDED DESIGN AND ANALYSIS OF 'WAVE GLIDER'
DATA COLLECTION CRAFT

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**COMPUTER AIDED DESIGN AND ANALYSIS OF 'WAVE GLIDER' DATA
COLLECTION CRAFT**

By

Intan Nur Shafinas Binti Rose Zaini

**Thesis submitted in partial fulfillment of
the requirement for the degree of
Bachelor of Applied Science (Maritime Technology)**

**Department of Maritime Technology
Faculty of Maritime Studies and Marine Science
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**DECLARATION AND VERIFICATION REPORT
 FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled: **Computer Aided Design and Analysis of ‘Wave Glider’ Data Collection Craft** by **Intan Nur Shafinas binti Rose Zaini**, Matric No. **UK 20080** 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.

Verified by:



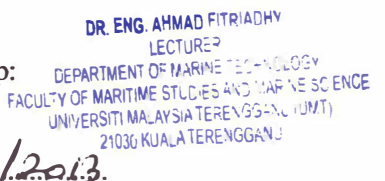
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DECLARATION

I hereby declare that this thesis entitled **COMPUTER AIDED DESIGN AND ANALYSIS OF 'WAVE GLIDER' DATA COLLECTION CRAFT** is the result of my own research except as cited in the references.

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COMPUTER AIDED DESIGN AND ANALYSIS OF 'WAVE GLIDER' DATA COLLECTION CRAFT

ABSTRACT

This thesis deals with the four new designs of an autonomous surface marine vehicle (ASV) that inspired by Liquid Robotic Wave Glider. The wave glider is an autonomous marine vehicle that is unique in its ability to conserve ocean wave energy as the platform for energy source. This unmanned vehicle are used as a data collection craft for researcher to collect oceanographic data such as the salinity of water, the chemical biological properties in the water, the wave height and wave direction in certain region and etc. This thesis provides an overview of the Wave Glider vehicles and the process of creating new hybrid designs featuring the environmental-friendly energy source. This will be new generation designs of environmental-friendly ASV after the Wave Glider. The four prototypes are modeled using Sketch Up 8 and SolidWorks™. For further analysis of the models, simulations were done using ANSYS™. The analyses that were done were on displacement, resistance and stability.

REKABENTUK BERBANTUKAN KOMPUTER DAN ANALISIS KENDERAAN PENGAMBIL DATA 'WAVE GLIDER'

ABSTRAK

Tesis ini telah mengetengahkan empat rekabentuk autonomi kenderaan marin yang telah diinspirasi oleh Wave Glider dari Liquid Robotic. Wave Glider ini adalah sejenis autonomi kenderaan marin yang unik, di mana ianya berkebolehan untuk memelihara tenaga ombak laut sebagai punca kuasa untuk ia bergerak. Kenderaan marin tanpa pemandu ini telah digunakan sebagai kenderaan pengumpulan data bagi penyelidik untuk mengumpul data oseanografi seperti tahap kemasinan air, sifat kimia dan biologi di dalam air, ketinggian ombak, dan untuk mengetahui arah ombak di perairan tertentu dan sebagainya. Tesis ini memberikan gambaran kenderaan Glider Wave dan proses mewujudkan reka bentuk hibrid baru yang memaparkan sumber tenaga mesra alam. Ini akan menjadi reka bentuk generasi baru mesra alam ASV selepas Wave Glider. Empat prototaip dimodelkan menggunakan Sketch Up 8 dan SolidWorks™. Untuk analisis lanjut model, simulasi telah dilakukan menggunakan ANSYS™. Analisis yang telah dilakukan adalah pada anjakan, rintangan dan kestabilan.