

PHYSICAL PROTOTYPE DESIGN OF SEA TURTLE  
OBSERVATORY ROBOT

AHMAD AMIRUDIN BIN MOHD SAD

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PHYSICAL PROTOTYPE DESIGN OF SEA TURTLE  
OBSERVATORY ROBOT

by

AHMAD AMIRUDIN BIN MOHD SAD

UK20514

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**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: **PHYSICAL PROTOTYPE DESIGN OF SEA TURTLE OBSERVATORY ROBOT** by **AHMAD AMIRUDIN BIN MOHD SAD**, Matric No. **UK 20514** has been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfilment towards obtaining the Degree **APPLIED SCIENCE (MARITIME TECHNOLOGY)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

Principal Supervisor

Name: **DR. AHMAD FAISAL MOHAMAD AYOB**

Official stamp:

**DR. AHMAD FAISAL MOHAMAD AYOB**  
LECTURER  
DEPARTMENT OF MARITIME TECHNOLOGY  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU (UMT)  
21030 KUALA TERENGGANU

Date: 13/1/2013

Head of Department of Maritime Technology

Name: **DR. MOHAMMAD FADHLI AHMAD**


Official stamp:

**ASSOC. PROF. DR. MOHAMMAD FADHLI AHMAD**  
HEAD  
DEPARTMENT OF MARITIME TECHNOLOGY  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU (UMT)  
21030 KUALA TERENGGANU

Date: 13-1-13.

## DECLARATION

I hereby declare that this thesis entitled Physical Prototype Design of Sea Turtle Observatory Robot is the result of my own research except as cited in the references.

Signature :   
Name : **AHMAD AMIRUDIN BIN MOHD SAD**  
Matric No. : **UK 20514**  
Date : **13/1/2013**

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## PHYSICAL PROTOTYPE DESIGN OF SEA TURTLE OBSERVATORY ROBOT

### ABSTRACT

Sea turtles had been the highlights to several researches these past few years. Sea turtles emerge from the sea to lay eggs once a year. Until now, marine scientists observe turtle laying eggs process manually. The problems revolve around carefully observing sea turtle laying eggs (nesting) without having the sea turtles intimidated hence retarding the process. The purpose of this research is to develop a physical prototype design of sea turtle observatory robot. In order to prevent sea turtle being intimidated from the human existence hence retarding the nesting process, this prototype was able to resolve problems faced previously. This robot is equipped with Bluetooth communication system which allows it to be controlled from a fixed position and moves with constant speed from a given starting point on the plane to a target point. The task is to identify challenges involved in sea-turtle observatory processes on the beach which are done manually before. Therefore, this work is focused on the development of robots in order to operate at the beach for the sea turtle observation. The criteria of prototype should be capable to crawl on sea sand and able to withstand water splash and flying sand dust. The research is executed in a proper designed and organized schedule to optimize the output of the research.



## REKABENTUK PROTOTAIP FIZIKAL ROBOT PEMERHATIAN PENYU

### ABSTRAK

Penyu laut telah menjadi perhatian dalam beberapa kajian sejak tahun-tahun kebelakangan ini. Penyu laut muncul setahun sekali dari laut untuk bertelur. Sehingga masa kini, saintis marin melihat proses penyu bertelur secara manual. Masalah yang dihadapi adalah untuk memerhatikan proses penyu laut bertelur (bersarang) tanpa mengancam keadaannya, mengganggu dan memperlahankan proses pembiakannya. Tujuan kajian ini dijalankan adalah untuk membangunkan satu rekabentuk prototaip fizikal robot pemerhatian penyu. Dalam usaha untuk mencegah penyu laut yang terancam dengan kehadiran manusia ini lalu memperlahankan proses bertelur, prototaip ini dilihat mampu untuk menyelesaikan masalah yang dihadapi sebelum ini. Robot ini dilengkapi dengan sistem komunikasi Bluetooth yang membolehkan ia dikawal dari kedudukan yang tetap dan bergerak dengan kelajuan yang tetap dari titik mula sehingga ke titik sasaran. Tugas ini adalah untuk mengenal pasti cabaran yang terlibat dalam proses pemerhatian penyu laut di pantai secara manual. Oleh hal yang demikian, kerja-kerja ini memberi tumpuan kepada pembangunan robot yang beroperasi di pantai untuk tujuan pemerhatian penyu laut. Kriteria-kriteria bagi prototaip ini seharusnya berupaya untuk merangkak di atas permukaan pasir laut dan mampu menahan percikan air dan habuk pasir yang berterbangan. Penyelidikan dilaksanakan dalam jadual yang direka dan dirancang rapi sekaligus dapat mengoptimumkan hasil penyelidikan.