BALANCING BOAT

By

MUHAMMAD AIZAT BIN MAZLI MUHAMMAD ASRI BIN JUMALI

A Thesis

Submitted to the Faculty of Electrical Engineering as a Requirement for the Diploma in Electrical Engineering

FACULTY OF ELECTRICAL ENGINEERING ELECTRICAL ENGINEERING DEPARTMENT UNIVERSITI TEKNOLOGI MARA DUNGUN TERENGGANU

MARCH 2013

Title of thesis

BALANCING BOAT

We, Muhammad Aizat Bin Mazli and Muhammad Asri Bin Jumali hereby declare that the thesis is based on our original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UiTM or other institutions.

Signature of Authors

(Muhammad Aizat Bin Mazli) Permanent address: Lot 176, Batu !3 Sungai Rambai, 42600 Jenjarom, Selangor Darul Ehsan.

(Muhammad Asri Bin Jumali) Permanent address: No 8 Jalan Saujana 2/3 Desa Saujana, Jalan Sg.Merab 43000 Kajang, Selangor Darul Ehsan.

Date: 11/4/13

Endorsed by

Signature of Supervisor (Nurul Nadia Binti Mohammad)

Date: 11/4/13 .

ív

ABSTRACT

This paper presents a Peripheral Interface Controller that has been implanted to control the stability of water transport like boat. In this project, it has 2 parts which are input and output. This device uses sensor to detect the presence of angle that approach specified value as an input while the servomotor that control the stability of the boat as the output. The Peripheral Interface Controller (PIC) is the main part of this device that placed between input and output. The idea to design this device are comes from the primary challenges for a fisherman when they need to handle the boat. From that, it caused about many young generations nowadays does not choose fisherman as their job. The concept of this device is if the sensor detects a certain degrees on the left or right of the boat, the output part which is servomotor will automatically rotate to certain position to stabilize the boat.

ACKNOWLEDGEMENTS

Praise to God with His will that give us an idea and we could finishing our project smoothly. Balancing Boat finally finished with the prototype and the requirement for this project of Balancing Boat. Here, we wants to take an advantage to highly thanks to all lecturers Faculty of Electrical Engineering especially to Miss Nurul Nadia Bt Mohammad, whose act as supervisor that give us advise to finishing this project and help us in anytime and giving us support to making this project and help us to generate an idea to solve any problem that we facing in making this project. To lecturers those managing Final Year Project (FYP) 1 and 2 mostly appreciate for giving their time to help us and give us information for the updated information to the project. Thousands thanks to presentation panel which mostly giving us an advise and support to us until we could produce a perfect project as we want it be and give their idea for modification to our project. Never forget to the laboratory technicians those helping us in making PCB breadboard and managing the machine for us. Friends those give their hands on our project in helping us in idea. May God bless all so involved directly or indirectly. We are not afforded to pay all their efforts but we were able to pray that God reward all the services they have given to us.

TABLE OF CONTENTS

Declaration of originality
Approvaliii
Abstract1
Acknowledgments2
Table of Contents
List of Figures
List of Tables
List of Abbreviations
CHAPTER 1
1 Introduction7
1.1 Problem Statement
1.2 Scope and Objectives
1.3 Overview of Project
CHAPTER 2
2 Literature Review10
2.1 Historical
2.2 Description of Project
2.2.1 Microcontroller
CHAPTER 3
3 Methodology/Design15
3.1 List of the Component
3.2 Flowchart movement of project
3.3 Step to program using MPLAB IDE20
3.4 Test Circuit above Project Board20
3.5 PCB Layout21
3.6 Simulation Circuit