POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

SMART BOAT (Iot)

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JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

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MUHAMMAD ARIB ADIB BIN BADERULHISAM	08DJK19F2001

This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electrical Engineering

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

CONFIRMATION OF THE PROJECT

The project report titled "SMART BOAT (Iot)" has been submitted, reviewed and verified as a fulfills the conditions and requirements of the Project Writing as stipulated

Checked by:

Supervisor's name : **TUAN IDRIS BIN KAMARUDDIN**

Supervisor's signature:

Date :

Verified by:

Project Coordinator name :

Signature of Coordinator :

Date :

"I acknowledge this work is my own work except the excerpts I have already explained to our source"

1. Signature :

Name : **MUHAMMAD ARIB ADIB BIN BADERULHISAM**

Registration Number : **08DJK19F2001**

Date : 27/6/2022

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : SMART BOAT (Iot)

SESSION: SESI 2 2022/2023

1. I, **1. MUHAMMAD ARIB ADIB BIN BADERULHISAM**

   (08DJK19F2001)

   is a final year student of **Diploma in Electrical Engineering, Department of Electrical, Politeknik Sultan Salahuddin Abdul Aziz Shah**, which is located at **Persiaran Usahawan, 40150 Shah Alam, Selangor**. (Hereinafter referred to as 'the Polytechnic').

2. I acknowledge that 'The Project above' and the intellectual property therein is the result of our original creation /creations without taking or impersonating any intellectual property from the other parties.

3. I agree to release the 'Project' intellectual property to 'The Polytechnics' to meet the requirements for awarding the **Diploma in Electrical Engineering** to me.

Made and in truth that is recognized by;

a) **MUHAMMAD ARIB ADIB BIN BADERULHISAM**
(Identification card No: 010912-06-0073)

) .
....
) **MUHAMMAD ARIB ADIB**

In front of me, Click here to enter text. (Click here to enter text.)) .....
) Click here to enter text.
As a project supervisor, on the date:

ACKNOWLEDGEMENTS

I have taken efforts in this Project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I am highly indebted to (Name of your Organization Guide) for their guidance and constant supervision as well as for providing necessary information regarding the Project & also for their support in completing the Project.

I would like to express my gratitude towards my parents & member of (Organization Name) for their kind co-operation and encouragement which help me in completion of this Project. I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the Project and people who have willingly helped me out with their abilities.

ABSTRACT

Hundreds of the boats are lost every year because of the maritime accidents, insufficient information provided and because of the high economical costs. This paper shows how the current technologies can be used to avoid boat accidents, collisions, contacts between ships and to avoid wrecks. The paper uses a variety of sensors for detecting an object around the boat. An iphone application is used to monitor the boat and control the boat. The boat which uses these smart technologies for its functioning is called Smart boat. IoT applications are emerging exponentially with various functionalities to automatically monitor, control the environment, and manage various tasks. This research aims to address various challenges facing boat transportation by establishing an IoT. The system also uses an ultrasonic sensor for measuring the proximity between the boat and obstacle; if the boat approaches the obstacle, the buzzer starts to ring until the boat is in a safe position.

ABSTRAK

Beratus-ratus bot itu hilang setiap tahun kerana kemalangan maritim, maklumat yang tidak mencukupi dan kerana kos ekonomi yang tinggi. Kertas kerja ini menunjukkan bagaimana teknologi semasa boleh digunakan untuk mengelakkan kemalangan bot, perlanggaran, sentuhan antara kapal dan untuk mengelakkan bangkai kapal. Kertas itu menggunakan pelbagai sensor untuk mengesan objek di sekeliling bot. Aplikasi iphone digunakan untuk memantau bot dan mengawal bot. Kapal yang menggunakan teknologi pintar ini untuk fungsinya dipanggil Bot Pintar. Aplikasi IoT muncul secara eksponen dengan pelbagai fungsi untuk memantau, mengawal persekitaran dan mengurus pelbagai tugas secara automatik. Penyelidikan ini bertujuan untuk menangani pelbagai cabaran yang dihadapi oleh pengangkutan bot dengan mewujudkan IoT. Sistem ini juga menggunakan sensor ultrasonik untuk mengukur jarak antara bot dan halangan; jika bot menghampiri halangan, buzzer mula berbunyi sehingga bot berada dalam kedudukan selamat.

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INTRODUCTION

1.1 Introduction

Hundreds of boats are lost every year because of the maritime accidents, insufficient information provided and because of the high economical costs. This paper shows how the current technologies can be used to avoid boat accidents, collisions, contacts between ships and to avoid wrecks.

1.2 Background Research

In this project, I have invastigated the functional features of small boats' space availability.I aimed to verify the adequacy of existing standards and to establish new norms on the basis of tests,consultations,and experiments,the goal of which was to set key distances,as well as to determine the minimum values of features.My main goal was to increase the independence of users with reduced mobility.The study is dedicated primarily to designers and architects who care about shaping space with responsibility and inclusion of such users.

1.3 Problem Statement

- To reduce the problem of small boat collisions
- To give sound and light signals if there are corals under water and objects infront.
- Addition of sensor infront of the boat as well as addition of arduino,IOT.

1.4 Research Objectives

- Usually collosions with rocks and various objects are often experienced by small boats that do not have detector technology.So there are improvements to the technology that will be done which is called "SMART BOAT".It is works to detect objects infront and under water by using a detector(ultrasonic sensor),and emit a sound signal(buzzer) through a programmed Arduino Nano.
- The addition of an ultrasonic sensor infront of the boat to detect the distance of objects through a programmed Arduino Nano. So, the problem of small boat collisions will be reduced.

- It usually happens to small boat owners and also fisherman.

1.5 Scope of Research

- Using Nano, ultrasonic sensor, buzzer,micro servo MG90S,stepdown converter LM2596,IRF520 mosfet driver module.
- Project will be completed within 5 month, cost of developing project is RM200, hardware resources are available for two months.

1.6 Project Significance

This function represents the base brick for the development of a collision avoidance systems smart enough to reactively detect unexpected obstacles and perform the necessary avoidance maneuvers to safely prevent collisions. The present paper describes the design of an a innovative obstacle detection sensor, combining both passive and active optical devices. It is specifically conceived for collision avoidance tasks in marine environments, designed to be easily mounted on small-medium sized USVs. Its innovation consists in the interaction between the different integrated sensors, that are in fact totally decoupled. The paper presents the functional architecture of the object detection sensor together with the preliminary mechanical design. Moreover some experimental data collected by the sensor are reported, and some simulations, highlighting the ability of the system to detect and correctly avoid both still obstacles.

1.7 Chapter Summary

In this first chapter, I've described the background of the original idea for the beginning of this project. Then, I identified the problems that are happening nowadays. In addition, I have demonstrated the objectives of this project, and I also remember the significance of the study's objectives. Finally, I came up with a project.