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MEC299

PRODUCTION DESIGN OF AN AMPHIBIOUS BOAT

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

This project is basically about a production design of amphibious boat that has capabilities to go over land and also the water whether designed with wheels or tracks. It is referred as an amphibious boat for its amphibian quality which can move both on land and water. Amphibious boat is a concept of boat that having versatile usage. It can be put forward for the commercialization purpose with respect to various applications like in the field of military and rescue operations.

Some of the earliest known amphibious vehicles were amphibious carriages, the invention of which is credited to the notorious Neapolitan Prince Raimondo di Sangro of Sansevero (ca. 1750) or Sir Samuel Bentham (1781). The first known self-propelled amphibious vehicle, a steam-powered wheeled dredging barge, named the Orukter Amphibolos, was conceived and built by United States inventor Oliver Evans in 1805, although it is disputed to have successfully travelled over land or water under its own steam. Among the earliest vehicles, there is also an amphibious boat.

The earliest amphibious boat was mostly designed only for the military purpose and not having a versatile usage. The design of the amphibious boat for the military purpose is different than the one with the versatile usage as the materials used also different. The improvement of the production design is needed so that the user can use the amphibious boat for a versatile usage. Also, the budget for the production is different due to the materials used for the amphibious boat. So, the selection of the materials need to be consider whether it is suitable for the production or not while keeping the production cost within the budget.

1.2 Problem Statements

The design of the amphibious boat for the military purpose is different than the one with the versatile usage as the materials used also different. The improvement of the production design is needed so that the user can use the amphibious boat for a versatile usage. Also, the budget for the production is different due to the materials used for the amphibious boat. So, the selection of the materials need to be consider whether it is suitable for the production or not while keeping the production cost within the budget.

1.3 Objectives

The main objectives of this project are:

- i. To analyze and design the amphibious boats by using suitable software such as PolyCAD.
- ii. To evaluate the most suitable materials in designing the amphibious boats.

1.4 Scope of Work

For this project, the analization of the design of the amphibious boats will be done based on the gathered resources to choose the most suitable design for the boat. After that, the final drawing will be draw using some suitable softwares such as Poly-CAD and Solidwork.

Also, the evaluation of the materials will be done by comparing the properties of the materials and the methods used for the materials because the selected materials will affecting the performance of the amphibious boat.

1.5 Significance of Study

Production design of the amphibious boat is one of the important aspects for the performance of the amphibious boat. When the boat across a medium at high speed, the medium will act on the boat in term of resistance. Air is one of the mediums of space that provide resistance when boat travelling at high speed due to air space densities. This contributes to the consumption of fuel use of for boat. Besides that, the design of the boat should have an aura of attraction to people who see every details of design in terms of creativity and aesthetical value. Selection of materials for the manufacture of basic materials is important for ensuring that the boat is able to float on the water. Among the criteria required material for manufacture of the boat is that it must be durable, has good properties of waterproof, easy to set up and easy to do the repairs in the event of damage and maintenance work.