

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT AND
FABRICATION OF MOVEABLE
AUTOMATIC FISH FEEDER**

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ABSTRACT

Unlike other pets that can move freely on the surface, fish only can survive for several minutes outside of water. Because of that, the source of food for them is limited. The time when they eat is the time when their owner feeds them. That's why people start to buy an automatic fish feeder at the market, so the device can assist them in feeding their fish even if they are away far from home for days. However, the device still has disadvantage, making people lose interest in raising variable types of fish as pets. This project aims to design a new type of automatic fish feeder and develop an ARDUINO system with the function of movement. The selection process will be made to choose the most pleasing design for the product. After that, an isometric view of the product will be created using state-of-art SolidWorks 2018. The designed product will work on electricity and will consist of simple fabrication as a proof of concept. Analytical and finite element analysis of the critical parts shall be carried out. Having this product shall assist the user to feed the fish kept in different small aquariums every day. As a result, the production of this product can run smoothly and successfully achieve the objectives.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

An automatic fish feeder is a machine that dispenses food to fish automatically at a predetermined time. Compared to hand-feeding the fish, using an automatic fish feeder that combines the mechanical and electrical systems into a device allows for greater control over the feeding activities [1]. Unfortunately, many people often forget or are so busy that they do not have time to feed their pet fish. Aquarium fish in good health can typically endure three to seven days without food [2]. These are the lifespan of several types of pet fish without food: baby fish (5 to 7 days), goldfish (3 days to months), Beta fish (3 days to months), and GloFish (7 to 10 days) [3]. Therefore, an automatic fish feeder was invented to solve the problem.

However, there is still a weakness found in automatic fish feeders nowadays, which is that they need to be clamped on the side of the aquarium [4]. The first problem that arises due to this requirement is that the fish food released from the container only covers a part of the aquarium area.

Second, not all types of fish are friendly towards other fish. Some of them will attack the fish that are in the same aquarium as them. For example, Beta fish, Red Devil, and Angelfish [5]. These aggressive types of fish are often separated to prevent them from attacking or eating other fish, especially the small ones.

Therefore, an automatic fish feeder can be upgraded with movement features by combining the Arduino system, motor, and track. The ARDUINO system will control the movement of the product, the time set, and the period for the food release hole to remain open. This will help the user not have any difficulty operating the machine. The objective of a moveable automatic fish feeder is to prevent users from buying more than one machine, while the idea of the product is to ensure that every fish kept by the user in one aquarium gets adequate food. With the assistance of those three components, this project may succeed, and the objective and idea of the product can be achieved.