Design and Manufacturing of Solar Operated Automatic Fish Feeder System

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ABSTRACT

One of the most significant aqua cultural endeavors to date is fish farming. Traditionally, the majority of fish feeding is done by hand, requiring the transportation of people to the feeding location. Fish feeding by hand requires more work, money, and time. Following an extensive survey of farmers across various regions regarding their approaches to fish farming, the Auto Switch Food Feeder, which utilizes new technologies to replace traditional farming methods, will automate farming practices. The design of the solar-powered fish feeder will be based on certain parameters, such as the capacity of the culture tank, stocking density, fish biomass, and feed diameter. Additionally, a user-friendly interface that is compact and convenient for farming will be designed. In the current project, user interface design and timing controls are applied to automate feeding methods, which will significantly save labor costs and efforts while improving the quality of fish feeding.

Key Words: Fish Farming, Automatic feeding, automation etc.

1. INTRODUCTION

India, one of the nations with the greatest rates of economic growth in the world, offers enormous opportunities for aquaculture development. Shrimp farming is second only to China in importance. The many tasks that must be completed are related to shrimp farming. of which one of the most crucial procedures is the feeding of shrimp. Additionally, maintaining the quality of the water is a must for fish farming.

1.1. Problem Definitions

It has been noted that the current fish feeder technology distributes feed across a smaller region. Traditional and manual methods of feeding fish might contaminate the water. Fish food is dispersed unevenly in the water using the current fish feeder system. The current fish feeder system occasionally underfeeds or overfeeds fish, which depletes the fish's food supply and quality

1.2. Objectives of the Present study

The following are the objectives of this project work: 1) The project's focus is on designing, and building an automated fish feeding system that runs on solar power 2) Improving the utilization of solar panels and non-conventional energy for fish feeding systems is the aim of this research. 3) To create a solar-powered fish feeding system that primarily addresses the fundamental issue of the farmer's electrical load-shedding.

1.3. Scope

The goal of this project is to create an autonomous fish feeder that runs on solar power and supplies fish food. This system can be configured to accommodate different fish feeder capacities based on specific needs. Electronic parts like a timer for a solar-powered fish feeder will be used to automate it.

- After implementation of this system, it will reduce or eliminates the efforts of fish feeding as an operation of automatic fish feeding time is fixed.
- Farmer will be working comfortable as his efforts in fish feeding can be eliminated. Unskilled farmers can be assigned the work so it saves the cost of manpower also for fish feeding.
- There is no need to examine the quantity of fish food & the operation of fish feeding is well controlled.
- The system having approximately has higher benefits that of old method in low-cost application automation.
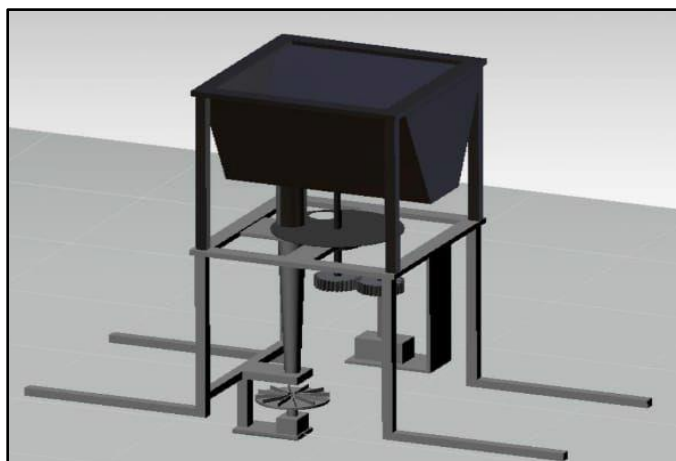
Fig.1 CATIA 3D Image for automatic Fish

3. CONCLUSIONS

The current project focuses on the analysis, planning, and construction of an automated fish feeding system that runs on solar power and a timer. The goal of this project is to employ solar energy to construct a fish feeding system that is fulfilled in this system during current era of global energy crisis. This revolutionary automatic fish feeder system distributes feed over a large area without compromising the quality of the water. The new automated fish feeder system evenly distributes food to the fish, preventing overfeeding that could harm the fish. This concept could have a better future in small-scale fish farms in India, where a solar-powered fish feeding system will need to be made in a cost-effective and energy-efficient manner

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