

Automatic Fish Feeder System



A. Meenakshi, M. Nivetha, P. Vigneshwari, M. Vijayakumari, K. Kumar

Abstract: This paper proposes the look of automatic fish feeder system victimization Raspberry pi. The fish home owner of the pet fish area unit usually concerned once the area unit removed from home surroundings as a result of they may not supply the fish on regular or proper time. Each cause food hunger and food endanger the physical condition of the fish and ends up in poor water quality in indoor fish tanks. Therefore, it's of excellent importance to seem for fish feeders which may be terribly helpful for the fishermen. This work is supposed to supply a fish feeder gadget employing a microcontroller and large natural raspberry pi based and large pure application to consolation distressed fish house holder in feeding their fish on time. This technique defeats the case of fish dying because of fish feeder malfunction. With this vogue, the fish owner will screen the fish tank for correct functioning of the fish feeder. Additionally, the person can set the agenda for feeding the fish through the internet application.

Keywords: Raspberry Pi 3, Web Interface, DC Motor, L293D Driver, Camera

I. INTRODUCTION

An automatic fish feeder is an aid in nursing tool planned to feed fish at normal intervals. They are commonly used when fish owners are on trip or full of activity to meet the routine supplying agenda. However, this system will keep the company with its drawback. The automated fish feeders had dominant range of discharged fish feeds[1]. An excessive amount of water and this will cause a shortage of water in the tank and the shortage can cause starvation[2]. One more downside is the call for of fish and the quick response. Because of this, the area unit owner of the fish house are unconscious of issues with their fish or if their feeder malfunctions. Thus, this paper is designed to beat past system malfunctions and provide additional benefits and benefits to the fish holder. During this effort the client has the capability

to optimize feeding time or choose to feed his fish directly with a predefined agenda. In addition, in view of the fact that raspberry pi is attached to the web, they can also bear out the status of their fish and properly certify the spread of food. Raspberry Pi will permit the client to see their past feed standing. The planned system can provide the client with the facility to feed his fish one day, even once the client way from his home. The field unit ensures that there are drawback within the current automatic fish feeder. One of the issues with most fish feeders was the incapability to operate their feeders operate and therefore the peril of lifeless fish persistent when deficiencies occur, where the fish feeder machine has a very small or small amount of fish. Over-starvation of other amounts of food threatens the health of the fish. The area unit is known as the fishing system for most of the 2 main issues.

A. Amount of foodstuff distributed: Every regular fish feeder has a completely dissimilar quantity of foodstuff to scatter the fish. This may be the cause of excess feeding or rapid hunger. Surplus foodstuff can bemire the aquarium and reason for injury to the fish and health issues.

B. Be short of amount period of time: The fish holder may detach from your fish for long periods of time. In this things, fish holders have no plans about the status of their fish. This can be the oblivion of the problems that arises at home like their system fault or the rapid alter in fish performance.

There are many different designs and brands on automatic fish feeders on the market, but there are some limitations on the existing fish feeders which needs to be improved. Therefore, some improvement or new invention needs to develop to solve these problems. However, when it comes to a total cost of this design, it is a bit expensive as this invention requires higher cost of parts. Usually modern aquariums have their own automatic fish feeder that used to give food to the fish by following the timer that is set by the user. However, the problem with an automatic fish feeder is that there may be a time a user forgot to resupply the fish feed into the device and there not many feeders that have their own temperature sensor. For this project I need to design the automatic fish feeder with a warning system so the amount of food in the aquarium can be replenished and the water temperature can be monitored at all times.

II. LITERATURE SURVEY

In the growth of automatic fish feeder system victimization arduino UNO the rise in the progress of fish farming / aquaculture has led to a great extent in linking the region. Foodstuff organization plays a vital important role here. The purpose of this analysis is to lessen physical work and rescue work time through regulatory the system machine[3].

Revised Manuscript Received on March 30, 2020.

* Correspondence Author

A. Meenakshi*, pursuing bachelor degree program in Electrical and Electronics Engineering in National Engineering College, India, E-mail: vigneshwariraj25@gmail.com

P. Vigneshwari, pursuing bachelor degree program in Electrical and Electronics Engineering in National Engineering College, India, E-mail: vigneshwariraj25@gmail.com

M. Vijayakumari, pursuing bachelor degree program in Electrical and Electronics Engineering in National Engineering College, India, E-mail: vigneshwariraj25@gmail.com

M. Nivetha, pursuing bachelor degree program in Electrical and Electronics Engineering in National Engineering College, India, E-mail: vigneshwariraj25@gmail.com

K. Kumar, Assistant Professor in department of Electrical and Electronics Engineering in National Engineering College, India, PH-9698916491 E-mail: Kumarkathir92@gmail.com

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](https://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Automatic Fish Feeder System

The system may be connected to a tool that supply fishes with a preset quantity of foodstuff at set times. The value of the operating prototype depends on the quantity of foodstuff nourished within the storage container part at completely dissimilar agenda of time. The epitome, which can be a blend of mechanical and electrical equipment, uses the idea of phase wise spin of the stepper motor to deliver specific quantity of foodstuff at the correct time. It helps to sensibly induce the disperse of foodstuff throughout the fish tank and supply the fish by themselves in a day, which creates a consistent and correct formulation. [4]. This system epitome is one that can be used in aquarium or fisheries if the method is applied extensively.

III. PROPOSED DESIGN METHODOLOGY

The planned methodology for automatic management of the fishing system is delineate within the figure below.

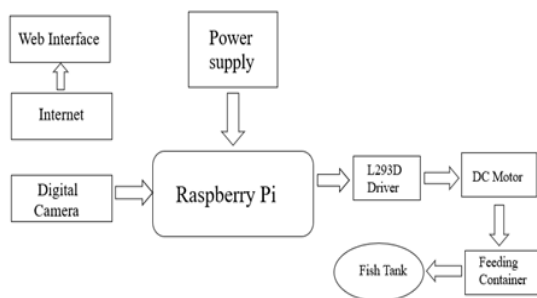


Fig. 1. Proposed methodology

The 5V Direct Current has been offered to the system that is regenerated from 230volt Alternating Current offer. First, a reduction device is used here to convert 230Volt Alternating current to 12Volt Alternating Current. The microcontroller will totally sustenance the facility providing, that the electricity provide is on the point of be reproduced during a bridge rectifier in Direct Current surface assimilation. The output of the rectifier will so contain waves in order that we are able to exploit the 2200 μf capacitance to screen those waves. [5]. The output from the filter that's given to the 7805 transformer can translate the 12Volt to 5V Direct Current. The Raspberry Pi is a microcontroller ability of receiving 5V Direct Current, thus we have to translate the 230Volt Alternating Current provide to a 5V Direct Current offer. The net boundary is associate line during which the client can direct guidelines to the fish feeder. The client directs guidelines by push the input button for every single fish feeder functions. Raspberry Pi is as a result of the distinction between the net boundary and so the fish feeder. Raspberry Pi will then direct guidelines to the fish feeder [6]. This guidelines is used to manage the motor for feeding. The motor are controlled during a combine of the way during which manual feed and consider schedule lastly is that the fish feeder device. The system is apparatus setup that coupled to the Raspberry Pi [7]. The system is made using a elastic instrumentality, a dc motor, an online visual capture device.

IV. HARDWARE IMPLEMENTATION

A. Power Supply

The power offer should deliver continuing output regulated offer. A 230V/0-12V (1mA) electrical device is employed for this purpose runs on electricity. It works on the

principle of electro magnetism. A current carrying conductor when placed in an external field when placed in an external field can expertise a force proportional to this within the conductor. The primary of the electrical device is connected through switch for cover. The secondary is associated to the diodes to change the 12V Alternating Current to 12V Direct Current voltage. And sieved by capacitors, that controlled to +5V, by IC 7805.

B. Web Interface

The web boundary is style to have a boundary that the client will direct control to the fish feeder. The client sends the instruction by push the button for every single fish feeder function.

C. Camera

It might be a video camera that feeds its image in real time to or through a laptop to a network. When captured by the PC, the stream could also be saved, the viewed or sent on to alternative networks via systems like the net.

D. L293D Driver Circuit

L293D may be a twin H-bridge motor driver, therefore with one IC. We will interface 2 DC motors which might be controlled in each dextrorotary and counter dextrorotary direction if you have got motor with mounted direction of motion you will create use of all the four I/O to connect upto four DC motors.

E. DC Motor

A DC motor is any of a category of rotator electrical machines that converts electrical energy electricity to energy. A DC motor is an electrical motor that runs on DC electricity. It works on the principle of electro magnetism. A current carrying conductor when placed in an external field when placed in an external field can expertise a force proportional to this within the conductor.

V. EXPERIMENTAL SETUP AND RESULTS

The system consists of raspberry pi 3, dc motor, camera, fish feeding box, an aquarium. As for the model which is a grouping of both hardware and software and the result of the program had no divergence with the expected output. The lineup was made to manage the steps for the stepper motor. The result was that the motor took ten steps with the required delay (in milliseconds) delivering the required amount of food. The feeder setup connection was shown in figure 3.



Fig. 3. Feeder setup connection

The following table shows the timing schedule to feed the fish which means when the time occurs the food is feed to fish for one minute.

Table-I Food Door Conditioning

S.I No	Timing	Food door conditioning
1.	9:30 Am	Door opens
2.	9:31 Am	Door closes
3.	7:30 Pm	Door opens
4.	7:31 Pm	Door closes

VI. CONCLUSION

The automatic fish feeding system use raspberry pi which is engaged to supervise and look at the feeding of fish. The camera is coupled to the raspberry pi to look at the standing of the fish.

This project aims to scale back the alimentation and starvation drawback, thus reduces the probabilities of dying the fish. If the fish is give with excess food the aquarium could get contaminated and might cause Health problems to the fish. Online page is made to feed the fish. The user schedule time for feeding at regular interval of your time and at that specific time the motor starts rotating to feed the fish.

REFERENCES

1. Sourav meshram, Gourav Meshram, Roshan Kapse “Fish Feeder using IOT”, International research journal of engineering and technology, Volume: 06 Issue: 02 | Feb 2019
2. Sakshi Nirwan, Ragini Swarnakar, Aruna Jayarajan, “The developement of automatic fish feeder system”, International journal of modern trends in engineering and research, Volume: 04 Issue: 07 | 2017
3. Yeoh S.J ,F.S. Taip, J.Endan, Talib R.A and M. Siti Mazlina, Development of AutomaticFeeding Machine for Aqualculture Industry.
4. Prangchumpol .D“A Model of Mobile Application for Automatic Fish Feeder System”, International journal of modeling and optimization, Volume: 08 Issue: 10 |2018
5. Patrick Henry G. Baniqued, Martin Joseph C. De Castro, Chael Triston T.Luzano, Microcontroller Based Fish Feeder, 2009.
6. Smart Pet Care arrangement., Seungcheon Kim, he has received the M.S. and Ph.D. degrees in Electronic Engineering Department of Yonsei University, 2016.
7. M.Z..Noor,A.K. Hussain, M. Saaid, M.S.A.M.Ali, The Design and Development of automatic Fish Feeder System Using PIC Microcontroller,2012.

AUTHORS PROFILE



A. Meenakshi, is studying final year Electrical and Electronics Engineering in National Engineering College, Kovilpatti. Her area of interest is high voltage engineering



M. Nivetha, is studying final year electrical and electronics in National Engineering college, Kovilpatti. Her area of interest is high voltage engineering.



P. Vigneshwari, is studying final year electrical and electronics in National Engineering College,Kovilpatti. Her area of interest is high voltage engineering



M. Vijayakumari, is studying final year electrical and electronics engineering in National Engineering College, Kovilpatti.. Her area of interest is high voltage engineering.



K. Kumar, Pursuing his Ph.D degree in High Voltage Engineering from Anna University,Chennai, Tamilnadu, India. He works as an Assistant Professor in Department of Electrical and Electronics Engineering, National Engineering College kovilpatti, Tamilnadu, India. He has three international conferences publications. Currently, his research interests include high voltage insulators, partial discharge, and condition monitoring.