

# Smart Fish Feeder

G Sinchana<sup>1</sup> and G Neharika<sup>2</sup>

Assistant Professor, Department of Computer Science<sup>1</sup>

Students, Department of Computer Science<sup>2</sup>

Rao Bahadur Y Mahabaleswarappa Engineering College, Bellary, Karnataka, India

**Abstract:** *As we know the most common problem that we face when we try to keep our pet always eat at the right time is that we have no time to feed our pet because we are too busy with other things. Animals also have health to take care for keep our pet alive because we don't have time for them. For this We will develop a prototype, which is to keep our pet alive by which we monitor status of food every day, but it's impossible to monitor pet every day. We have used internet of technology to make this project NodeMCU (ESP8266) allows to connect the sensor and send the food condition to user also can giving food by activating the servomotor to release food for pet. The power supply that we have used for this project is 9 volt power supply to support the servo motor as output while ultrasonic as the input. Every signal will go through NodeMCU. So, NodeMCU is the heart of the circuit as it controls all the functions. In order to replace manual activities and make work easier, we have created smart fish feeder. By allowing the user to feed his fish any time in a single click.*

**Keywords:** Prototype, Node MCU, Sensors, Servometer, Ultrasonic

## I. INTRODUCTION

The problem that we face when we try to keep our pet always eat at the right time is that we have no time for giving the pet food because we will be too busy with other things. Animals also have health to take care for keep our pet alive because we don't have time for them is a big problem and feed them in a single click on app. Smart Fish Feeder is an online service where individuals who are looking to feed their pet when they are far their pets can be feeded from any where from the world and the owner of the pet can be free from manually feeding the pet and he can feed the pet with a single click on app and he can even monitor the amount of feed is available on fish feeder This Project is developed using ESP8266 module and coded with Arduino IDE The entire system is controlled with a Telegram Bott.

## II. LITERATURE REVIEW

Jerome Frankel in "Kum pet feeder: Feeding device for Animals" [1] has shown: a wind-up alarm clock, mounted flush into a galvanized metal frame, is set with the time for the pet's meal. When mealtime is reached, the tension unwinding spring that operates the clock's alarm also spins a metal spool that winds up a string. The string is attached to the underside of the metal feeding dish under the cover. James R. Coffing, Danville, Ill. in "Pet Feeder" [2] has proposed that: the chief object of this invention is to provide a device of the character indicated which will intermittently and successively expose compartments containing food, etc., at predetermined intervals such as once or twice a day and for several days, say, over a period of a week. The chief feature of the present invention resides in powering a rotatable table member for rotation, holding said member against. Emanuele Vittuari, Gabriele Vittuari, Maurizio Vittuari and Maria Rosa Vittuari in "Automatic feed distribution apparatus for animals" [3] ha proposed: an automatic distribution apparatus to supply consumables to animals, particularly to cats and dogs, which can be fed without needing a owner's presence by means of a card programmed accordingly on an operator's.

Nan R. W. Lewis in "Pet feeding system" [4] has said that: his invention relates generally to pet feeding systems, and more particularly to pet feeding systems for multiple pet households; the invention allows access to food contained in a pet feeder only when a unique signal is detected by a transceiver positioned in the pet feeder. The present invention addresses these problems by providing a pet feeding system which allows only the intended pet to have access to food stored in the dish intended for that pet, and prevents all pets in the household from eating food which is not intended for them. Patented on 2002- 02-26.

### III. PROPOSED WORK

There Is only a feeding procurer that was followed by almost all the pet owners in which they feed the pet only in traditional and manual manner in which the feed there pet by there own hands and There is no smart feeders that are mostly unavailable in market if there are any such feeders are available they are very costly and don't have smart features. The system is built on Linux platform using Arduino IDE and smart microcontroller ESP8266 and a Ultrasonic sensor in which we will be using a servo motor to control the flow of feed and a ultrasonic sensor to check the amount of feed left in the feeder and The entire system will be controlled by ESP8266 according to the commends given from telegram bot and it can be accessed from any were in the world.

#### 3.1 Product Perspective

This smart pet feeder is a smart feeder in which a person can control from anywhere in the world with single click on his smart phone or system it can even detect the amount of feed left and the user can feed accordingly it consist of commends like feed,status,ip,controles,connection etc

#### 3.2 Functional Requirement

- Must be able to detect amount pet feed.
- Have the ability to dispose the feed on click.
- Could able to show the amount of feed left more accuracy.
- Control food dispenser over the internet.

#### 3.3 Non Functional Requirement

- **Performance Requirement:** The hardware should have high performance and low failure. The hardware and software should be able to transmit/receive data from bot. Machines should have all recent Linux updates installed, and have their security not compromised by viruses. user can access system without degrading the performance
- **Availability:** The system must be able to work even when the distance between the ultrasonic sensor and bowl is changed and it should be even available 24\*7 and the user could able to access the module.
- **Security:** Only accessible to a authenticate user having a speafice authentication key with him.
- **Re-usability:** The users can reuse the system, also after once completed feeding
- **Maintainability:** Effectiveness and efficiency in which a system can be modified
- **Software and Hardware Quality:** Information of pet feed details can be fetched from the sensor data. Its availability is high, it depends on amount of feed in the feeder.

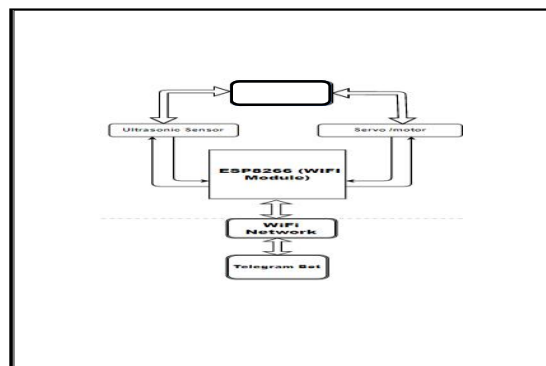


Figure 1: Architectural Diagram

#### A. Fish feeder

Fish feeder disposer is the main outer feed disposer model that we have built and it dispose the feed according to the instructions of its user it consist of all the components such as ultrasonic sensor servo motor a ESP8266 module to control the entire system

### B. Servo Motor and Ultrasonic sensor

A servo motor is generally used to control the flow of feed and the Ultrasonic sensor is used to check the feed status in the feeder by which the user can easily identify the amount of feed available in the fish feeder and he can feed his fish accordingly

### C. ESP8266(WIFI module)

It is the heart of the pet feeder that we have built the sensor and servomotor that we have used will be connected and controlled by this module and we can access this module through internet to control the entire system

### D. WIFI Network

This is the WIFI network that we have connect our ESP8266 module to the internet and this helps us to control the entire fish feeder through internet remotely from anywhere

### E. Telegram Bot

Telegram Bot is small programs that will be written to control our fish feeder in which by using a smartphone and a telegram app installed in it and we will connect this telegram bot with our ESP8266 module with a unique bot id and chat id and we will specify all the commends in the code and it will according to the commends that we have specified in the code.

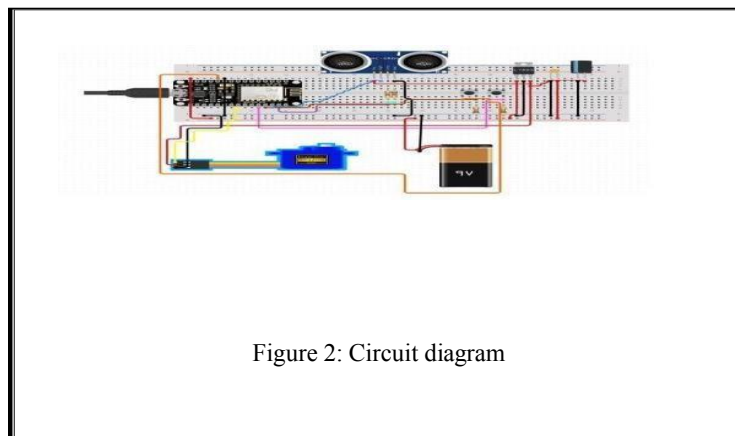


Figure 2: Circuit diagram

## IV. IMPLEMENTATION

### Code Snippets

#### Importing required library's and modules

```
#include <ESP8266WiFi.h> #include
<WiFiClientSecure.h> #include
<UniversalTelegramBot.h> #include
<Servo.h>
#include <ArduinoOTA.h> #include "secrets.h"
```

#### Accessing WIFI through Secrets File

```
char ssid[] = SECRET_SSID; charpass[] = SECRET_PASS;
int status = WL_IDLE_STATUS; // the WiFi radio's status
```

#### Telegram Bot Setting UP

```
#define BOTtoken "5044056407:AAHQwov2Xv7pkp- KLXEBDvQXIl3A91Rt08" WiFiClientSecure client;
UniversalTelegramBot bot(BOTtoken, client); int Bot_mtbs
= 1000; //mean time between scan messages long Bot_lasttime; //last time messages' scan has been done
```

**Declaring pins for servo and writing up of commends for servo**

```
Servo servo; #define servoPin 16
void feedFish() {
Serial.println("Feeding fish..."); servo.write (90);delay (1000);
servo.write (0); delay(1000);
}
```

**V. CONCLUSION AND FUTURE SCOPE**

- Many people will prefer more to use a pet feeder that could be accessed from any were and thus it will be useful to many people to feed there pets
- The features we provide will make the people to be more confident about how much they were feeding and thus improve the confidence on our system
- Based on results we can conclude that using this smart pet feeder is much more better than feeding pet manually this pet feeder will the grate solution for many people to feed the pet when they were out for a long weekend

**5.1 Future Enhancements**

- We can add a water ph sensor to cheek the quality of Water in the fish tank and clean accordingly
- We can add weight sensor to get remaining feed data even there is a continue change in feed quantity
- We can add voice commands to feed pet automatically with google commends at exact times

**ACKNOWLEDEGEMENT**

We thank Mr. Shiva Kumar our guide for his immense support throughout the completion of the project and also our fellow team mates.

**REFERENCES**

- [1]. AUTOMATIC PET FEEDER USING INTERNET OF THINGS An IoT based PetFeeder
- [2]. Jayaram Kumar Kondapalli, 2Venkata Ramana Sanepu, 3Balakrishna Satyam Kothapalli,
- [3]. Shankar Pattabhi Ram Peketi, 5Venkata Dattu Naveen Kukatla
- [4]. Automatic Pet Feeder Using Arduino IoT IArchana P., 2Bojraj R., 3Rajeshraj P., 4Sakthivel K, 5Saravanan N.
- [5]. Arduino and Open-Source Computer Hardware and Software Novembra. 2015DOI:10.13140/RG.2.1.1071.7849
- [6]. Design of Pet Feeder using Web Server as Internet of Things Application Andi Adriansyah, Muchd. Arief Wibowo, Eko Ihsanto
- [7]. Smart Dog Feeder Design Using Wireless Communication,MQTT and Android ClientVania Kanisius Karyono2, Hargyo Tri Nugroho I. 3
- [8]. Automatic Pet Feeder Aasavari Kank TE-IT KJSIEIT Mumbai,Anjali Jakhariya KJSIEITMumbai, Vaishali Gaikwad (Mohite) PhD Schol
- [9]. David Kushner: "The Making of Arduino". IEEE Spectrum. 26-10-2011.
- [10]. Justin Lahart (27 November 2009): "Taking an Open-Source Approach to Hardware".The Wall Street Journal. Retrieved 2014-09-
- [11]. George Mastorakis: Resource Management of Mobile Cloud Computing Networks and Environments First Edition 2015.
- [12]. yotter, R.A.; Wilson, D.M: "A review of photodetectors for sensing lightemittingreporters in biological systems". IEEE Sensors Journal. June 2003
- [13]. Donati.S: "Photodetectors" Retrieved 1 June 2016.
- [14]. Diffley Wright: "How do Proximity Switches Work", retrieved
- [15]. The Code Artist: "Proximity sensor on Android smartphones" 20