# SMART FISH TALK AN IOT BASED MINI AQUARIUM SYSTEM

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*Abstract*: Many people feed the pet fish in the aquarium tanks that need to be properly set up and maintained, or the fish will be destined to an unpleasant and short life. Therefore, it is critical to monitor water conditions closely and improve the water quality for the mini aquarium tanks. Based on an IoT solution called IoT talk, this paper proposes the Fish Talk system that utilizes the aquarium sensors to drive the actuators in real time. We describe the relationship between the aquarium sensors and the actuators and give concrete examples about the threshold setting. Our solution allows the designer to quickly deploy intelligent control for various water conditions. As an example, we implement an intelligent fish feeding mechanism such that the fish is neither over nor under fed, and at the same time, the fish owner can enjoy watching fish feeding remotely. We have also developed the analytic model, simulation, and measurement experiments to investigate the effects of the IoT message delays and loss on water condition control.

### Keywords: IOT (Internet of Thing), aquarium, actuator.

### **INTRODUCTION**

This chapter describes the term of Aquarium and introduces the concept of Smart Fish Talk An IOT Based Mini Aquarium System. It also gives the overview of the Smart Fish Talk An IOT Based Mini Aquarium System which describes the deliverables of the project1.

### PURPOSE

Since the dawn of time, people usually have their own pet as life companion. Fish is one of pets that live in water that people typically had not only as life companion, but as mental therapy and as house decoration. Even though, it is normal the fish can be abandoned by the owner as the maintenance is a bit complex compared to another animal like cat and dog. Hence, there are two important aspects for fish which are the water quality and enough daily feeding. An IoT-based Smart Aquarium Monitoring System has been designed to inspire people to take care of their pet (fish) easily and lovingly. The features of this smart aquarium help people to treat their fish perfectly. The pH value indicator by LCD display makes the user understand the cycle of the water replacement that need for their fish aquarium. This pH indicator also helps people to determine the value either for freshwater fish or saltwater fish. The IoT feature through Wi-Fi module can be controlled by user using smartphone as anywhere they want to feed the fish at anytime and anywhere.

## **EXISTING SYSTEM**

The first design is by David C. Smeltzer which is patented in 4th April 1985. His design is capable of dispensing feed having various sizes of grains over a wide range of dispensing volumes with a high degree of accuracy. The device was able to do this by utilizing an adjustable counterbalance weight which the amount of water required are changeable to produce a dispensing action and simultaneously adjusts the vibration movement made by the fish feeder to differentiate the amount of food given out. Consequently, both the frequency of feeding and amount can be controlled by the counterbalancing the weight. Furthermore, the number of feeding can also be adjusted by changing the rate flow of the water supply by using a valve and the water supply line, plus an additional water container which is capable of measuring the volume of water supplied to the water container so as to provide an additional degree of accuracy in degree of accuracy in setting the frequency of feeding.

## 1. DRAWBACKS OF EXISTING SYSTEM

- In most automatic fish feeder, it is not easy to control the amount feed released
- Too much will pollute the water in the pond or the tank
- In previous system constant speed to deliver the food pallet limited its usage. At the same time, it is also a waste of food.

## 2. PROPOSED SYSTEM

An aquarium (plural: aquariums or aquaria) is a vivarium of any size having at least one transparent side in which aquatic plants or animals are kept and displayed. Fish keepers use aquaria to keep fish, invertebrates, amphibians, aquatic reptiles, such as turtles, and aquatic plants. Smart fish talk an IOT based mini aquarium System is an application developed for fish daily feed automatically in tank. It helps to maintain and send sms notification to owner.

## SYSTEM ARCHITECTURE

In the current scenario, there are the various hardware platforms available as shown above. Above these the Operating Systems reside. The application programming interfaces are above the Operating Systems and provide the interaction between the applications built on them and the underlying Operating System and the Hardware Platform. There layer above the API is occupied by the Smart Fish Talk An IOT Based Mini Aquarium System framework on which the applications are proposed to be built. Following is the detailed description of each layer.



Fig -1: System Architecture Diagram

## ADVANTAGES

A key benefit of Smart Fish Talk An IOT Based Mini Aquarium system It helps to improve the overall well-being of those who spend time watching aquariums. Fish tanks are considered as key to success and harmony. Fishes represent liveliness and positivity. An aquarium at home helps one to relax and increases productivity.. Following are some more advantages of Android Framework: **1. Easy-to use** 

## The Smart Fish Talk An IOT Based Aquarium System Application is easy to use because it automatically detect changes and send the notification to owner of tank.

### 2. Saves time

The Smart Fish Talk An IOT Based Aquarium System automatically fish feeding, health, humidity presence electronically and directly without the need to list on paper so it will save time and effort.

## **APPLICATION:**

The Smart Aquarium System framework can be used in following areas:

- Fish Tank at home
- aquaria in pet shops
- public aquaria
- zoos

## DATA FLOW DIAGRAM



## METHODOLOGY

• Operating system (OS) is a set of programs that manages computer hardware resources, and provides common services for application software. The operating system is the most important type of system software in a computer system. Without an operating system, a user cannot run an application program on their computer, unless the application program is self booting.

• An Application Programming Interface (API) is a particular set of rules (code) and specifications that software programs can follow to communicate with each other. It serves as an interface between different software programs and facilitates their interaction, similar to the way the user interface facilitates interaction between humans and computers.

• An API can be created for applications, libraries, operating systems, etc. as a way of defining their vocabularies and resources request conventions (e.g. function calling conventions). It may include specifications for routines, data structures, object classes, and protocols used to communicate between the consumer program and the implementer program of the API.

## CLASS DIGRAM



**Fig- Class Diagram** 

## **Results:**



### CONCLUSION

The propose system offers the process of monitoring attend fish tank feeding, it aims to help the owner in the home or company to manage and handle fish feeding presence electronically and directly without the need to feed manually so it will save time and effort.

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