IOT Based Smart Fish Tank

Abstract

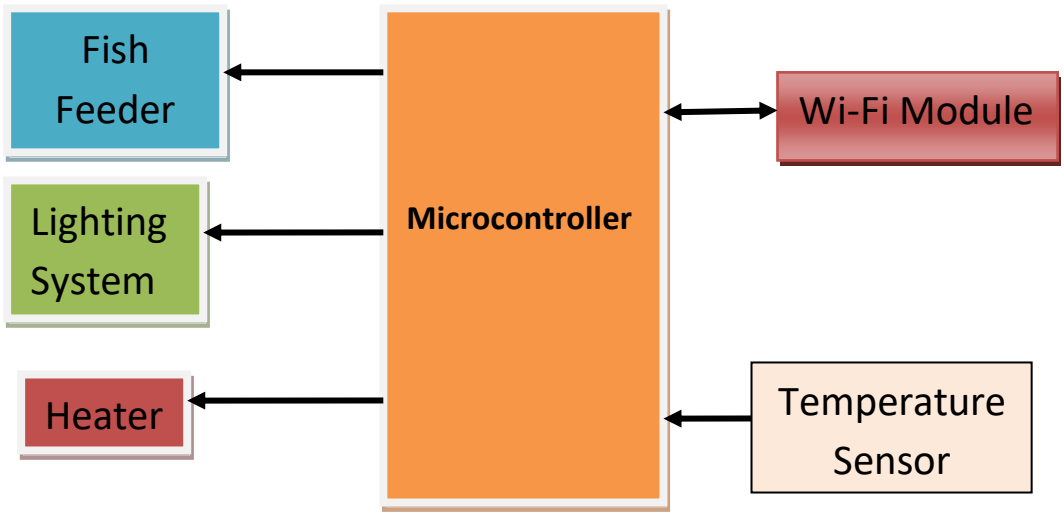
Keeping fish as pets is much less demanding than taking care of other animals. The maintenance of fish aquariums is very difficult task. Some of the problems faced are changing the aquarium water, feeding the fish. Maintaining the temperature of Aquarium, Controlling the Lights. The idea is to minimize the problem of fish keepers or aquarists by shifting it from manual to automatic mode. Fish keepers or aquarists now would not have to watch out and keep an eye on their Aquarium and Fish again and again. In our approach, the water temperature control, lighting of aquarium environment, feeding of fishes, draining and infilling of aquarium tank are all automatically controlled by a software embedded in an intelligent controller. This system is userfriendly. This project will be more efficient than the system available nowadays in the market.

Introduction

Pet ownership has been increasing at a steady pace in the last 20 years. After cats and dogs, the most popular pet is now the freshwater fish. The maintenance of fish aquariums is a very difficult task itself. Whenever you have to clean up your aquarium or you have to feed, you have to do a lot of things. You have to turn off your aquarium's power head/air pump and feed manually and turn on the air again after an hour. In the Current system all equipment’s such as light, heater, and filter are to be controlled manually using electrical switches for this the person needs to come near the aquarium and manually control the electrical switches to turn on /off the equipment’s. The fishes needs to be fed twice a day even this requires the owner to walk upto fish tank and feed the fish manually

which makes the task of maintaining an aquarium much more difficult. At times when the owner is on vacation he has no control over the aquarium and also can't feed the fish. The project with which we came up is a Smart Aquarium. The project will be more efficient than the systems available in market, now days. In addition to the efficiency it will be of lower cost as well. The project's audience is the group of people interested to keep fishes at home or offices but don't have time to take care of, or they are worried to keep asking their neighbors to take care of the fishes in their absence. The project is an automated system to take care of fishes. It will replace the manual maintenance of fish aquarium with its automated functions.

Block Diagram



Component

- Microcontroller
- TEMPERATURE SENSOR
- LED STRIP

- SERVO MOTOR
- RTC Module
- HEATER

Feature

• An automatic and manual control of light, where in automatic control light(led strip)will be turned on/off at specific time and in manual control user can turn on/off the light through Google assistant /button provided on dashboard

• An automatic fish feeder, which feeds small portions of food at scheduled intervals

• An automatic temperature control, where the heater is turned on depending on temperature of tank water, also the continuous temperature values of tank water are displayed on dashboard as.

• An automatic control of water pump, where depending on the water levels of tank and reservoir the status of motor will be automatically controlled.

Conclusion

In our project, the water temperature control, lighting of aquarium environment, feeding of fishes, water level sensing are all automatically controlled by Ada fruit Io dashboard. We have also provided manual control of lighting system where user can turn on/off the light through Google assistant /button provided on dashboard. The basic idea proposed in this project works well and can be implemented on any aquarium. Having a Smart Aquarium, will save our time and we would not have to be worried for our fish and their aquariums for long time.