Iot Based Fish Careduino

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Abstract - *Fish keeping is a popular fad. Fish keeping is itself an industry which comes in agriculture. Fish keeping is not an easy job; we always need an aquarium or a pond for that. The hobby of fish keeping is broadly divided into three- freshwater, brackish, and marine. Among all these three, freshwater is considered to be the most popular hobby of keeping fish because it is easy to handle freshwater fish and aquariums. It requires a lot of manual work to take care of the aquarium for instance timely change of water, regular feeding of the fishes, maintaining the turbidity level and the temperature of the water in the aquarium. Hence to reduce the manual work, the research is based on the project, IOT based Fish Careduino that has been designed to save labor time through making the system automated. It is a prototype functioned to feed the fishes on a regular time intervals, keeps the temperature and the turbidity level under control. The Wi-Fi Module attached to it sends the status of the aquarium like temperature level, turbidity level, feeding etc on your respective device like cell phones*.

Key Words: **Careduino, turbidity, Wi-Fi module, time delay**

1. INTRODUCTION

The scope behind developing the Iot based fish careduino system is to reduce the manual work of the aquarium which utilizes more work forces. Moreover, there are certain advantages that lead to its development which are the amount of food that will be delivered to the water body that will measure or controlled keeping aquarium clean and fishes healthy, maintenance of the temperature level and the turbidity level under control. This fully automated system can look after the fishes even when the owner is away in a convenient way. 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. This particular research paper is about the design and fabrication of an "Iot based fish careduino" which finds its application in the aquarium. The project is an automated system to take care of fishes. It will replace the manual maintenance of fish aquarium with its automated functions. It will monitor the physical changes in the water and will maintain it to the ideal conditions, with required changes. The prototype implements the integration of hardware and software to control the aquarium. The controller used for this device is Arduino Uno Microcontroller board. The controller controls the mechanism of the system.

2. METHODOLOGY

In designing the automatic aquarium system several criteria like size of water body, amount of food, time interval etc which form the baseline for the design. The automatic aquarium system is implemented using Arduino and prototype hardware is designed using both hardware and software. Firstly, the information was collected regarding development of aquarium system. The research was than bifurcated into software and hardware. In the later stage hardware and software both were fused. The data in the program was processed using Arduino and the output of the Arduino through an interface was provided to the hardware.

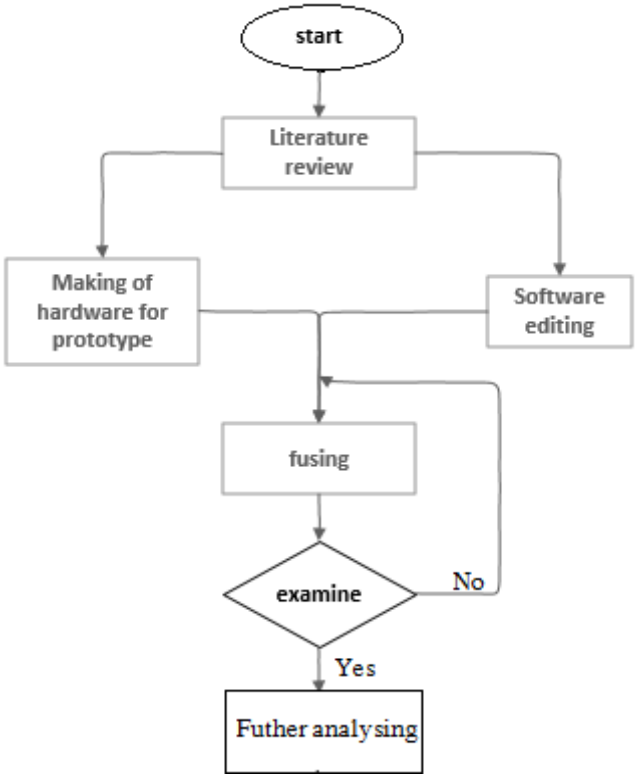

Chart -1: Flow chart of Iot based fish careduino

1.1 System Design

The intention of the system design is based on the reviews on previous researches and products for the [4]Iot based fish careduino system from various background and references. Besides that, it also presents the discussion on components that will be implemented in this project with some related studies such as the fish feeder[1] mechanism, system controller, motor, user interface, and feedback

system. The content of mainly focus on the application of the components used in the of automatic aquarium system.

Table -1: List of Components

Arduino development board	Filter
Sensors	Feeder
DC motor	
Relay	
Wi-Fi module (ESP8266)	

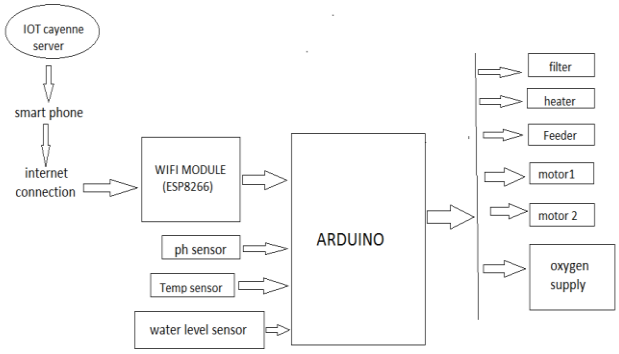

Fig -1: Block diagram of the system

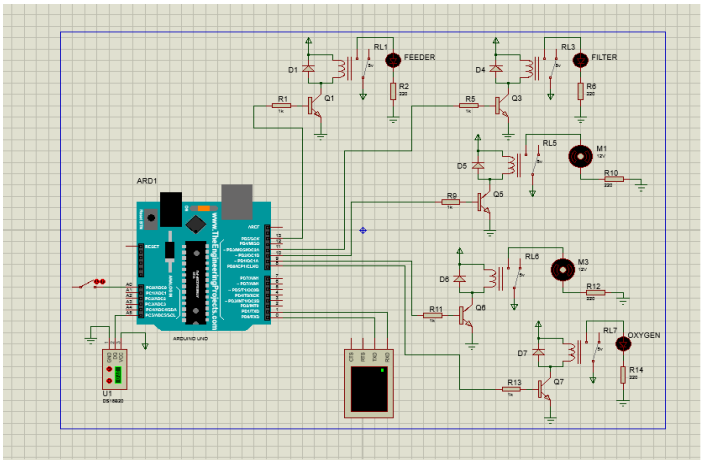

Fig -2: System schematic and specification

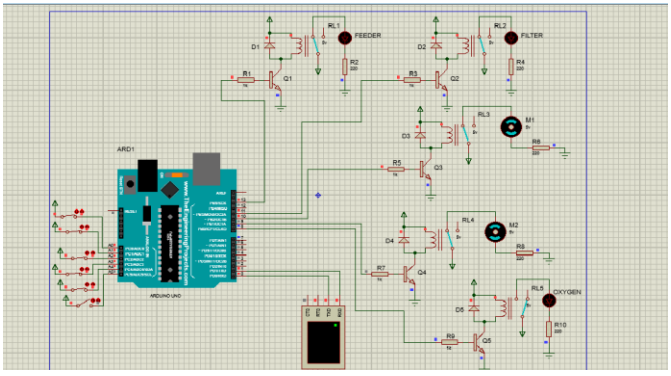

Fig -3: Simulation result

3. CONCLUSIONS

We started off the project with an aim to accomplish the simple looking task of designing an automatic aquarium (IOT based fish careduino). But with time and experiences it was learnt that this was not at all an easy task, specially interfacing the sensors and Wi-Fi module with the Arduino Uno development board. Though we are able to achieve all the goals of our project but still we think that lots of advancement can be done on this project. We have provided the platform and the platform is ready for everyone to work on it. For advancements, we need more time, money and hard work. Money would remain the critical issue cause in order to upgrade the project many of the stuff would need an up gradation. Nevertheless this project has been a success as far as learning and practical implementation of Electronics Engineering concepts is concerned. The basic idea proposed in this project works well and can be implemented on large scale industries like agriculture etc. Having an IOT based fish careduino based aquarium, will save our time and we would not have to be worried for our fish and their aquariums for long time.

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