Smart Bio Floc Monitoring

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Introduction

- Smart Bio Floc Monitoring is the monitoring of a bio floc in an artificially generated pond. This project will be an ultimately huge helping guide for bio floc fish farmers to do successful bio floc farming.
- It will be looking into various factors such as monitoring sensors and their integration in the mobile app to look for any slight change in the properties of water or food.
- For example, dissolved oxygen level detection, temperature, pH, and water level etc. Also, to undergo the survival rate of fish in a pond according to its symmetry and then provide tips for its betterment.
- The sensors are directly connected to the mobile app and can be used remotely from anywhere to keep an eye on things..

Fig. 1 Bio Floc

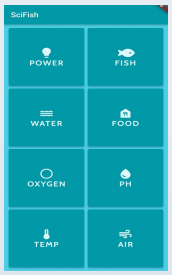

Fig. 2 Mobile App

Objectives

The objectives of this project are to

- Wireless connection through Wi-Fi with sensors allowing us to monitor from a distance saving the data in Firebase Firestore.
- To check the level of ammonia by checking its PH.
- • To observe the water temperature according to the ideal temperature conditions for certain fish.
- • Observe the amount of dissolved oxygen in the water based on number of fish and its providence through air pump.
- • Deployment of fish feed in tanks based on the amount set in the app.

Methodology

Bio Floc Monitoring involves Agile Methodology:

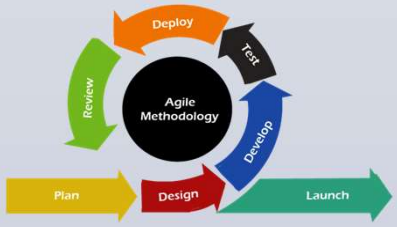

Fig. 3 Agile Methodology for Smart Bio Floc Monitoring

Architecture

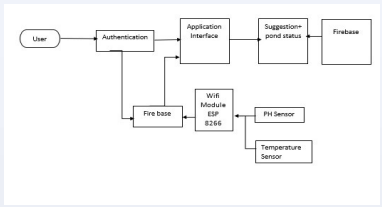

Fig. 4 Proposed Architecture of Bio Floc Monitoring

Flow chart

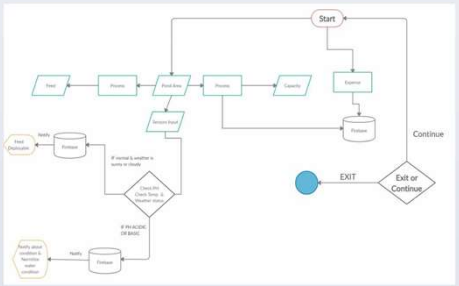

Fig. 5 Flow Chart of proposed Smart Bio Floc Monitoring

Tree Structure for Firebase

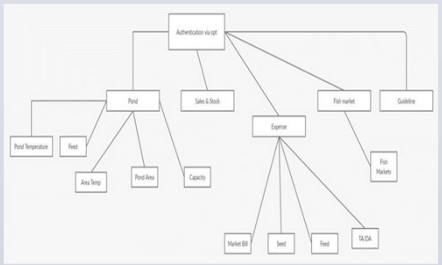

Fig. 6 Tree Structure of proposed Smart Bio Floc Monitoring

Tools And Technologies

Tools

- Android Studio 4.1 chipmunk 2021.2.1
- Arduino IDE
- MS Word
- MS PowerPoint
- MS Project

Languages

- Dart

Sensors Integration

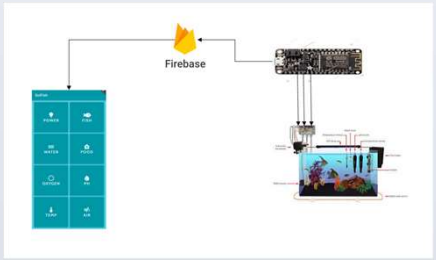

Fig 7 Sensors_Integration

Graphs of the Sensors

Fig 8 Temperature Sensor

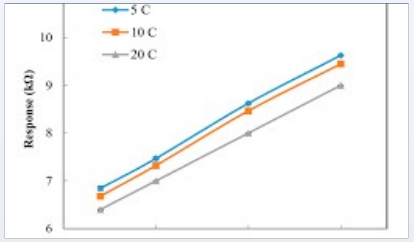

Fig 9 Graph of pH Sensors

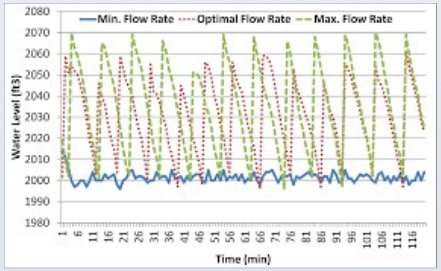

Fig 7 Graph of Water Level Sensor

Conclusion

- Our system is going to boost fish farming by giving them handy techniques and procedures to fasten the growth of fishes by keeping track of each activity needed for fish farming.
- There is no such app that guides the farmer using such a technique we used IOT based system to automate farmers work of keeping track of water quality and weather conditions.
- This app will surely awake and keep the farmer updated about the feasibility of the pond and give the most probable solution for the cure.

References

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An economic analysis of the fisheries sector of Pakistan (1950-2017): Syed Babar Hussain Shah, Yongtong Mu
2: Department of Fisheries Punjab
3: Vaishnavi V. Daigavane and Dr. M.A Gaikwad: Water Quality Monitoring System Based on IoT githubb for HTTPClient library
7 Arduino integeration with Esp32