A

B. TECH. PROJECT REPORT

On

**IoT Based Smart Fish Farming For Sustainable Aquaculture**

*Submitted in partial fulfilment of the requirements for the award of the degree of*

# Bachelor of Technology

# In

# Information Technology

By

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# DECLARATION

We declare that this written submission represents ideas in our own words and

where other’s ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| IOT | Internet of Things |
| DO | Dissolve Oxygen |
| LDR | Light Dependent Resistor |
| TDS | Total Dissolved Solids |
| ESP | Economic Stimulus Program |
| PH | Hydrogen Power |

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**Abstract**

The modernization of fish farming for agricultural purposes presents notable financial and operational hurdles. Meanwhile, aquacultural farmers face challenges in meeting staffing costs for daily tasks such as monitoring pH, temperature, and water fluctuations. As the global population reaches 7.7 billion, the demand for seafood escalates, positioning aquaculture as a pivotal tool to bridge supply and demand. Conventional techniques involve manual monitoring of water quality, oxygen, and stress levels by farmers. In response to these challenges, a pioneering solution emerges: IoT Based Smart Fish Farming System for Sustainable Aquaculture .This project aims to leverage cutting-edge digital underwater sensors to revolutionize fish farming. We will deploy a comprehensive suite of sensors including pH sensors, temperature sensors, ammonia sensor, turbidity sensor, oxygen sensor, and phosphates sensors within the fish farming environment. These advanced digital sensors are submerged underwater and will continuously monitor critical parameters such as water temperature, pH levels, oxygen concentration, water clarity, phosphates content, and ammonia levels. The collected data will be seamlessly transmitted to a centralized control system via Wi-Fi modules, allowing convenient access through smartphones and computers. Furthermore, this intelligent system is designed to proactively alert us to any deviations or anomalies, ensuring rapid response to any issues that may arise. By harnessing this cutting-edge technology, our objective is to cultivate healthier fish, optimize operational costs, and demonstrate our commitment to environmental stewardship.

**Keywords — IoT-based aquaculture, Smart fish farming, Underwater sensors, Environmental stewardship, Real-time monitoring**

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