KEY FEATURES:

- Real-time Monitoring: Continuously track water quality parameters such as temperature, pH, salinity and dissolved oxygen.
- Remote Access: Access data from anywhere as long as an internet connection is available.
- Historical Data Analysis: Analyze trends over time for informed decision-making.
- Scalability: Easily expand the system to accommodate the growth of the farm.
- Alerts and Notifications: Receive instant alerts on parameter deviations to ensure prompt actions.

BENEFITS:

- Enhanced Yield - Ensure and maintain ideal parameters for faster growth and higher survival rates.
- Cost Efficient - Minimize resource wastage and reduce manual labor with automated monitoring.

PARTNERS:

DOST MIMAROPA

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DEPARTMENT OF SCIENCE AND TECHNOLOGY
METALS INDUSTRY RESEARCH AND TECHNOLOGY CENTER

i-POND

A LORAWAN-BASED POND WATER QUALITY CONTROL AND MONITORING SYSTEM FOR SHRIMP FARMS

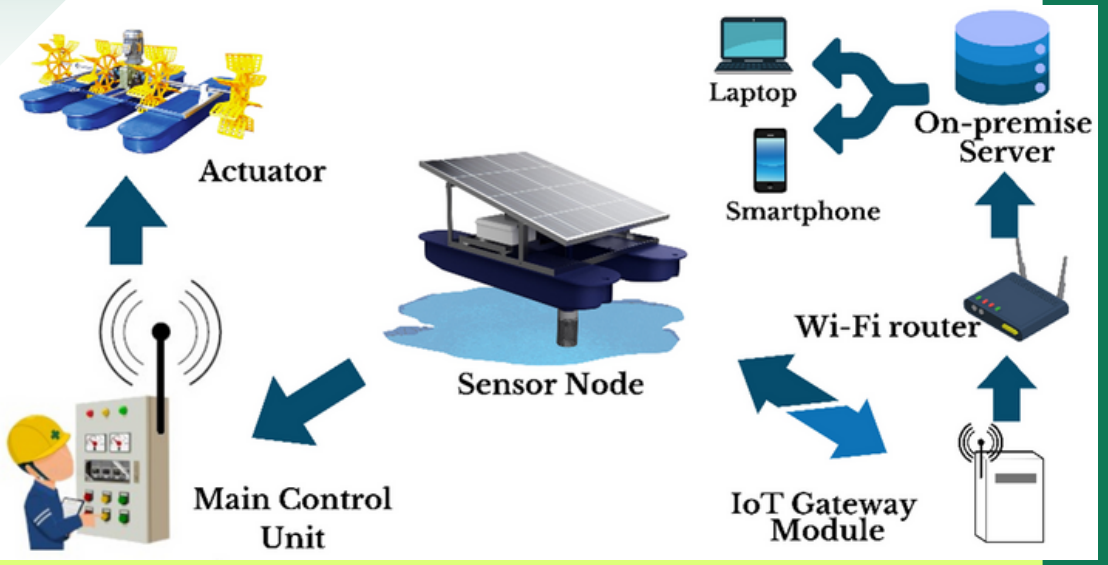
(The Future of Shrimp Farming)

BACKGROUND:

Aqua Tierra (shrimp farm) located in Calapan City, Mindoro has just recently converted to intensive aquaculture by adding HDPE liners, aerators, and blowers. The company wanted to increase its stocking density and improve survival rate to increase productivity; however, their current water quality monitoring system is done manually.

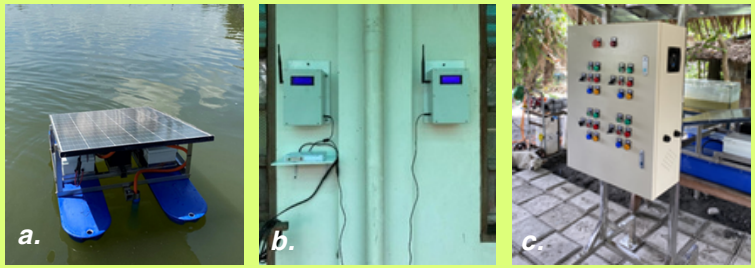
The DOST - Metals Industry Research and Development Center (MIRDC) proposed solution is to design and develop a long-range wide area network (LoRaWAN) to remotely monitor and control selected water quality parameters such as temperature, pH, dissolved oxygen, and salinity.

SYSTEM OVERVIEW:



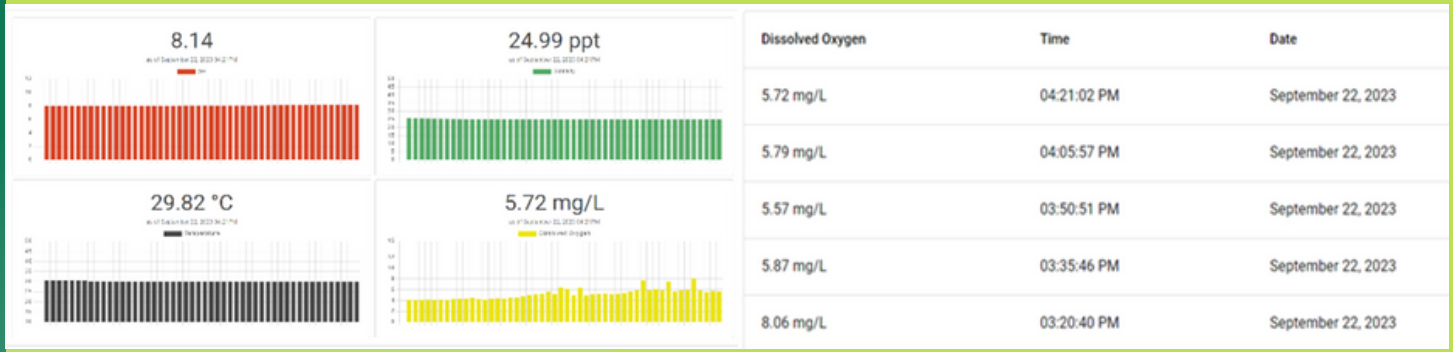
i-POND design and configuration

HOW IT WORKS:



i-POND prototype installed at Aqua Tierra Farm (a. Sensor Node, b. IoT Gateway Module, c. Main Control Unit)

The sensor node collects and records water quality measurements which are then transmitted to the Main Control Unit and IoT Gateway Module. A web-based application presents the real-time data and historical records of the monitored water quality parameters showing the values and graphical representations of the pond's temperature, salinity, pH, and dissolved oxygen levels, displayed on laptops and smartphones.



WEB-BASED APPLICATION DISPLAY