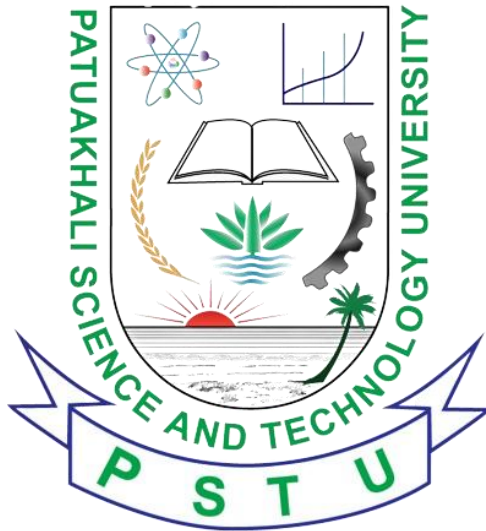


**PROJECT PROPOSAL**  
**For**  
**PSTU Aqua Monitoring System**  
(Connect, Automate, Innovate)



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## 1. Executive Summary:

The **PSTU Aqua Monitoring Project** is an initiative developed by researchers at **Patuakhali Science and Technology University** to address the growing need for **real-time, intelligent water quality management** in aquaculture and freshwater ecosystems. This project utilizes **Internet of Things (IoT) technologies** to monitor critical water parameters like (Dissolved Oxygen, PH, Temperature and Ammonia) and automate control systems such as aerators to maintain ideal aquatic conditions. This solution is tailored to enhance aquaculture productivity, support research, and contribute to environmental sustainability through data-driven water resource management.

## 2. Objectives:

- **Real-time monitoring** of key water quality parameters (pH, DO, Temperature, Ammonia).
- **Automation of aerators** to maintain water oxygenation levels efficiently.
- **Cloud-based dashboard** for live data access, remote monitoring, and analytics.
- **Data logging and export** features to support academic and environmental research.
- Provide a **scalable solution** that can be replicated across ponds and water bodies.

## 3. System Overview:

### 3.1 Hardware Components

- **Sensors:**
  - pH Sensor
  - Dissolved Oxygen (DO) Sensor
  - Ammonia Sensor
  - Temperature Sensor
- **Controller:**
  - LILYGO T-ETH-Lite ESP32 with RS485 Module
- **Aerator Control Unit:**
  - 8000A Solid State Relay module integrated with the microcontroller
  - A Magnetic Contractor additionally integrated to control more Aerator safely
- **Power Supply:**
  - Battery backup with optional UPS System
- **Enclosure:**
  - Weatherproof box for field deployment

### 3.2 Hardware Features:

- Real time data monitoring
- Local data backup
- Wi-fi and Ethernet connectivity support
- HMI enabled for data visualization & peripherals control
- Additional I/O port
- Support RS485 and MODBUS enabled sensor
- Power back up system
- Power saving mode
- Cooling System
- Warning alert



**Control Box**



**Ammonia Sensor**



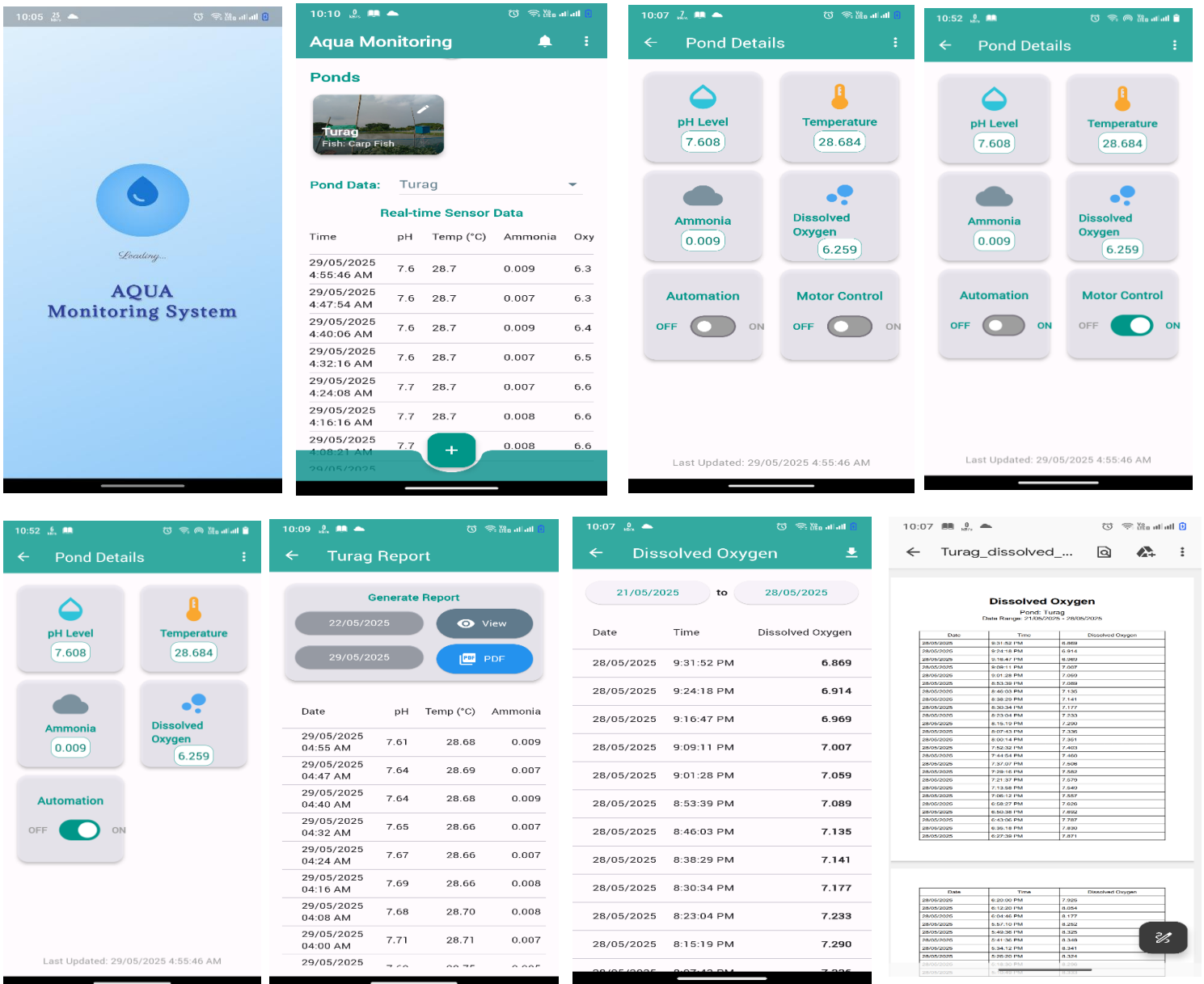
**PH Sensor**



**DO and Temperature Sensor**

### 3.3 Software Architecture:

- **Embedded Software:**
  - Sensor data acquisition and aerator automation
- **Cloud Backend:**
  - MySQL based server for storing and managing data
- **User Dashboard:**
  - Real-time visualization
  - Threshold configuration
  - Notification alerts
  - Historical data analytics and export
  - Data Download as PDF format



## 4. Financials:

### 4.1 Project Cost:

All cost estimates presented in this proposal are based on our current understanding of the requirements as communicated by the client representative. These estimates have been prepared with careful consideration of the project's complexity, desired outcomes, and quality standards. While we are confident that the proposed costs align with the project's scope, we reserve the right to revise the pricing structure should there be any significant changes in the client's requirements, project scope, or implementation conditions. Any such revisions will be communicated transparently and mutually agreed upon prior to execution.

#### Cost for Water Quality Monitoring Solution with Aerator Control:

SL No.	Items and Description	Quantity	Rate (BDT)	Amount (BDT)
1.	Controller with Aerator Control	1	35,000	35,000
2.	Water pH, Temperature, Dissolve Oxygen Sensor	1	61,500	61,500
3.	Water Ammonia Sensor	1	48,000	48,000
4.	Controller Box, Electrical Accessories & Installation Tools	1	30,000	30,000
5.	Installation + Training	1	5,000	5,000
In word: BDT One Lac Seventy-Nine Thousand Five Hundred Only			Net Total	179,500

#### Cost for Software & Mobile App:

SL	Items and Description	Rate	Amount (BDT)
1.	Software Development & Deployment Charge	1	10,500
2.	Cloud Hosting, Maintenance & Service Charge (2 Device)	Yearly	10,000
In word: BDT Twenty-One Thousand Five Hundred Only		Total	20,500

Total Cost:

SL No.	Items and Description	Amount (BDT)
1.	Water Quality Monitoring Solution with Aerator Control	179,500
2.	Software & Mobile App	20,500
In word: BDT Two Lac Only		<b>Total</b> <b>200,000</b>

#### 4.2 Invoicing Schedule:

- All work will conduct based on costs outlined in this proposal.
- Software Maintenance & Service Charge will be charged after **01 (one) month** successful operation.
- **80%** of total amount with work order.
- **20%** of total value must be paid after successful installation of project.

#### 5. Terms & Conditions:

- VAT & Tax not Applicable.
- Miscellaneous + Transport would be charge after the total project completion
- Invoice will be issued at the time of the product.
- *Delivery: Within 45-50 (approximate) working days after the date of work order.*
- **Installation: Our technical team will carry out the installation of the devices at the client's designated location. Installation charges will apply as outlined in the financial section of this proposal. These charges cover on-site setup, configuration, and initial system testing to ensure full operational readiness.**
- We reserve rights to stop work in case of payment not being made by the client in timely manner. The project reschedule will be adjusted accordingly which may increase in number of days and hours.

## 6. Warranty Policy:

- **1-years** Warranty is applicable by default for the devices. In warranty period, We will be responsible for devices to repair (if required replacement) at limited applicable cases.
- After the warranty period expires, there will be charge applicable for repair/replacements according to company policy.
- Any physical damage, natural disasters. damage, fault or failure due to alteration or repairs made by anyone other than **PSTU AQMS Research Team**, or the use of supplies and accessories other than deliverables under this agreement will not be applicable under warranty policy.

## 7. Financial Assumption:

- The quoted price will be valid for **next 30 days**.
- During the project development lifecycle additional requirements outside of this project scope may be identified. In this situation the project team (including the client) should address the requirement and evaluate how best to manage it. Options include.
  - That the requirement is incorporated into this project scope and will affect budget.
  - The requirement is treated as a separate, parallel project.
  - The requirement is noted, but not implemented until completion of the current project.

## 8. Existing Clients:



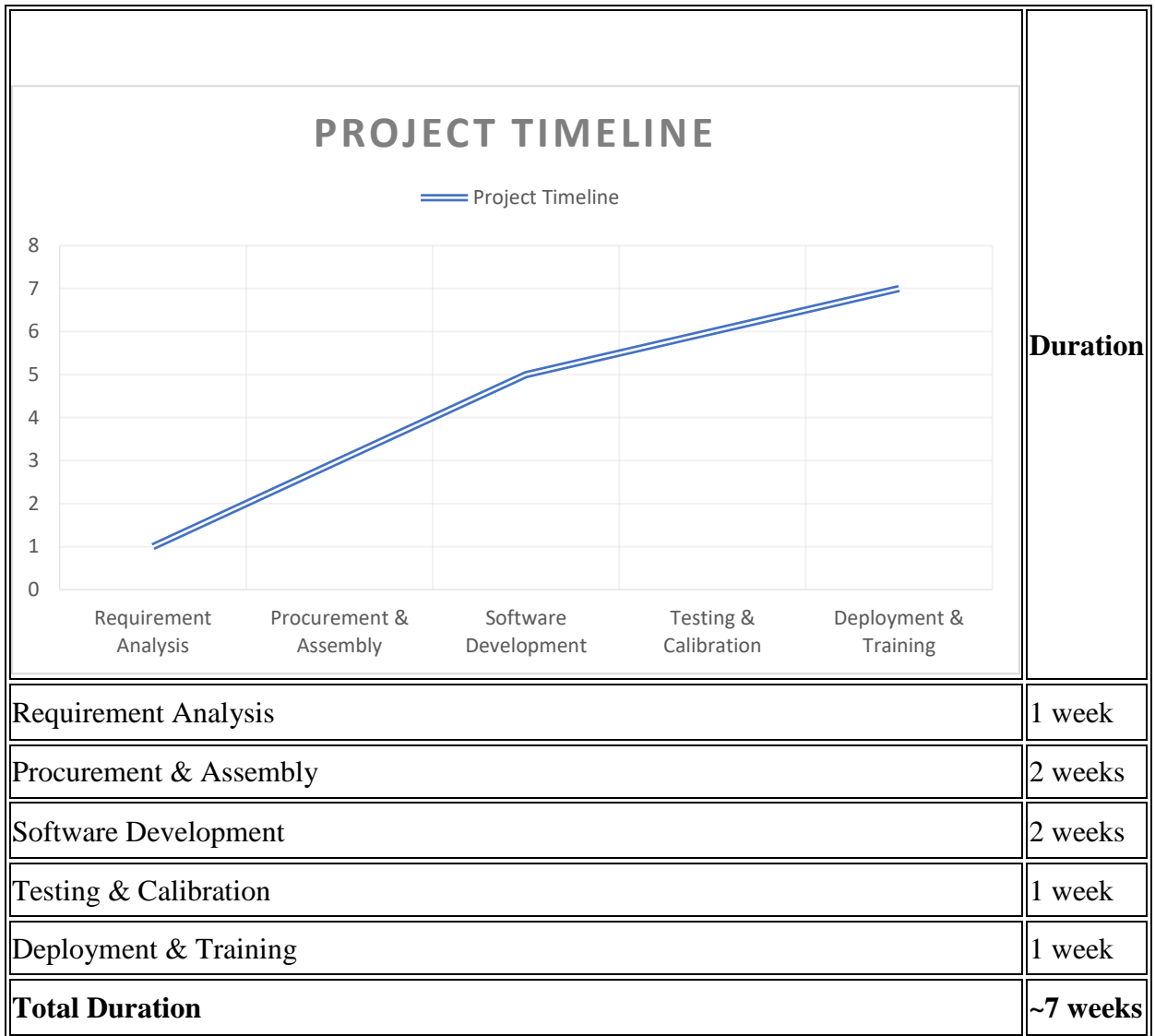
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## 9. Project Timeline:



## 10. Conclusion:

The **PSTU Aqua Monitoring System** is a forward-thinking initiative designed to bridge technological innovation with environmental research and sustainable aquaculture. Through IoT-enabled automation and data analytics, this system will provide significant academic, operational, and ecological benefits to PSTU and the broader scientific community.