SHRIMPTECH

SMART POND MONITORING & MANAGEMENT SYSTEM

- Team ShrimpTech **Van Hien University (VHU)** and **Ho Chi Minh City University of Technology. Ho Chi Minh City (HUTECH)** with advice from **AHTP Ho Chi Minh City**

  “Smarter ponds, healthier shrimp, better lives.”

PROBLEM STATEMENT

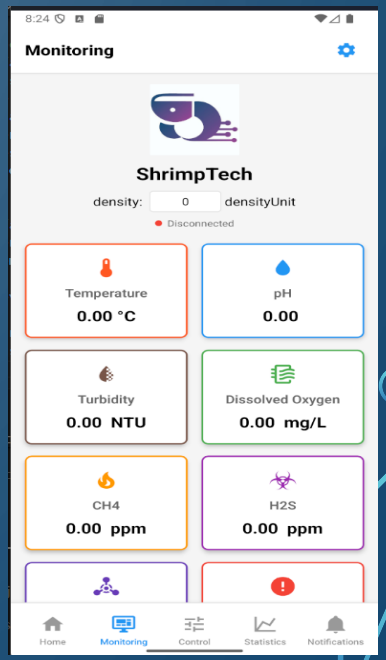
- Vietnam is the 3rd largest seafood exporter worldwide VASEP Portal, but most shrimp farmers still rely on manual, experience-based pond management. This results in unstable water quality, shrimp disease, and financial losses – especially for small-scale farmers.

SOLUTION OVERVIEW – SHRIMPTECH SYSTEM

- ShrimpTech combines IoT sensors and AI to continuously monitor pH, dissolved oxygen, temperature, and turbidity. Data is displayed in real-time on a touchscreen and mobile app, with alerts when parameters go out of range.

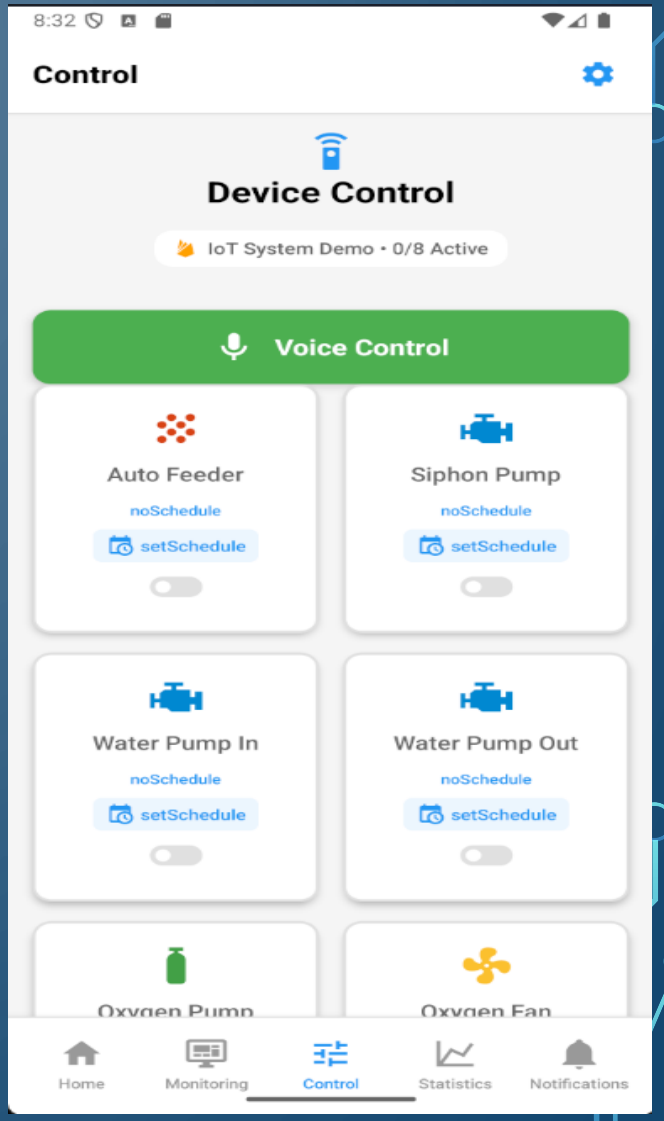
SYSTEM ARCHITECTURE

- Core Controller: ESP32, STM 32, Rasbperry PI
- Sensors: pH, DO, turbidity, temperature, TDS, etc.
- Firebase cloud data base
- Touchscreen, applicastion
- AI model: Predicts water quality risks and alerts users



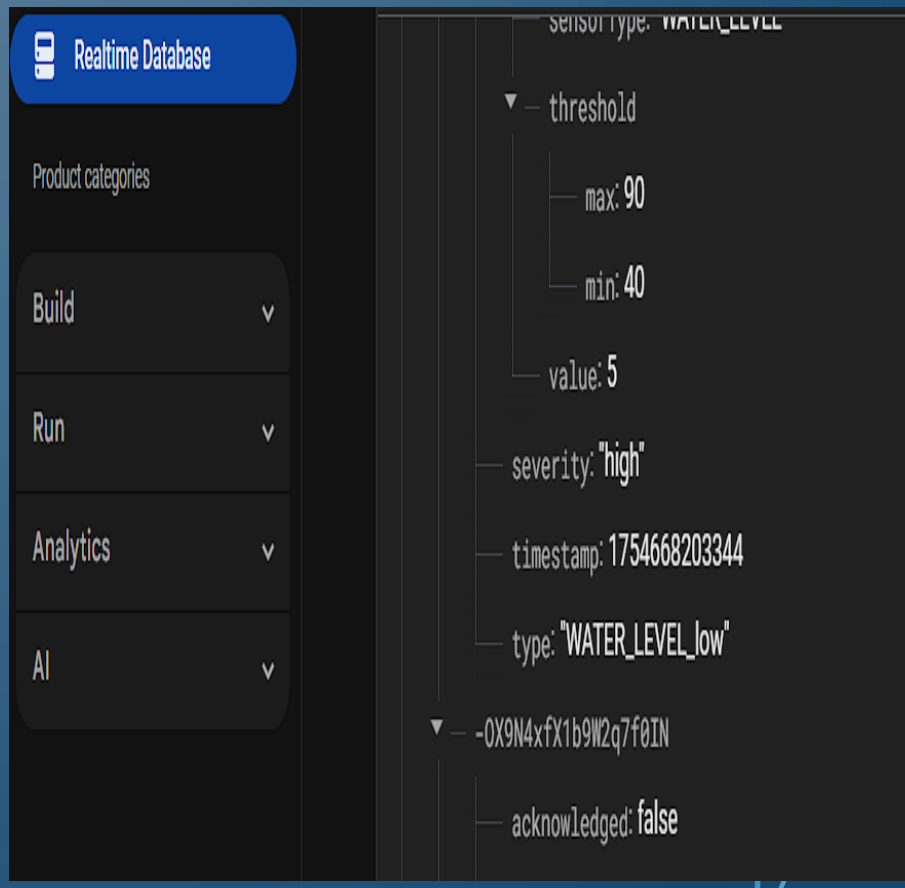
OPERATING MODES

- 1. Manual Mode – Direct control of pumps, feeders, and aerators via screen or app.
  2. Auto Mode – Automatically maintains ideal conditions using preset thresholds and timers.



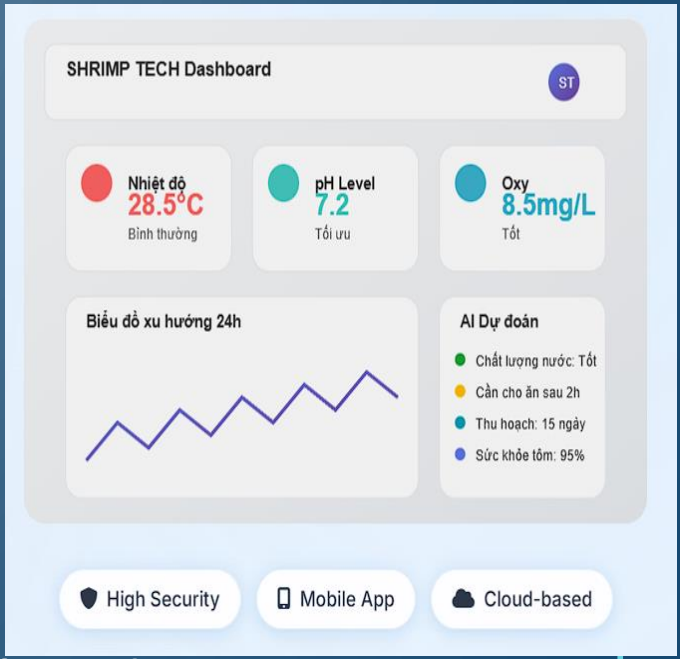
INNOVATION HIGHLIGHTS

- • Low-cost modular IoT design (12–30M VND)
  • Local cloud data logging and visualization
  • AI-based risk prediction
  • Touchscreen GUI with user-friendly interface



IMPACT AND BENEFITS

- 20% reduction in energy use
- Early warning reduces shrimp mortality
- Supports small and medium aquaculture farms
- Bridges gap between traditional and smart farming



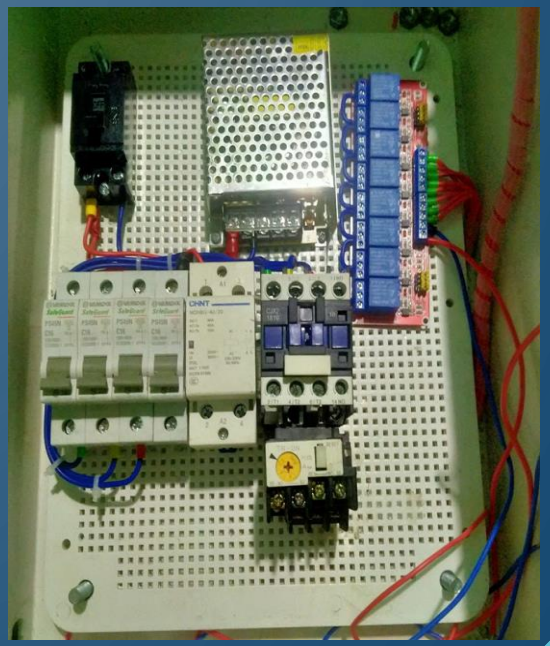
PARTNERS & ECOSYSTEM

- Strategic partners:
  - Mebi-One – High-quality shrimp seed supplier
  - Vietnam Synergy Investment – Commercialization and scaling
  - VHU, HUTECH, AHTP – Academic and R&D support

  Together we create a sustainable aquaculture ecosystem.

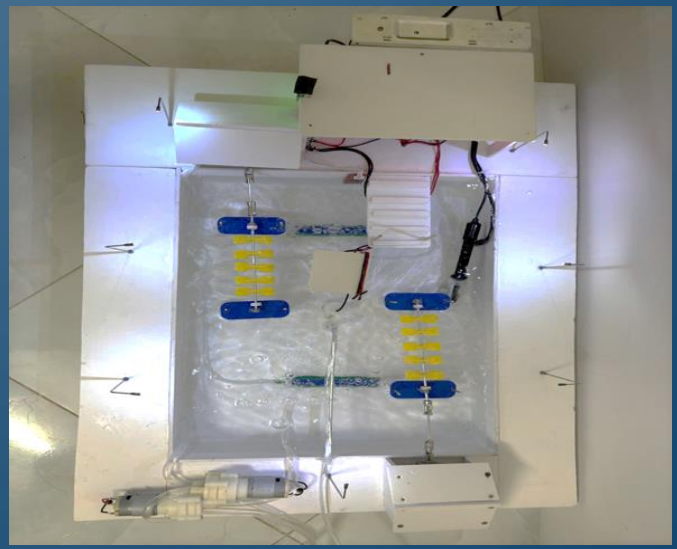
SUSTAINABILITY & SCALABILITY

- Modular for single or multi-pond systems
- Future upgrades: solar power, AI disease detection, big data analytics
- Potential to expand across Southeast Asia

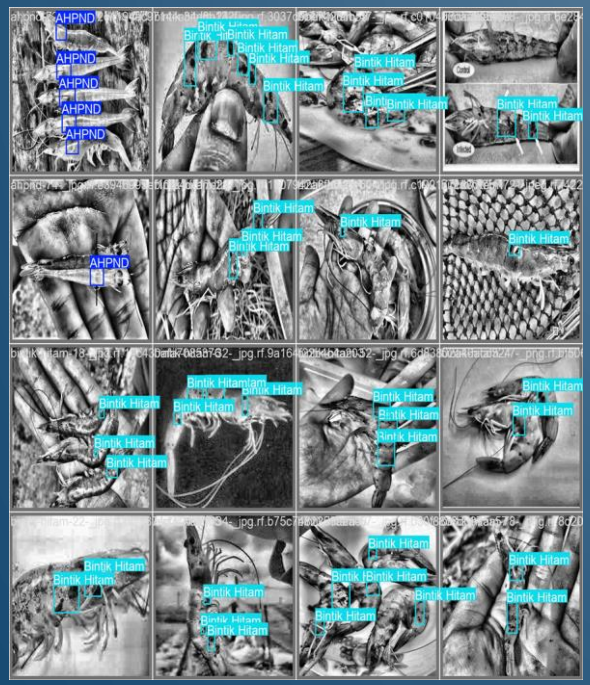


RESULTS & TESTING

- ShrimpTech prototype achieved 90% stable performance in continuous operation tests in the lab andcomposite tank.
  Real-time alerts and automated control improved water quality consistency and reduced feed waste.



FUTURE PLANS



- Integrate vision-based shrimp disease detection Computer Vision
- Deploy cloud analytics dashboard for farmers
- Partner with cooperatives for pilot deployments
- Expand user base regionally through investment partners

CONCLUSION

- ShrimpTech bridges traditional aquaculture and Industry 4.0 through smart monitoring, automation, and AI.

"Smarter ponds. Healthier shrimp. Better lives."

Thank you!