TECH OFFER

Real-Time IoT Water Monitoring and Treatment for Remote Communities

KEY INFORMATION

TECHNOLOGY CATEGORY:
Sustainability - Sustainable Living
Environment, Clean Air & Water - Sensor, Network, Monitoring & Quality Control Systems

TECHNOLOGY READINESS LEVEL (TRL): **TRL6**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO175239**

OVERVIEW

Access to clean and safe drinking water is a critical issue in many parts of Asia, particularly in rural and less accessible regions. A large portion of the population relies on surface or groundwater for daily consumption, yet as many as 240 million people are exposed to water that exceeds World Health Organization (WHO) safety limits. The increasing contamination of water sources due to anthropogenic activities such as industrial pollution, agricultural runoff, and inadequate sanitation has made water treatment essential. However, most portable water treatment systems currently available lack a vital feature: real-time monitoring of the treated water's quality. This leaves consumers uncertain about whether the water they are drinking is truly safe, especially in unpredictable environments where water quality can fluctuate.

This technology combines IoT technology with water monitoring, offering real-time monitoring and feedback on water quality. This portable system allows users to remotely control and manage the treatment process, ensuring operational efficiency even in rural areas. With water-saving features and a low-maintenance design, it provides a sustainable and reliable solution for safe

drinking water in remote and resource-limited regions.

The technology owner seeks collaboration with end users like rural communities, humanitarian organizations, and government agencies focused on water quality. They are also looking for test-bedding partners such as environmental research institutions and NGOs, and solution providers like manufacturers and IoT developers interested in sustainable water treatment and international expansion.

TECHNOLOGY FEATURES & SPECIFICATIONS

- **Portability:** Compact design, easy to transport and deploy in remote locations.
- **Remote Control:** Fully controllable via mobile phone, allowing users to manage water treatment operations remotely.
- **Real-Time Monitoring:** Continuous water quality measurement with real-time data accessible through a mobile app.
- **Innovative Cleaning System:** Advanced cleaning mechanism reduces maintenance and extends operational life.
- **Modular & Scalable Design**: Customizable system modules that can be scaled up or down based on user requirements and water demand.

POTENTIAL APPLICATIONS

- **Off-Grid Applications:** Ideal for remote areas without access to conventional water treatment infrastructure.
- **River/Surface/Groundwater Treatment:** Suitable for monitoring treated water from various water sources such as rivers, lakes, and wells.
- **Rainwater Harvesting:** Enhances the usability of harvested rainwater by ensuring its quality through data monitoring.
- **Consumer Market:** Designed for rugged or rural terrains, catering to campers, adventurers, and outdoor enthusiasts.
- **Military and Outdoor Activities:** Useful for army camps and field operations, providing data for safe drinking water in challenging environments.
- **Agriculture Irrigation:** Adaptable for small-scale agricultural use to provide purified water for crops irrigation or livestocks.

UNIQUE VALUE PROPOSITION

- **Real-Time Water Quality Monitoring:** Provides continuous feedback on treated water quality, ensuring consumer confidence and safety.
- **IoT-Enabled Remote Control:** Users can remotely control and monitor the system via mobile devices, offering convenience and flexibility.
- **Water-Saving Backwash Feature:** Optimized design reduces water wastage during backwash, promoting sustainability and efficient water use.
- **Predictive Maintenance Alerts**: Integrated system alerts users for timely maintenance, reducing downtime and ensuring consistent operation.
- **Maintenance Alerts:** Integrated system alerts users for timely maintenance, reducing downtime and ensuring consistent operation.
- **Enhanced Consumer Confidence:** The system's real-time monitoring and remote-control features offer greater peace of mind compared to conventional water filtration systems (lacking a monitoring system).
- **Real-Time Data Acquisition:** For monitoring and prediction of water consumption patterns and filter performance.