TECH OFFER

Intelligent Sanitization Monitoring

KEY INFORMATION

TECHNOLOGY CATEGORY:
Sustainability - Sustainable Living
Green Building - Sensor, Network, Building Control & Optimisation
Infocomm - Internet of Things

TECHNOLOGY READINESS LEVEL (TRL): **TRL7**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO175180**

OVERVIEW

The National Environment Authority (NEA) has highlighted urinal overflow as a common issue in malls and coffee shops, yet effective solutions remain limited. An Intelligent Sanitization Monitoring System is designed to address this challenge while enhancing the performance and reliability of sanitary fixtures.

Operates non-intrusively, the system continuously monitors water flow through sanitary fixtures, detecting early signs of blockage. Upon identifying a potential obstruction, it automatically stops water flow to prevent overflows and minimize damage.

Additionally, the system tracks and wirelessly transmits usage data to a central gateway, providing more accurate insights than traditional human traffic data. This allows for reduced cleaning frequency and improved water conservation.

To further enhance the system, a water meter—whether conventional or non-intrusive—may be installed to monitor potential leakage or abnormal water usage. If there is constant water flow despite the sanitary ware not being in use, it may indicate a leak in the system. Such water monitoring data could be further developed for application in various areas, including but not limited to BTUs, chillers, or even underground pipes.

By proactively managing water flow, the system not only protects infrastructure but also conserves water through optimal use. It integrates seamlessly into existing setups, requiring minimal maintenance and offering a cost-effective solution for both residential and commercial environments.

This technology reduces maintenance efforts, optimizes manpower, and contributes to a safer, more sustainable environment, providing peace of mind to users and property owners alike.

TECHNOLOGY FEATURES & SPECIFICATIONS

- **Long-Range Wireless Connectivity:** Supports a wireless connection of over 500m, enabling wider coverage and flexible installation.
- **Compact, Modular Design:** Fits seamlessly into certain existing sanitary ware systems.
- **Compatibility:** Can be integrated with select models of existing sanitary fixtures for easier retrofitting.
- **Non-Intrusive Operation:** Functions without disrupting the existing water system.
- **Automatic Shut-Off:** Activates to stop water flow in the event of chokeage, preventing overflow.
- **Alert System:** Sends SMS notifications to the maintenance team when prolonged blockages are detected.
- **Continuous Data Collection:** Gathers usage data in real-time for analyzing patterns and optimizing operations.
- **Adjustable Maintenance Scheduling:** Utilizes data insights to refine maintenance frequency, improving manpower allocation.
- **Data Visualization and Analytics:** Provides comprehensive data analysis and visualizations for in-depth insights into system performance.
- **Leakage detection:** Monitor water usage abnormalities to detect potential leaks.

POTENTIAL APPLICATIONS

This chokeage detection system has wide-ranging applications across various sectors:

- **Public Restrooms:** Ensures uninterrupted operation by preventing blockages, thereby enhancing cleanliness and reducing maintenance requirements.
- **Hospitals:** Supports strict hygiene standards by preventing overflows and potential contamination, which is critical in healthcare settings.
- **Residential Complexes:** Provides peace of mind to homeowners by automatically stopping water flow during blockages, preventing damage and costly repairs.
- **Hotels and Hospitality:** Improves guest satisfaction by ensuring that sanitary facilities remain fully operational and hygienic.
- **Educational Institutions:** Helps maintain a clean environment in schools and universities, promoting the well-being of students and staff.

This versatile system can be integrated into new constructions or retrofitted into existing infrastructure, delivering significant advantages wherever sanitary systems are used.

Based on the continued development and findings using various water meters, the identification of leaks in systems could be applied to other sectors, such as:

1. **Hidden Pipes Leakage Detection:** Concealed pipe leaks are difficult to detect. By monitoring water flow, they are possibilities to identify leaks in such systems.
2. **Chillers:** Early water leak detection can minimize damage to chillers and reduce operational inefficiencies.
3. **Burner Technology Unit (BTU):** Detecting leaks early can reduce energy consumption and minimize damage caused by overheating components.

UNIQUE VALUE PROPOSITION

- Offers non-intrusive operation, continuously monitoring water flow through sanitary fixtures, detecting blockage, and automatically stops water flow.
- Provides advanced data tracking, wirelessly transmitting real-time water usage statistics to a central gateway, delivering far more accurate insights than traditional monitoring methods.
- Designed for seamless integration into existing installations with minimal maintenance required, making it cost-effective.

The technology owner is seeking R&D collaborators and aims to develop a licensing model for system integrators, targeting government agencies and facility managers of malls, commercial buildings, and residential complexes.