TECH OFFER

Next-Gen Flood Detection With Environmental Location Intelligence

KEY INFORMATION

TECHNOLOGY CATEGORY:
Environment, Clean Air & Water - Sensor, Network, Monitoring & Quality Control Systems
Infocomm - Internet of Things
Infocomm - Wireless Technology

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO174985**

OVERVIEW

In an era where environmental challenges are escalating, the need for precise and timely flood monitoring has never been more critical. Addressing this pressing issue is a state-of-the-art flood detection system that offers unparalleled accuracy in water level detection, down to the centimetre, and in real-time. Designed to resist environmental disturbances, this technology ensures consistent and reliable performance. Its self-sufficiency is highlighted by its connectivity via mobile networks and an ultra-efficient power system, which includes a solar panel ensuring sustained operation even in less-than-ideal sunlight conditions.

The primary beneficiaries of this technology are government agencies and enterprises involved in environmental infrastructure projects. Additionally, businesses facing environmental challenges and seeking robust solutions will find this invention invaluable. By providing instant alerts on potential flood threats and integrating seamlessly with third-party management systems, this technology addresses a significant gap in the marketplace, ensuring safety, reducing potential damages, and saving lives.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Multiple high precision pressure sensors for accurate sensing pressure change due to rising water
- Built-in SIM and included IoT network connectivity works anywhere independently by support LTE-M, NB IoT and GPRS mobile networks
- Unlimited battery life Ultra efficient power system with built-in 750mAH rechargeable battery and solar panel, 3-months battery life without Sun
- Auto alerts for sudden flood support push notification, email, sms or custom alerts
- Enterprise Ready Cloud based Enterprise Dashboard and ready API for integration
- Compact size and easy to install 8cm x 8cm x 7cm (inclusive screw-on mounting for standard 3" PVC pipe)
- Weather proof rain resistant and operates from -20 to 60

POTENTIAL APPLICATIONS

The flood detection system's advanced capabilities make it a versatile tool with applications spanning multiple industries:

1. **Urban Planning & Infrastructure**: Municipalities can integrate the system into city planning, placing sensors in flood-prone zones, underpasses, and near water bodies. This aids in timely evacuation and infrastructure protection during heavy rainfall or sudden water level rises.
2. **Agriculture**: Farmers can deploy the system in fields to monitor water levels, ensuring optimal irrigation and preventing crop damage from unexpected flooding.
3. **Real Estate & Construction**: Developers can use the technology to assess flood risks in potential construction sites, ensuring the safety and longevity of structures.
4. **Environmental Research**: Research institutions can utilize the system for studying climate change effects, water table fluctuations, and the impact of deforestation on water levels.
5. **Insurance**: Insurance companies can integrate the technology to assess flood risks in specific areas, aiding in policy formulation and claims verification.
6. **Disaster Management**: Emergency response teams can deploy the system in regions prone to natural disasters, ensuring rapid response during floods.
7. **Tourism & Recreation**: Resorts and recreational areas near water bodies can use the system to ensure guest safety, especially in regions with unpredictable weathers.
8. **Transportation**: The system can be installed near roads, railways, and bridges to monitor water levels, ensuring safe transit and timely maintenance.

This technology enables marketing various products, including smart city flood management systems, agricultural water management kits, construction site safety tools, and environmental research equipment. Its adaptability meets diverse industry water monitoring needs.

MARKET TRENDS & OPPORTUNITIES

The flood detection system's market size is influenced by key factors:

- **Urbanization**: Expanding urban areas increase flood risks due to inadequate drainage. With 68% projected to live in cities by 2050, urban flood detection systems are crucial.
- **Climate Change**: Environmental changes cause more extreme weather events and rising sea levels. This has escalated flood risks in previously safe areas, emphasizing the importance of flood detection systems.

- **Agricultural Dependency**: Agriculture employs over 26% of the global population, creating a significant market for flood detection in farming.
- **Infrastructure Development**: Growing infrastructure projects demand protection from environmental threats like floods.

Considering these factors, the global market for flood detection systems is expected to be worth billions, with steady growth.

The technology's attractiveness to the market lies in:

- **Real-time Detection**: Its centimeter-precise real-time water level detection is invaluable for damage prevention.
- **Low Maintenance**: Self-sufficient power and weather-resistant design reduce long-term maintenance costs.
- **Versatility**: Easy installation and compact design suit various settings, from urban areas to remote agriculture.
- **Integration**: Compatibility with third-party systems and diverse alert mechanisms adapts it to different industries.
- **Environmental Focus**: Growing awareness of climate change and its impact drives demand for technologies addressing flooding and rising sea levels.

In summary, the technology's precision, adaptability, and response to global environmental challenges make it highly attractive to the market.

UNIQUE VALUE PROPOSITION

This innovative flood detection and environmental monitoring technology offers several unique value propositions (UVPs) that set it apart from the current "State-of-the-Art" systems.

- **Precision in real-time** flood detection is unparalleled. It can detect water level changes down to the centimeter within minutes, providing stakeholders with timely and accurate data.
- **Self-sufficiency power and connectivity**. With a 750mAH rechargeable battery and solar panels, it operates independently of external power sources. It also supports multiple mobile networks for seamless connectivity, even in remote areas.
- **Environmental robustness** ensures it remains operational in challenging conditions, overcoming a limitation of many existing systems.
- **Versatile alert mechanisms**, including push notifications, emails, SMS, and custom alerts, ensuring critical flood warnings reach recipients promptly.
- **Compact and user-friendly design** simplifies installation, contrasting with bulky and complex systems.
- **Holistic enterprise solution** with a cloud-based Enterprise Dashboard and API integration capabilities, making it easy for businesses and government agencies to incorporate into existing infrastructure and management systems.

In essence, the UVP of this technology lies in its precision, self-sufficiency, robustness, and user-centric design. It not only addresses the limitations of the current "State-of-the-Art" but also anticipates the evolving needs of a world grappling with environmental challenges, making it a future-ready solution in flood detection and management.