Flood Monitoring on Rivers

Efficient flood monitoring and river level management are essential to mitigate the devastating consequences of floods on human lives, property, and ecosystems.

CHALLENGE

Floods cause significant damage to lives, property, and infrastructure, making it critical to develop efficient flood monitoring systems for rivers. A major challenge is obtaining accurate, near real-time data on water levels to enable effective flood management and early warning systems. Traditional monitoring methods often have limitations such as high maintenance costs, poor coverage, and slow response times.

SOLUTION

To address this challenge, a battery-operated Ellenex Ultrasonic Distance/Level Sensor can be deployed for flood monitoring on rivers.

This IoT sensor, combined with Narrowband IoT (NB-IoT) technology, provides the following benefits:

- Accurate water level measurements: Ultrasonic sensors offer high precision in measuring water levels, enabling accurate flood predictions and timely responses.
- Near real-time data: Ellenex sensors transmit data every few hours, allowing for near real-time monitoring and improved decision-making.

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- Low power consumption: Battery-operated sensors ensure long-lasting operation and reduced maintenance costs.
- Wide area coverage: NB-IoT provides reliable connectivity in remote and hard-to-reach locations.
- Ruggedized design: IP65 rated sensors withstand harsh environmental conditions, ensuring reliable operation during floods.
- Scalable and flexible: The IoT-based solution can be easily scaled to cover larger areas and adapted to suit different monitoring requirements.

By implementing this solution, authorities can effectively monitor river levels, initiate timely response measures, and minimize the impact of floods on communities and the environment.
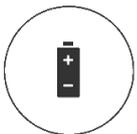
Battery Operated	Ruggedised Design	Easy Install	Pre-Configured	Secure	Quick ROI

TECHNOLOGY

Ellenex employs cutting-edge communication technology by utilizing the LTE Cat M1 protocol, which operates on 4G and 5G cellular networks, making it suitable for mobile and stationary monitoring applications. However, its remarkably low power consumption and superior penetration rate, specifically designed for industrial solutions, sets it apart. Narrowband Internet of Things (NB-IoT) and LTE Cat M1 are advanced communication technologies that offer significant advantages for monitoring applications. These technologies provide efficient and reliable connectivity for IoT devices, allowing for seamless communication between our sensor and remote monitoring systems. NB-IoT and LTE Cat M1 are known for their low power consumption, enabling prolonged battery life for the devices, which is crucial for remote or hard-to-reach areas. Moreover, these technologies offer excellent

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penetration capabilities, allowing for reliable communication even in challenging environments, such as underground or remote locations where devices are often deployed. NB-IoT and LTE Cat M1 also provide secure and scalable connectivity, enabling robust and cost-effective solutions for monitoring applications in various industrial sectors, including agriculture, utilities, logistics, and more.

SENSOR TECHNICAL SPECIFICATIONS

•	Range	10	m
•	Accuracy (combined linearity, hysteresis, repeatability)	±1 (typ.)	%Span
•	Resolution	1	mm
•	Sensor Minimum Distance	0 ~ 20cm for 5m range 0 ~ 50cm for 10m range	
•	Reading-to-reading stability	1mm in 1m (Typ)	
•	Compensated Temperature	-10 ~ +60	°C
•	Power Supply	Built-in Replaceable Lithium Battery	
•	Rated Voltage	3.6	V
•	Battery Lifetime	10,000+ transmissions	
•	Materials	Enclosure: POM	
•	Weight	~500	g
•	Protection Rate	IP66, UV Protected	
•	SIM Card Type	4FF Nano-SIM, from any Network Provider	
•	Firmware Update	Over The Air, Locally via Wireless Connectivity	
•	Sampling Period	Configurable via downlink (default 4 hours)	
•	Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39	
•	Antenna	Internal (Default)/ External (customised options available)	

PLATFORM FEATURES

Ellenex's software platform is a comprehensive and user-friendly solution specifically designed for diesel delivery management. The platform offers a wide range of features tailored for diesel delivery operations, including real-time data visualization, customizable alerts and notifications, historical data analysis, and predictive analytics. It provides users with a holistic view of their diesel delivery assets, allowing them to make data-driven decisions for optimal fuel management. The platform is accessible via web browsers and mobile devices, providing convenient remote access to critical information anytime, anywhere. Ellenex's software platform is designed with a user-centric approach, offering intuitive navigation and a user-friendly interface for easy setup and configuration. With its advanced features and ease of use, Ellenex's software platform empowers users to effectively monitor and manage their diesel delivery operations in remote areas, ensuring efficient and sustainable fuel resource management.

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customisation available on request

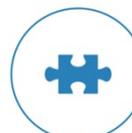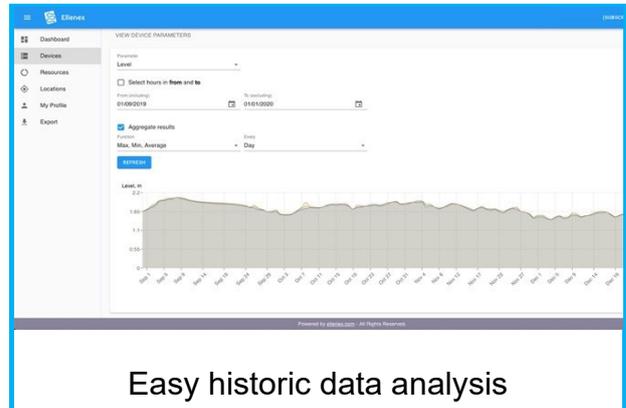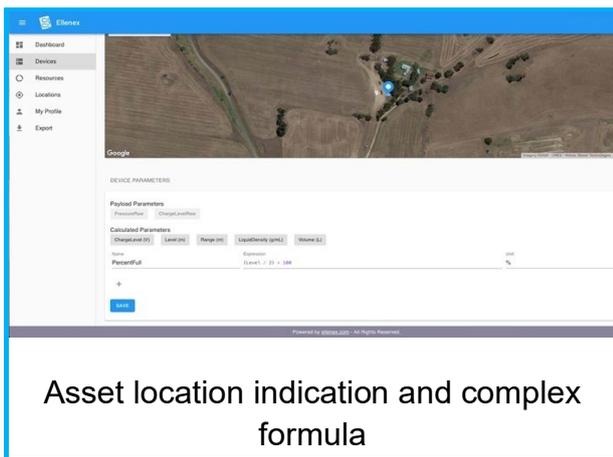|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable & API first
Low cost	Action management	Resource monitoring

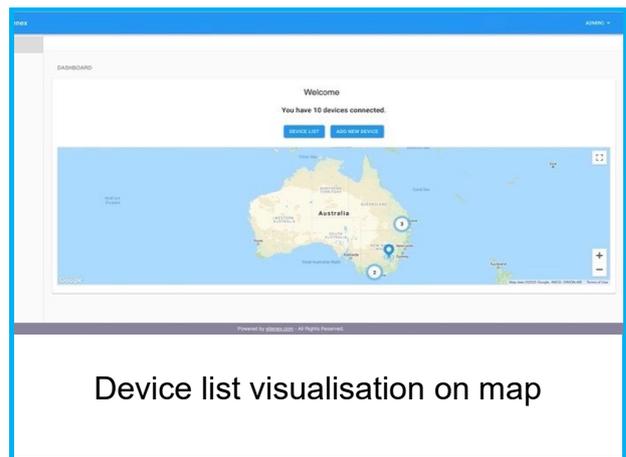# LM-RR-N

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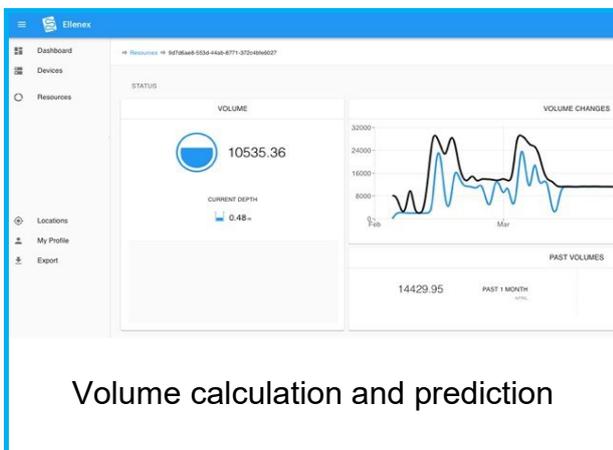Single shot data visualisation of devices
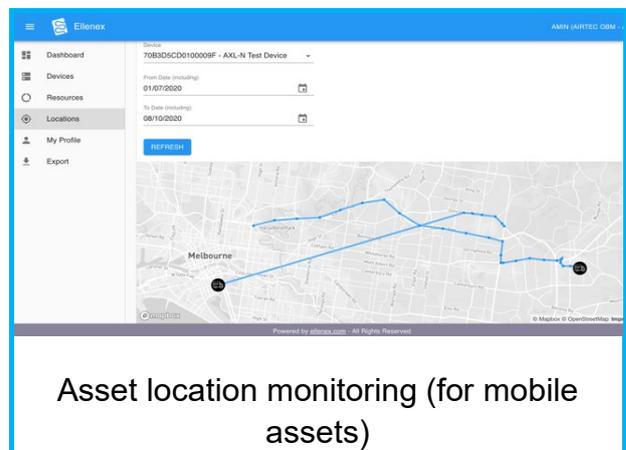

Easy historic data analysis

Asset location indication and complex formula

Device list visualisation on map

Volume calculation and prediction

Asset location monitoring (for mobile assets)

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INDUSTRIES SERVED

Environmental Monitoring

City & Councils

INTEGRATION OPTIONS

Ellenex's solution sets itself apart with its pre-configured and plug-and-play design, eliminating the complexities of configuration, programming, and connection to the platform. This unique approach ensures that users can start monitoring their diesel tanks quickly and easily without any technical hassles. Additionally, Ellenex offers seamless integratability at both the network and platform levels, allowing for easy integration with any network or visualization/analysis platform. This competitive advantage makes Ellenex's solution highly adaptable and compatible with existing systems, providing users with flexibility and convenience in managing their diesel resources effectively.

ORDERING PROCESS

Ellenex offers simple and easy way to order the solution from any location on earth with narrow band cellular coverage. Please visit our sales portal (www.ellenex.shop) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

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Purchase the solution online

Learn more about our Software Platform

View the Included Sensor Datasheet

Browse our other solutions

Ver. 1.3-05/23

Integrated IoT Solutions

Email: sales@ellenex.com
Web: www.ellenex.com
Platform: ellenex.net
Sales Portal: www.ellenex.shop