ellenex

Remote Underground Waterway Storm Water level monitoring

Effective stormwater level monitoring in remote underground waterways is crucial to prevent disastrous floods and protect vital infrastructure.

CHALLENGE

In remote underground waterways, continuous and accurate monitoring of stormwater levels is crucial to manage floods, infrastructure integrity, and environmental impacts. However, the inaccessibility of these locations and the need for reliable and low-maintenance sensors make this task extremely challenging.

SOLUTION

Ellenex's battery-operated submersible level sensors with NB-IoT technology provide a robust and efficient solution for monitoring stormwater levels in remote underground waterways. The IoT-enabled sensors can be installed in hard-to-reach areas, transmitting near real-time data every few hours to a central system for analysis and action.

The benefits of this approach include:

- Ruggedised design: Ellenex sensors are built to withstand harsh industrial applications and are IP65 rated, ensuring long-lasting performance in challenging environments.
- Low maintenance: Battery-operated sensors reduce the need for frequent maintenance, saving time and resources.
- Near real-time data: NB-IoT technology enables data transmission every few hours, providing near real-time insights for better decision-making.

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- Improved flood management: Timely monitoring and alerts help mitigate the risk of flooding and potential infrastructure damage.
- Enhanced environmental protection: Accurate stormwater level data allows for better understanding of the impacts on the surrounding ecosystem and helps in devising effective environmental management strategies.

By deploying Ellenex's battery-operated submersible level sensors with NB-IoT technology, stakeholders can effectively address the challenge of monitoring stormwater levels in remote underground waterways, ensuring better flood management and environmental protection.
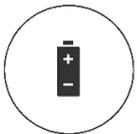
Battery Operated	Ruggedised Design	Easy Install	Pre-Configured	Secure	Quick ROI

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 penetration capabilities, allowing for reliable

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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	10m (or other ranges upto 200m)	m
•	Accuracy (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
•	Resolution	±0.01	%Span
•	Temperature Coefficient of Zero	≤±0.03	%FS/°C
•	Temperature Coefficient of Span	≤±0.03	%FS/°C
•	Long Term Stability (1 year)	≤ 0.2	%Span
•	Overload Protection	150	%FS
•	Load Cycles (Zero to Full Scale)	10+	Million
•	Storage / Operation Temperature	-20 ~ +85	°C
•	Compensated Temperature	0 ~ +60	°C
•	Power Supply	Built-in Replaceable Lithium Battery	
•	Rated Voltage	3.6	V
•	Battery Lifetime	10,000+ transmissions	
•	Sensor Materials	O-ring: Viton, Body: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM	
•	Weight	~1200 (for 5m range)	g
•	Protection Rate	IP66, UV Protected enclosure and IP68 sensor head	
•	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)	

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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

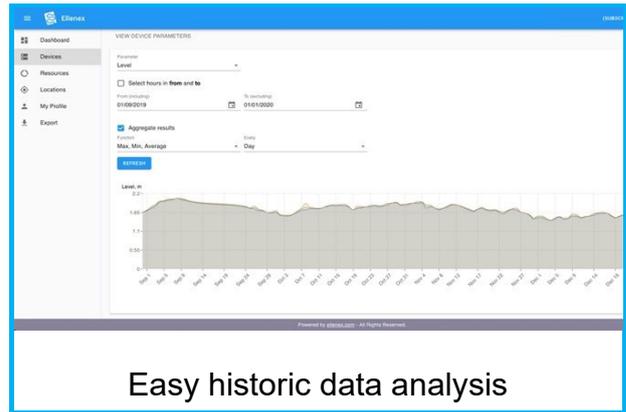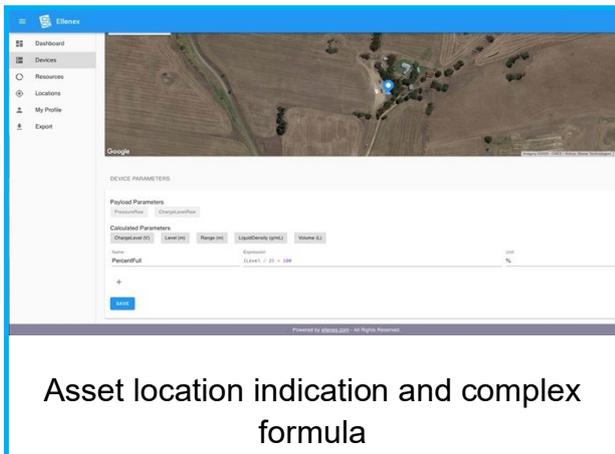|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable & API first
Low cost	Action management	Resource monitoring

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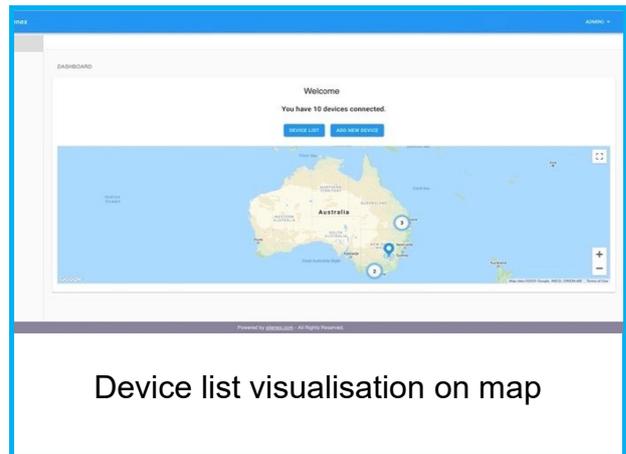

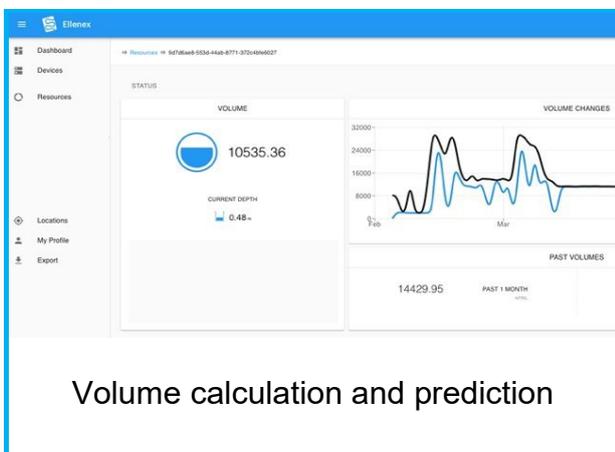Single shot data visualisation of devices
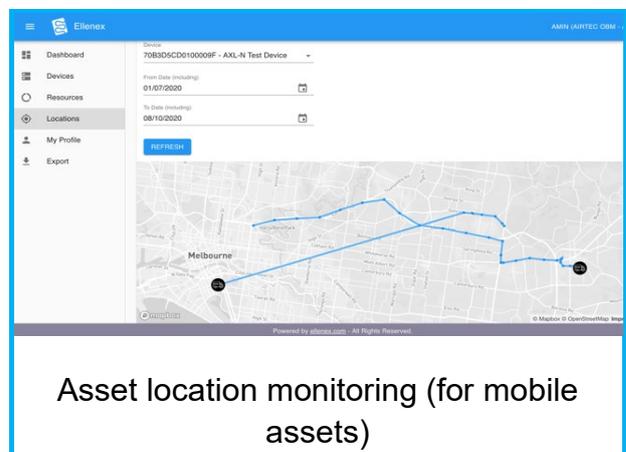

Easy historic data analysis

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

Smart Building & HVAC

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

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Integrated IoT Solutions

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Web: www.ellenex.com
Platform: ellenex.net
Sales Portal: www.ellenex.shop