

Dam and Water Resource Level and Volume Monitoring

Effective dam and water resource management is crucial for ensuring the adequate supply of water for agriculture, industry, and domestic use, as well as preventing devastating floods.

CHALLENGE

The management and control of water resources, especially in dams, require continuous monitoring of water levels and volume. Traditional methods of monitoring are labor-intensive, expensive, and may not provide accurate and up-to-date information. These challenges can lead to ineffective water resource allocation and increased risks of floods or water shortages.

SOLUTION

The battery-operated Floating Enclosure attached to a submersible level sensor manufactured by Ellenex leverages NB-IoT technology to address these challenges. This IoT sensor solution consists of Ellenex's wireless submersible level sensor and the floating enclosure.

The benefits of using this approach include:

- **Near real-time data transmission:** The Ellenex sensors transmit data every few hours, providing near real-time information on water levels and volume for better decision-making.
- **Rugged and reliable:** Ellenex's products are built to withstand harsh industrial applications and have an IP68 rating for durability in challenging environments.
- **Battery-operated and low maintenance:** The sensors' long battery life reduces the need for frequent maintenance, saving time and resources.

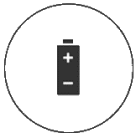
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- **Enhanced connectivity:** The NB-IoT technology allows for better coverage, even in remote locations, ensuring seamless data transmission.
- **Cost-effective solution:** The IoT-enabled approach reduces labor and infrastructure costs, providing an affordable alternative to traditional monitoring methods.

By implementing this solution, authorities can efficiently monitor and manage water levels in dams and other water resources, leading to better water allocation, flood prevention, and overall water resource sustainability.



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 communication even in challenging environments,



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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 (or other ranges up to 200)	m
• Accuracy (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
• Resolution	±0.01	%Span
• Pressure Reference	Sealed Gauge (with Built-in Atmospheric Pressure Sensor and floating housing)	
• 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	
• Materials	O-rings: Viton, Sensor Head: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM and Compressed Plastic	
• Weight	~1800 (for 10m range)	g
• Protection Rate	IP68 and UV Protected enclosure	
• 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



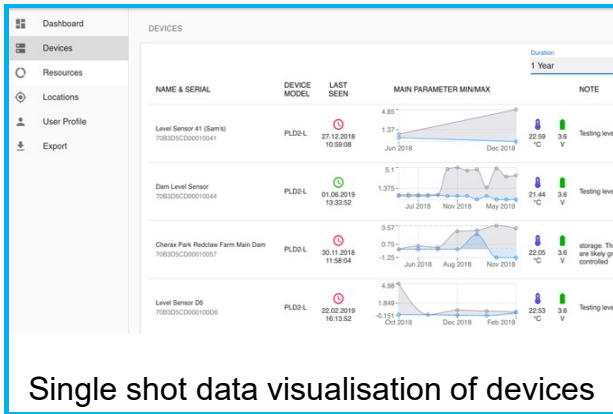
Action management



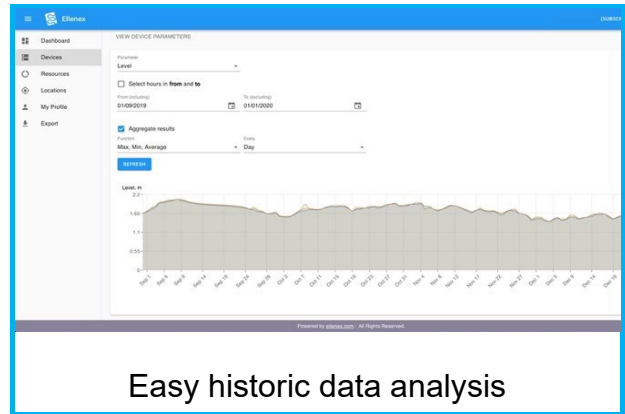
Resource monitoring

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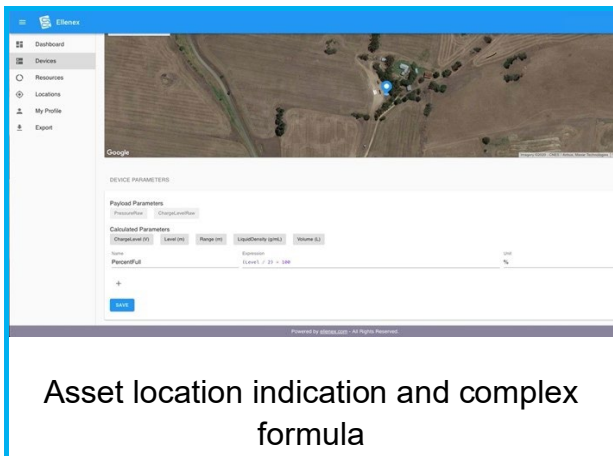
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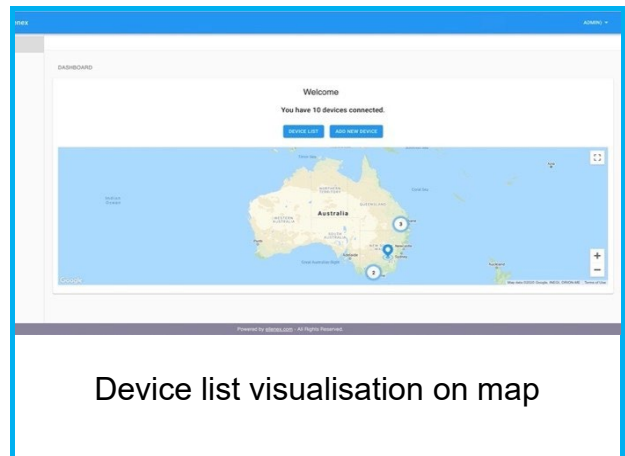
Single shot data visualisation of devices



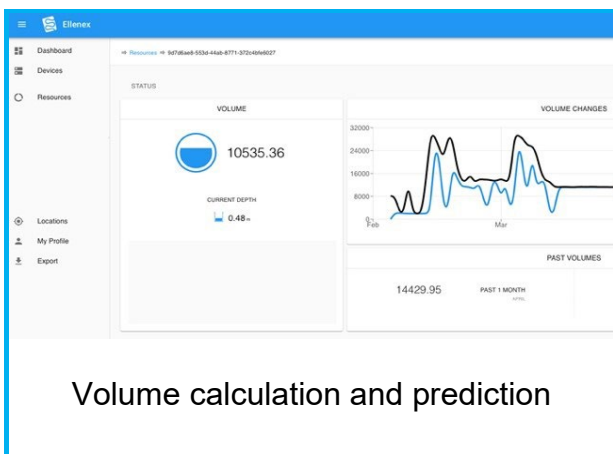
Easy historic data analysis



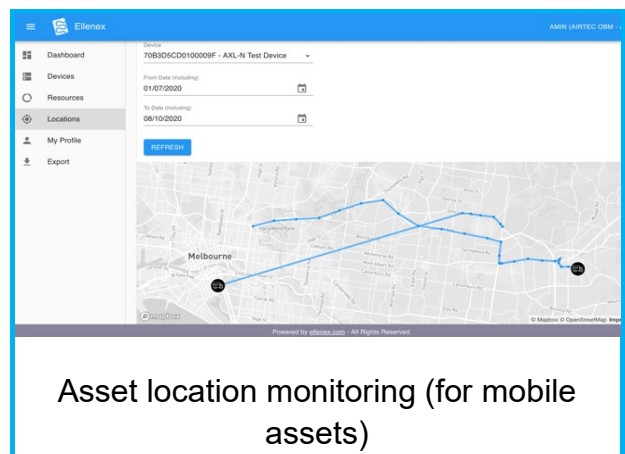
Asset location indication and complex formula



Device list visualisation on map



Volume calculation and prediction



Asset location monitoring (for mobile assets)

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INDUSTRIES SERVED



Agriculture & Farming



Water & Wastewater



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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A large background image showing a wide, curved dam structure with a reservoir behind it. The sky is overcast, and the water is a dark, calm green. The dam has multiple spillways and a walkway on top.

Integrated IoT Solutions ellenex

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