Remote Palm oil Tank Level Monitoring

Efficient and accurate palm oil tank level monitoring is crucial to minimize waste, optimize operations, and enhance environmental sustainability in the industry.

CHALLENGE

In remote palm oil processing plants, monitoring tank levels is a critical task for maintaining efficiency, preventing overflow, and ensuring accurate inventory management. Traditional methods of manual monitoring are time-consuming, labor-intensive, and prone to errors. Additionally, the harsh industrial environment and remote locations pose difficulties in installing and maintaining monitoring equipment.

SOLUTION

Ellenex's battery-operated Submersible Level Sensor (SLS) is a ruggedized IoT solution designed to address the challenges of remote palm oil tank level monitoring. By leveraging NB-IoT technology, these sensors enable near real-time monitoring of tank levels, providing reliable and accurate data to operators.

The key benefits of using Ellenex's SLS in this application are:

- Enhanced efficiency: Near real-time monitoring allows for proactive decision-making, minimizing downtime and reducing the risk of overflow or underfilling.
- Cost savings: Reduces labor costs associated with manual monitoring and minimizes product waste.

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- Easy installation and maintenance: The battery-operated, IP65-rated design allows for quick and simple installation in remote locations and ensures the sensor can withstand harsh industrial conditions.
- Environmental sustainability: Accurate monitoring helps prevent spills and overflows, reducing the environmental impact of palm oil production.
- Scalability: NB-IoT technology enables easy integration with other IoT devices and systems, facilitating future expansion and upgrades.
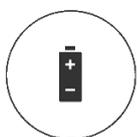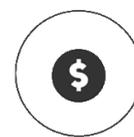
| Battery Operated | Ruggedised Design | Easy Install | Pre-Configured | Secure | Quick ROI |

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, such as underground or remote locations where devices are often deployed. NB-IoT and LTE Cat

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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	1	bar
•	Accuracy (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
•	Resolution	±0.01	%Span
•	Temperature Coefficient of Zero	≤±0.02	%FS/°C
•	Temperature Coefficient of Span	≤±0.02	%FS/°C
•	Long Term Stability (1 year)	≤ 0.2	%Span
•	Pressure Overload	300 (range <1bar); 150 (higher range)	%FS
•	Pressure Cycles (Zero to Full Scale)	10+	Million
•	Compensated Temperature	-10 ~ +70	°C
•	Power Supply	Built-in Replaceable Lithium Battery	
•	Rated Voltage	3.6	V
•	Battery Lifetime	10,000+ transmissions	
•	Materials	O-ring: Viton, Body: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM	
•	Weight	550	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)	

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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

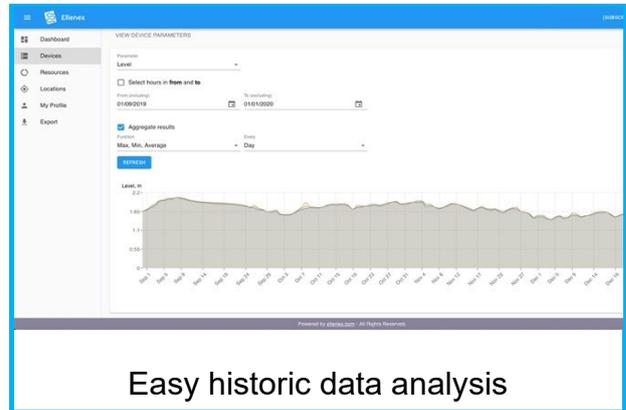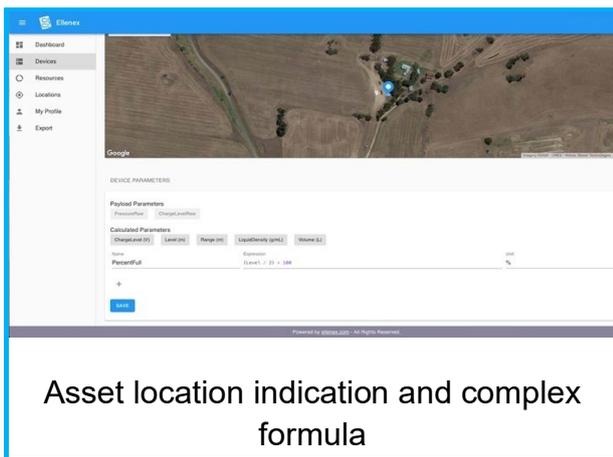|					
Encrypted & ultra-low power		Integratable		Dynamic alerting	
Multi-tenant		Scalable		Composable & API first	
Low cost		Action management		Resource monitoring	
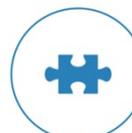
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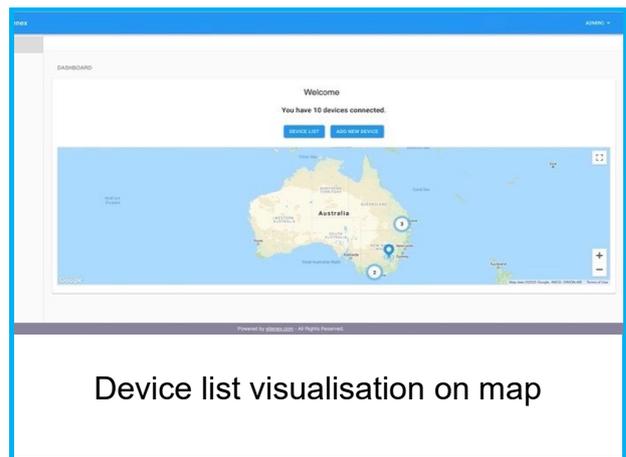## Remote Palm oil Tank Level Monitoring

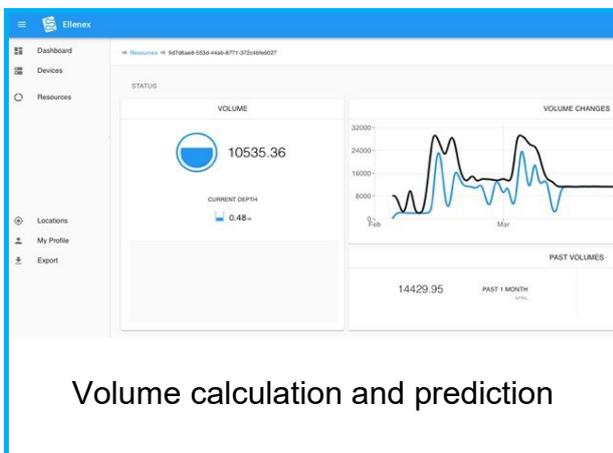Single shot data visualisation of devices

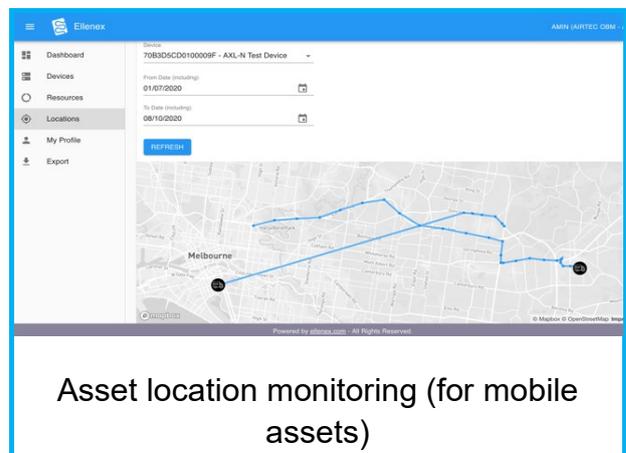Easy historic data analysis

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

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