SEMTECH CASE STUDY

Nanjing Rejeee Intelligent Technology Co., Ltd.

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Enabling LoRa® for Critical Monitoring in IoT

WM102-LF LoRa Temperature & Humidity Logger

Discover how Rejeee's WM102-LF Temperature & Humidity Logger, powered by Semtech's LoRa® technology, overcomes the limits of traditional wireless—delivering long-range, low-power, high-precision monitoring built for today's most demanding IoT applications.

QUICKFACTS

Company

Nanjing Rejeee Intelligent Technology Co., Ltd.
rejeee.com

Customer Profile

Rejeee is focused on IoT applications with technology development as the core driving force. The company provides easy-to-use, reliable IoT software and hardware solutions.

Objectives

Temperature & Humidity Logger to achieve longer wireless transmission distances and lower power consumption.

Results

Developed a LoRa High-Precision Temperature & Humidity Logger supporting LoRa proprietary protocol and LoRaWAN® protocol

Products and Services

- LoRa Connect™
- LoRaWAN®

INTRODUCTION

Rejeee focuses on technical services for IoT hardware (communication and sensing) and AI hardware (high computing power). They specialize in high-performance, highly integrated intelligent hardware products and solutions. With expertise in the Internet of Everything and edge intelligence, they deliver end-to-end hardware support from data collection to intelligent decision-making. Their product portfolio includes LPWAN modules, intelligent sensing terminals, edge computing nodes, and customized AI computing hardware. Rejeee has developed multiple node modules (SX127x, SX126x, LLCC68), along with gateways and gateway modules based on SX1302, offering diverse IoT solutions.

WM102-LF Temperature & Humidity Logger

CHALLENGE

Temperature and Humidity Loggers face significant challenges in industrial environments, where environmental constraints such as metal shipping containers, computer rooms with electromagnetic interference (EMI), laboratory equipment, warehouse structures, and underground facilities severely limit traditional wireless range. Conventional wireless technologies like WiFi, Bluetooth, and Zigbee provide only 10–100 meters of range in open areas, which drops to just 5–20 meters in industrial settings, while also consuming high power that necessitates battery replacement every 3–6 months. These limitations lead to serious business impacts, including higher infrastructure costs, frequent maintenance requirements, coverage gaps, and major scalability constraints.

SOLUTION

The WM102-LF Humidity Logger is a high-performance solution for reliable, long-range environmental monitoring. Supporting both LoRa proprietary and LoRaWAN protocols, it operates in the 470–920 MHz band with exceptional RF performance of -137 dBm sensitivity and +22 dBm output power, enabling coverage at high interference environments. Powered by Semtech's SX1268 chip, it delivers ultra-low power consumption, ensuring more than 2 years of battery life and extending

> Semtech's LoRa technology transformed our environmental monitoring capabilities. The SX1268's combination of long-range transmission, ultra-low power consumption, and flexible protocol selection enabled us to create a solution that exceeds customer expectations while opening new global market opportunities.

Lewis Zhu,
CEO, Nanjing Rejeee Intelligent Technology Co., Ltd.

maintenance cycles from monthly to annual. The device provides high-precision sensing (±0.3°C temperature, ±2%RH humidity), enhanced by onboard FLASH storage and mobile app access. Its plug-and-play design makes deployment simple across cold chain logistics, laboratories, intelligent agriculture, computer rooms, and warehouses, with reliable coverage outdoors and across multi-floors indoor making it an ideal future-ready IoT monitoring solution.

BENEFITS

Better penetration: Leveraging LoRa technology and SX1268's -137 dBm sensitivity with +22 dBm output power, the WM102-LF could deliver the packet in interference-heavy environments like warehouses, underground facilities, and computer rooms with EMI. This overcomes the 5-to-20-meter limits of Wi-Fi, Bluetooth, and Zigbee, delivering 10x improvement in range.

Ultra-Low Power Efficiency: Optimized SX1268 architecture enables, extending battery life from just months to over 5 years. This reduces battery replacement cycles cutting maintenance costs and minimizing downtime.

Seamless Deployment & Scalability: Private LoRa and LoRaWAN ensures flexibility of deployment, whether in a closed industrial setup or a wide-area network. With the ability to support hundreds of nodes per gateway, infrastructure costs are reduced significantly and saves on the installation time

High Precision & Reliability: Built-in sensors deliver ±0.3°C temperature and ±2%RH humidity accuracy, with onboard FLASH storage and mobile app access ensuring data integrity even in connectivity outages. This provides customers with trustworthy monitoring across cold chain logistics, laboratories, agriculture, and industrial environments.

Learn More: www.semtech.com/lora

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About Semtech

Semtech Corporation (Nasdaq: SMTC) is a high-performance semiconductor, IoT systems and cloud connectivity service provider dedicated to delivering high-quality technology solutions that enable a smarter, more connected and sustainable planet. Our global teams are committed to empowering solution architects and application developers to develop breakthrough products for the infrastructure, industrial and consumer markets.

To learn more about Semtech technology, visit us at **Semtech.com** or follow us on **LinkedIn** or **X.**