machinechat seeed studio The IoT Hardware Enabler

Ready to Use LoRa SOLUTIONS

# Environmental Monitoring:

## Optimizing Greenhouse Operations

# The Problem

System integrator wanted to develop an affordable, easy-to-deploy and scalable solution to securely and wirelessly monitor environmental conditions across multiple greenhouses.

The system would allow growers to:

- Monitor light, humidity, soil moisture and temperature conditions in real-time and optimize growing conditions in each greenhouse.
- Use historical data collected to better determine and manage ideal growing conditions.
- Optimize water consumption by avoiding under or over-watering of plants.

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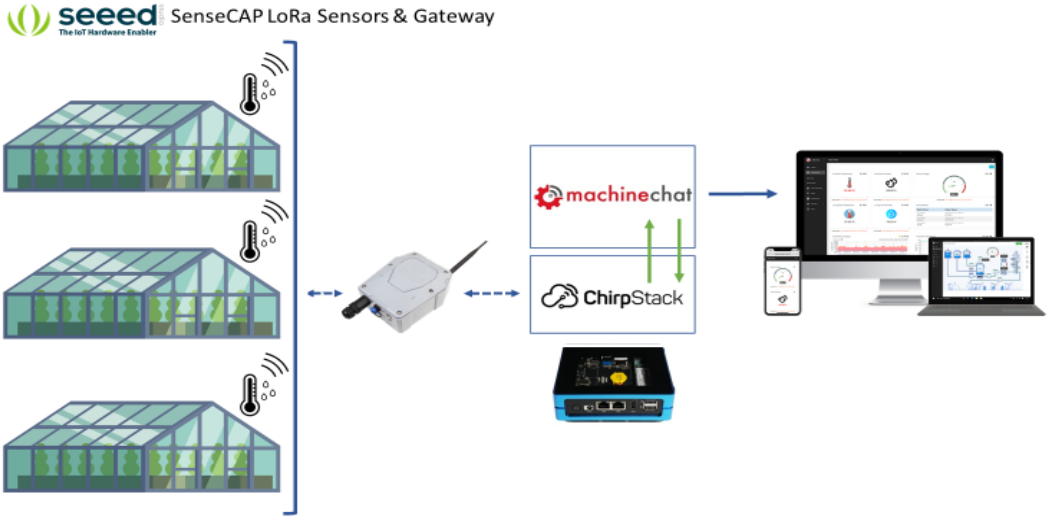
# The Solution

The system integrator used industrial grade Seeed Studio SenseCAP LoRa temperature, humidity, moisture and light sensors and a SenseCAP LoRa gateway connected to a local server that was enabled with Machinechat JEDI One software.

Using JEDI One's integrated data collectors, the system integrator was able to incorporate SenseCAP sensor data collection, visualization, and monitoring in hours. In addition, JEDI One's drag and drop rules and notifications features allowed for easy configuration, enabling and disabling of real-time and scheduled alerts depending on the type of crop being grown in the greenhouse at the time.

JEDI One's local and customizable storage allow data to be segmented and exported as needed to local and cloud-based applications, enabling the right data to go to the right application at the right time.



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# The Benefits

- Reduced development and implementation costs with ready-to-use hardware and software that enables field-ready solution to be deployed in days.
- Standardization on robust, industrial grade Seeed SenseCAP sensors allowed for easy deployment in a wide range of indoor and outdoor smart agriculture applications.
- Reduced recurring cloud processing costs and delivered enhanced data privacy and security through an on-prem deployment.
- Enabled system integrators and onsite IT to easily update for different crop rotations using JEDI One's integrated rules engine and easy-to-configure dashboards without the need for costly on-going software customization.

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# Product Features

## Seeed Studio SenseCAP: Industrial LoRa Sensors & Gateways

- Support LoRaWAN protocol Class A
- Ultra-wide-distance transmission: Up to 10km in line of sight
- Support multiple ISM bands: EU868, US915, AU915, AS923
- Support remote modification of node collection frequency 4G and Ethernet connectivity, suitable for multiple scenes.
- Industrial grade protection: IP66 enclosure, suitable for outdoor applications able to operating in temperatures from -40℃ to +70℃ (up to 85 ℃ for SenseCAP sensors)
- High reliability and stability
- Sensor battery life of 3+ years
- Rapid installation and deployment

## Machinechat JEDI One: On-Prem All-in-One IoT Software

- Available for Windows, macOS, Linux, Raspberry Pi and BeagleBone
- 30MB binary size, no runtimes or dependencies - integrates easily into ARM-based gateways
- Responsive, multi-user web interface
- Built-in data collectors for HTTP/REST, MQTT, TCP
- Custom plug-ins allow integrating virtually any device or sensor
- Integrated rules engine, alerts and notifications
- Smart local data storage
- Support for multiple users/role-based access. Secure communications support – SSL/TLS
- Build projects in hours, not weeks

# Available Through

Digi-Key ELECTRONICS