1,000+ Milesight Devices Empower Smart Irrigation & Enable 40% Water Saving Rate for Potato Plantation

Efficient and Sustainable Potato Cultivation Powered by Milesight Solutions in a Renowned Chip Brand's Planting Base

Nationwide, China

Applications	Number of Devices Deployed	Location
Smart Agriculture, Smart Irrigation	1,614*UC511 LoRaWAN® Solenoid Valve Controller 58*UC300 IoT Controller 46*UG67 Outdoor LoRaWAN® Gateway 39*UC501 LoRaWAN® Multi-Interface Controller	Jilin, China Gansu, China Shandong, China Guangdong, China Inner Mongolia, China

Success Story

BACKGROUND PAIN POINT SOLUTIONS RESULTS FEATURED PRODUCTS

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Background

Due to the increasing need for sustainable and efficient farming practices, smart agriculture has been more important than ever. By leveraging advanced technologies, smart agriculture enables farmers to improve productivity, optimize resource utilization, reduce environmental impact, and enhance crop quality.

Potato, as the primary raw material for producing chips, are extensively cultivated worldwide to meet people's demand for this delicious snack. During the cultivation process, environment monitoring and irrigation management are particularly crucial to ensure the high-quality and high-yield of potatoes.

In this project, vendors of a renowned chip brand enable the intelligent management of potato planting with IoT solutions, meeting the needs of maximizing water resource utilization and reducing labor costs of irrigation.

Pain Point

In recent years, the increasing scale and industrialization of agricultural cultivation have led to higher demands for irrigation and device monitoring. However, traditional agriculture have struggled to adapt to this transformation and face numerous challenges in the following aspects:

Inefficient water usage

Traditional irrigation methods often result in water wastage due to uneven distribution or excessive runoff. This inefficiency can lead to water scarcity and decreased crop productivity.

Lack of precision

Traditional irrigation systems lack precision in delivering water to plants. They may not adequately address specific plant needs, leading to overwatering or underwatering. This imprecise irrigation can result in reduced yields and poor crop quality.

Difficulties in monitoring soil moisture

Traditional agriculture relies on manual methods to monitor soil moisture. These methods are time-consuming, labor-intensive, and may not provide real-time data.

Solution

A smart agriculture project delivered by Milesight is aimed at addressing these urgent needs:

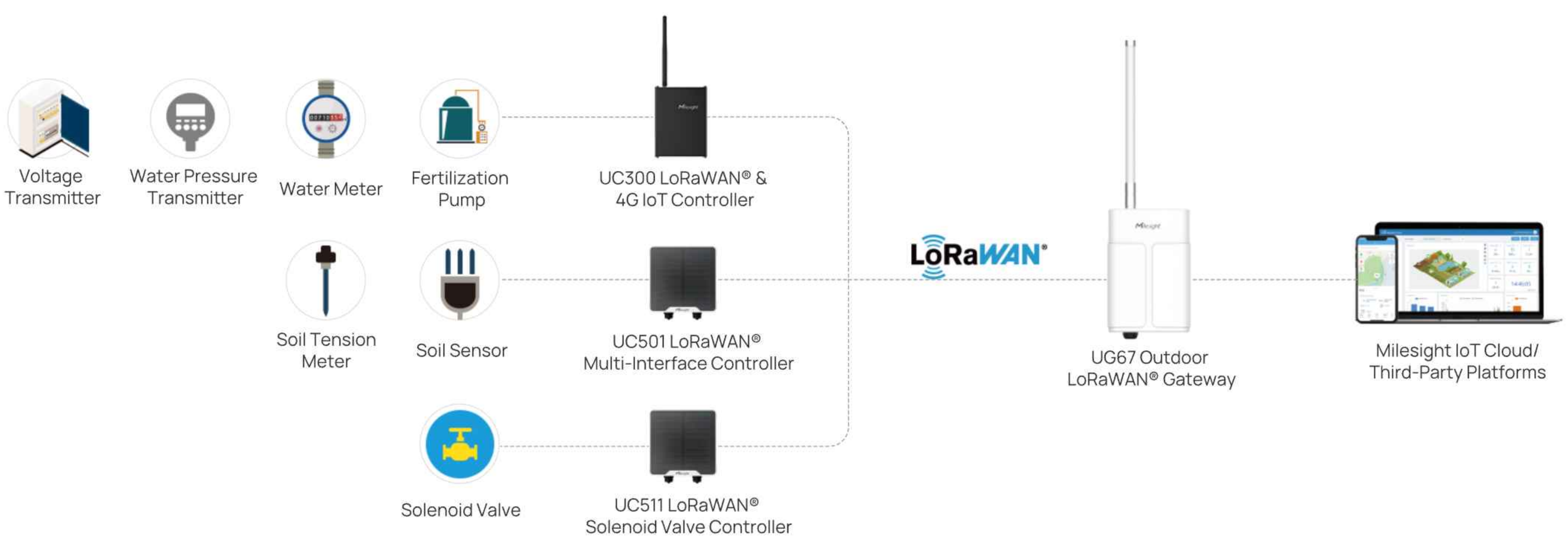
- **Soil Environment Monitoring**
  Monitoring soil temperature, humidity, pH value, electrical conductivity, and tension.
- **Smart Irrigation**
  Enable remote irrigation through controlling on/off of water and fertilization pumps, and controlling the opening/closing of water valves.
- **Device Status Monitoring**
  Monitoring the status of voltage transmitters and water pressure transmitters.

In this project, the Solenoid Valve Controller UC511 is installed in a pole-mounted way, connecting to third-party solenoid valve with heat shrink joints, and monitoring the actual on/off status of valve at the meantime. UC511 communicates with UG67 outdoor gateway through LoRaWAN® network.

UC300 controls On/Off of indoor water pumps and fertilization pumps with DO, while using DI pulse metering to measure the data volume of water meters and fertilizer meters. The AI interface (4~20mA) is used to monitor conditions of voltage transmitters and water pressure transmitters. Communication with Gateway UG67 is achieved through wireless LoRaWAN® network.

The UC501 interfaces with third-party soil sensors via RS485 to monitor soil temperature, humidity, pH, and electrical conductivity. It also interfaces with third-party soil tension meters through AI to monitor precise irrigation cycles for plants.

The UG67 gateway is installed at a height of 6m, powered by a PoE adapter, connected to 4G, and integrated with the control platform through MQTT protocol. At the control platform (mobile APP), there's a 4-second interval polling to send control commands to the solenoid valves. Additionally, On/Off commands of water and fertilizer pumps can also be sent via the control platform. The controller's status change data is reported to the control platform, allowing remote monitoring of the current status of water meters, fertilizer meters, voltage transmitters, water pressure transmitters, and solenoid valves.



Featured Products

UG67 Outdoor LoRaWAN® Gateway

- IP67 Rating
- 64-bit Quad-Core Processor
- New SX1302 LoRa Chip
- Built-in Supercapacitor
- Embedded Network Server

UC501 LoRaWAN® Multi-Interface Controller

- Rich Industrial Interfaces
- Powered by Solar Panel
- SDI-12 Interface for Environmental Data Acquisition
- IP67 Waterproof

UC511 LoRaWAN® Solenoid Valve Controller

- Solenoid Valve Control
- Powered by Solar Panel
- Water Flow Monitoring
- IP67 Waterproof

UC300 IoT Controller Now upgraded as UC300 IoT Controller

- Rich Industrial Interfaces
- Temperature Transmitter
- Intelligent Trigger System
- Autonomous Operation
- LoRaWAN® or 4G LTE Communication

Results

40% Improvement in Water-Use Efficiency

With the deployment of this project, the water saving rate reached 40%. Calculated the agricultural water resource fee at 0.3 yuan per ton, then the annual water cost will be no less than 1200 yuan per acre, which contribute to a saving of about 480 yuan per acre.

Lead to 80% Manpower Reduction and Labor Effectiveness

With the help of IoT solutions, personnel required for irrigation are reduced by 80% and manpower needed for field inspection are reduced by 90%, total cost saving in personnel wages and vehicle fuel loss can be converted to 300 yuan per acre.

300% Revenue Growth with Enhancement in Productivity & Quality

Timely and uniform irrigation is critical to growing high-quality potatoes, which contribute to an incredible 300% revenue growth. Compared to poor-quality potatoes purchased at lower than 0.2 yuan/catty, purchasing price of high-quality potatoes is higher than 0.8 yuan/catty with Milesight solution.

Discover More about Milesight Product

Smart Agriculture →

LoRaWAN® Gateways →

Your Email
Company
What Product are You Interested in?
Country
Your Sales Representative in Milesight
Message
Your Phone
Business Type
Verification Code

Let's Talk