ORBCOMM®

Harvest monitoring to improve productivity

The world's population is forecast to reach 9 billion by 2050, and that means global food production needs to increase by 70% to feed our growing planet. To achieve this improvement, food producers are using technology like the industrial Internet of Things to remotely monitor and manage agricultural processes.

For example, soil moisture can be monitored and irrigation optimized to increase crop productivity and reduce costs; pest, disease and plant health can be tracked to effectively mitigate negative effects and micro climates can be sensed to assess the ideal time to harvest crops. Those are just a few examples.

Farming Profitability

Increasingly, value added resellers (VARs) and partners are reaching out to ORBCOMM© to explore creative uses of our technology. For example, Wiagro, an ORBCOMM partner, had a customer who wanted to maximize the value of their soybean crop by selling when market conditions were most favorable. This required the grain to be stored in large silo bags until selling prices were optimal. To ensure the quality of the stored grain, temperature, humidity, and CO_2 levels needed to be monitored. In addition, location needed to be monitored to provide alerts in case of crop theft.

The satellite advantage

The advantages of the ORBCOMM satellite terminals are multi-fold:

- High reliability (99.9% up time)
- Always on connectivity
- Easy installation (no antenna pointing)
- Discrete low profile hardware
- Terminal apps for faster solution development
- No initial infrastructure requirements
- No recurring maintenance requirements

Solution

Wiagro developed a crop management solution that combined an ORBCOMM satellite terminal with temperature, humidity and CO2 gas sensors, a solar panel for power, a microcontroller to manage sensor inputs and power all integrated with backend software. Satellite communication was critical since there was no cellular service where the solution was deployed.

ORBCOMM

ORBCOMM worked with Wiagro to understand and document the customer's requirements, developed the terminal software, worked on the integration with third-party components and contributed to overall solution verification.

The solution reported temperature, CO2 levels and humidity once per day unless error conditions were reached, in which case an alarm was immediately sent. If movement was detected, an alarm was sent to indicate the possibility the storage bag was being stolen.

Result

Wiagro delivered an ingenious solution that leveraged ORBCOMM's field application engineers (FAEs) to understand customer requirements and develop terminal software that optimized terminal hardware resources. The terminal software minimized data transmission, reducing satellite connection costs and provided optimal solution reliability. Using ORBCOMM's FAEs helped Wiagro keep cost low by minimizing internal staff to develop the solution and helped reduce time to market.

The customer was able to remotely monitor the stored harvest economically, without expensive site visits, knowing that the harvest was in optimal condition and ready for sale.

Temperature Humidity CO_2

Silo bag
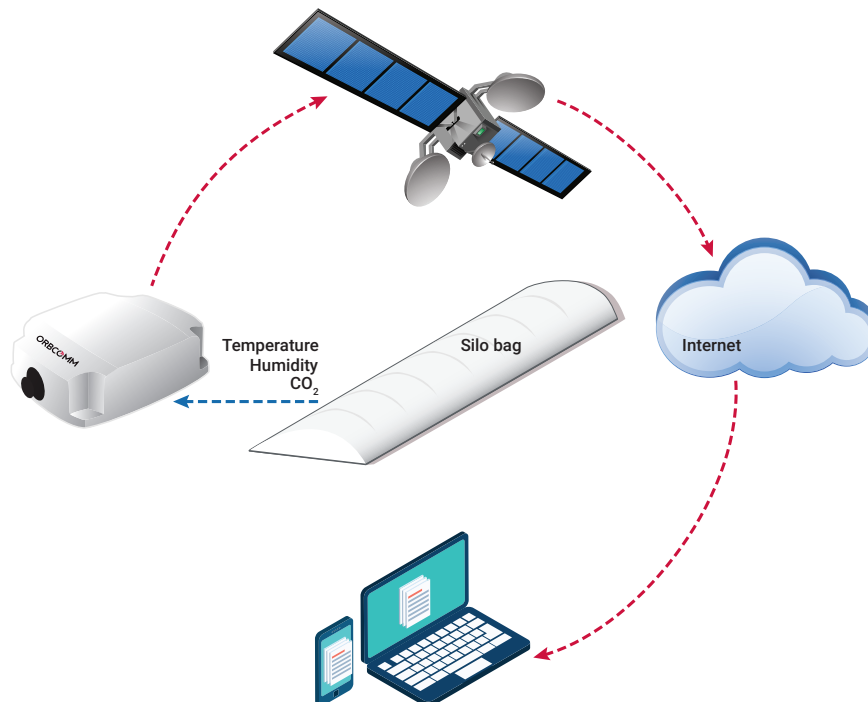
Internet

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ORBCOMM is a global leader and innovator in the industrial Internet of Things, providing solutions that connect businesses to their assets to deliver increased visibility and operational efficiency. The company offers a broad set of asset monitoring and control solutions, including seamless satellite and cellular connectivity, unique hardware and powerful applications, all backed by end-to-end customer support, from installation to deployment to customer care. ORBCOMM has a diverse customer base including premier OEMs, solutions customers and channel partners spanning transportation, supply chain, warehousing and inventory, heavy equipment, maritime, natural resources, and government. For more information, visit www.orbcomm.com.

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