LoRaWAN Automated Waste Disposal Solution for Semiconductor Wafer Plant

Location: Taiwan

Background

Many hazardous chemicals are used in high-tech product manufacturing. Not only are these chemicals dangerous and polluting, their waste disposal is difficult and challenging to manage. Factories must install waste disposal systems to ensure the safety of their employees and the environment. Factories must also constantly check their waste disposal systems by routine inspections. However, for plants with a high number of inspection check points, a lot of human resources are needed to complete tasks, which can be very time consuming. What's more, industrial waste output points are often high up in chimneys used to disperse fumes, so inspections themselves present dangerous challenges for inspectors.

System Requirements

Plant staff always check the waste system motors and fans for anomalies using a handheld vibration meter. However as there are over 20 exhaust fans around the plant, human resources limit inspection frequency to just once a day. Also, for efficiency, the waste systems are mostly installed on the roof, so climbing up and down daily can be dangerous for inspectors. So to complete inspections more efficiently and to reduce risks to staff, the plant decided to implement a solution that would automatically monitor the system using WISE-6610 and WISE-2410.

Project Implementation

WISE-6610

Hardened LoRaWAN
8-Channel Gateway

WISE-2410

LoRaWAN Wireless
Vibration Sensor

WISE-EdgeLink

WISE-EdgeLink

Lightweight Gateway Software
Supporting 200+ I/O Drivers

System Description

WISE-6610 is a LoRaWAN gateway which supports Modbus TCP protocol can connect to any SCADA system in the world.

WISE-2410 offers an easy way for rotating facility inspection application by following ISO-10816 standard. Moreover, WISE-2410 also supports 3-axis vibration detection and with IP66 rating, wide temperature design can conquer harsh environment where waste disposal systems located.

System Diagram

SCADA **ISO 10816** **Cloud Service**

Service

Modbus **MQTT**

WISE-6610
WISE-EdgeLink
LoRaWAN Gateway

3rd Party
LoRaWAN Gateway

Gateway

LoRaWAN

IP66 2 year 5 Km **WISE-2410** CSV ACK

WISE-2410
LoRaWAN Vibration Sensor

Sensor

Why Advantech?

Advantech LoRaWAN solution provides an easy, reliable and cost affective private network environment for different kinds of facility monitoring application in semiconductor industry.