



Establishing Traceable Data for Beverage Production

Introduction

Accurate weighing and counting is critical to ensuring product quality and safety during food and beverage manufacturing processes. The ability to implement real-time monitoring of raw material feeding and mixing, while establishing process data traceability, effects manufacturers' competitiveness in the food and beverage production market.

Due to the food and beverage industry's demanding hygiene requirements, converting facilities into intelligent plants is difficult. Advantech, a leading automation solutions expert, has successfully helped a world-renowned food and beverage manufacturer upgrade their weighing systems at a beverage plant in China.

Challenge

Formerly, the beverage company used manual labor to collect and confirm weighing data. Despite increasing their labor investment, this company was unable to dispel inefficiency and high-error-rate problems. Although digitalization would resolve some problems, the environmental conditions in their facilities, the special workflows of their production methods, and required regulatory compliances in hygiene and food safety, created challenges in implementing their goals. In the end, the beverage company chose Advantech, with whom they had previously cooperated on several automation projects, as their partner in establishing intelligent weighing systems.

Challenge

The beverage company used manual labor to collect and confirm weighing data. Despite increasing their labor investment, this company was unable to dispel inefficiency and high-error-rate problems.

Solution

Advantech proposed a solution that comprised a number of full IP9K/IP65 protection stainless steel panel PCs and tablet PCs for monitoring the weighing process involving ingredient feeding, mixing, and inspecting.

Benefit

Succeeded in reducing labor and management costs, which also helped the company encountered fewer data error and loss incidents.

Challenge

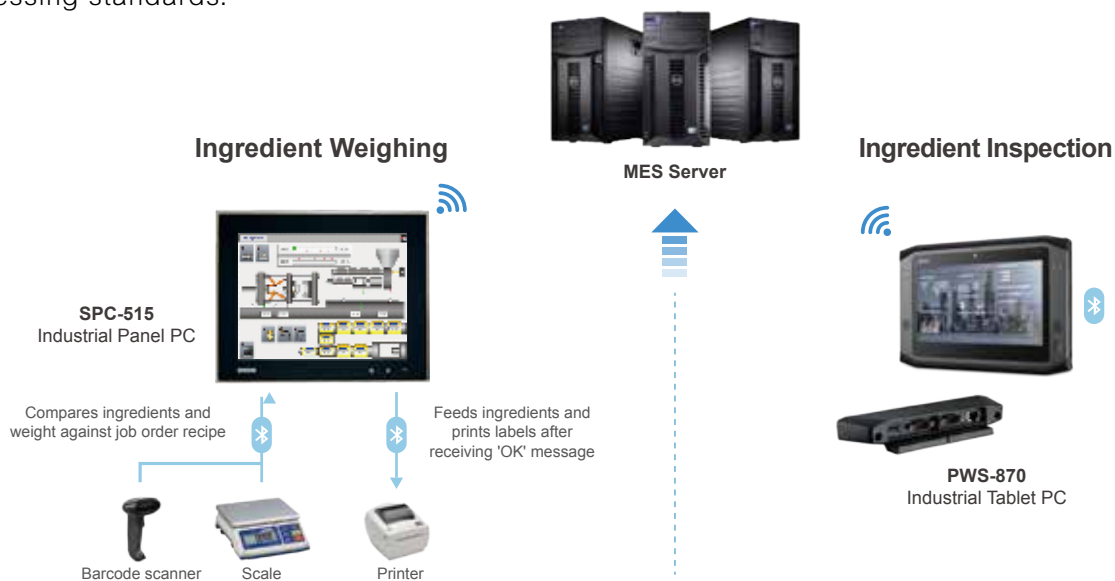
Advantech proposed a solution that comprised a number of panel computers for monitoring the weighing process involving ingredient feeding, mixing, and inspecting. These computers need to communicate with the corporate ERP system via WiFi. Similarly, these production line devices use Bluetooth to link up with field equipment such as scanners, bar code printers, and electronic scales. When a panel computer receives a job order from the ERP, it calculates and checks the weight and proportions of the prepared ingredients at each production stage. This helps fulfill each recipe as required by the job order. Materials will be fed into the production process and labels will be printed when the information is confirmed as accurate. Furthermore, data is shared between devices. During inspection, a worker scans an item's barcode the data will be promptly read and recorded to give insights into the production process and status.

Ingredient proportioning and mixing is often conducted in complex high-high humidity environments with particulate matter. Advantech's SPC-515 multi-touch panel PC was selected to provide Bluetooth, Ethernet and WiFi connectivity for the workstation peripherals (i.e., barcode scanner, scales, and printer). The SPC-515 features IP69K rating and enclosed in SUS 304L stainless steel housing that is resistant to oxidation, corrosion, and bacteria and allows easy cleaning and sterilization with harsh detergents. Moreover, the system features the optimized frame design encourages liquid roll-off and specially designed screws in accordance with EN 1672-2 food processing standards.



During material inspection, inspectors have to move to different locations to record and verify the statuses of equipment, production, and on-duty personnel. Advantech has equipped on-site inspectors with the PWS-870, a hand-held highly portable panel computer used to read barcodes. Unlike the SPC-515, which is used at fixed locations, the PWS-870 can be carried anywhere, increasing the likelihood of damage from accidents (falling, collisions, etc.). To address the issue, Advantech's drop-resistant design protects the device from drops up to a height of 1.2 m (4 ft) enabling reliable use at every stage of food and beverage manufacturing. In addition, PWS-870 features straps and handles to improve security and ease of use. Both SPC-515 and PWS-870 are encased in membranes designed to avoid dangerous contamination from broken screen glass in accidents and support glove control.

Advantech's manager for this project, Yin Tao-tao, said proudly, "We are committed to meeting the needs of our customers". He continued, "From initial project planning, to final field deployment, our staff was fully involved—helping our customer test functions while adjusting our products to meet situational demands...until the project was fully implemented." He concluded "In the era of digital transformation, providing comprehensive and dependable services as well as quality products to customers, is our promise, mission, and responsibility."





Benefit

Using Advantech's intelligent weighing systems, this beverage manufacturer succeeded in reducing labor and management costs. Furthermore, by reducing their reliance on human labor, the company encountered fewer data error and loss incidents. Likewise, they also managed to address ongoing issues of quality inconsistency and process problem tracing.

Advantech's intelligent weighing solution and platform has performed well at the pilot plant for three years. Because of this, the

customer is successfully deploying similar systems in their other facilities. One such example is their Hu-kou Plant in Hsinchu County, Taiwan, where this system was recently duplicated. Advantech's partnership with this beverage manufacturer accelerates the pace of digitalization and intelligent manufacturing in the food and beverage industry.