

## **Minimizing Errors**

### **The Problem:**

Advantage Marketing Systems, a supplier of health and dietary supplements, was seeing their volume of orders increase substantially each year. They had a manual picking and order consolidation process at their facility in Oklahoma City, OK. Their manual process often induced errors in their orders, particularly missed items and wrong quantities of items. An inordinate amount of time and labor was being spent on order verification and reconciliation. Order volume dictated that a new warehouse facility was required. It needed to meet demand and provide a more "automated" picking and verification process to streamline their operations and minimize order errors.

### **The Solution:**

Cisco-Eagle teamed with Insight Automation to provide an automated material handling solution for Advantage Marketing's new warehouse. The analysis of their order errors revealed that if each picked order's weight was compared with its anticipated expected weight; the system could automatically identify a significant number of order errors. An automated material handling system was devised which conveyed captive totes of orders going from picking flow racks to an automated weight check station, then on to order consolidation, and finally the packing stations. The design called for the weigh check station to be equipped with a diverting mechanism that could automatically direct a "failed" tote to an exception lane for disposition. Advantage Marketing would generate picking paperwork that would instruct pickers as to the contents to place in a given tote along with a total expected weight value encoded into a barcode. Each tote used for the picking operation would include a fixed barcode label for automatic identification at the weight check station.

As orders were picked, operators were to first scan the tote barcode and then the expected weight barcode into the Control System prior to picking the items, placing them in the tote, and finally placing the tote on the take-away conveyor. As the tote barcode ID's were automatically read at the weight station, the Controls System could remember the expected weight associated with a given tote ID and compare the expected weight with the actual weight and direct the material handling system accordingly.

Insight Automation provided a combination PLC and PC based control system complete with Sortation Management Controller (SMC) custom software. The SMC control system accommodated scanning at the picking operation, receiving weight and tote data from the weight check equipment, and directing tote movement on the conveyor system. Multiple cordless hand-held units with a single "base" station controller connected to the SMC's PC were selected as the picking operator's scanning hardware. Cordless hand held units were selected for ease of operation, mobility, and programmable text display. The cordless units also provided the ability to easily add additional units for future expansion with minimal modification of the control system.

The SMC application featured easy 2-way communication via LCD display with each hand-held unit for instructions and communications with pickers. The SMC application also received and processed real time tote ID and weight data from the in line scale sub-

system as totes were conveyed through the unit. The SMC checked a database on each tote ID received and compared its expected weight value to the actual value (less the tote's empty tare weight) and calculated the acceptable deviation based upon a set allowable percentage. The SMC would then, based upon the calculation, direct the conveyor to either divert the tote to the exception lane or let it pass on thru to the packing station area. The allowable percentage value was operator selectable on the SMC's PC screen. The SMC application also provided an event log viewer screen that contained a scrollable chronological listing all transactions with the hand held scanner system, the weight check station, and the conveyor PLC controls.

As an added feature, Advantage Marketing was now able to automatically collect and retain the tare weight of each empty tote for use in the normal operation's weight comparison calculations. Automatically associating an empty tare weight with a tote ID allowed Advantage Marketing to use multiple tote sizes without compromising the accuracy of the weighing operation.

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