

VOICE TECHNOLOGY

in the

Distribution Center:

A BETTER WAY TO ACHIEVE ACCURACY

PART 2

by Allan Kohl

THIS IS THE SECOND ARTICLE IN A THREE-PART SERIES ON VOICE TECHNOLOGY IN THE DISTRIBUTION CENTER BY ALLAN KOHL, PRESIDENT AND CEO OF KOM INTERNATIONAL IN MONTREAL, CANADA.

In many North American distribution centers, it's not uncommon to have 30 to 50%, or higher, of the labor force speaking a language other than English. This can lead to many difficulties training new associates who may be forced to deal with English language instructions or paperwork. Voice technology offers some benefit in these situations by enabling operators to interface with the computer in their own language.

The primary advantage of voice recognition technology, however, is that it leaves a worker's hands free to perform the intended jobs of driving a pallet jack and selecting orders. In fact, in many applications, voice technology eliminates paper from the warehouse. Workers don't carry around a lot of paper or make mistakes by reading the wrong thing.

The systems are simple. The radio device is usually worn on a belt. In addition, the worker wears a headset with earphones and a microphone. For hygienic reasons, headsets are usually dedicated to individual workers. These two components provide a radio link to the warehouse management system (WMS).

Once selection orders have been loaded into the system, a voice prompts the order selector to go to a specific warehouse location. Upon arrival, the selector verifies the location by reading back a random series of check digits posted at the selection slot. After location verification, the system issues instructions to pick a given number of cartons. When the selection is complete, the worker says "ready" into the microphone or "pick zero" if the instruction was not understood completely. Those two statements can be customized by the user to make the system even easier for workers to use.

With voice systems, workers don't have to read or fumble with paper. They don't have to press keys on a transmitter console. Hands are free; eyes are free, so the worker focuses entirely on the picking activity. This ease of use is particularly important in hostile environments such as a freezer.

TWO SPEECH SYSTEMS

Voice systems can be speaker-dependent or speaker-independent. The two possibilities have important differences. With a speaker-dependent system, each worker develops a specific voice template before beginning to use the system. This template resides

permanently in the computer so that the system will always recognize the worker's voice and speech patterns. Speaker-dependent systems are usually preferred in environments where worker accuracy is vital.

Speaker-independent systems are much like other automated voice systems such as directory assistance on the telephone. With a speaker-independent system, workers must be trained to understand the system rather than the system understanding the workers as in a speaker-dependent system. A speaker-independent system limits the number of words that a worker can use to communicate with the computer. The main disadvantage of a speaker-independent system is that more time is required to use it.

SYNTHETIC SPEECH SYSTEMS

Voice-directed order selection uses synthetic speech, which can be produced in two ways. Some systems use text-to-speech technology, which results in a computer voice speaking to the worker. The other technology is digitized speech that uses a human voice to communicate with the worker. This works best in applications that utilize a limited vocabulary.

PREVENTING WORKER MISTAKES

While the technology is great, workers can still make mistakes. The system may tell a worker to pull five cases, and the selector may actually take only four cases. Workers sometimes also pull product from the wrong slot. This happens most often when the selector has the verification digits memorized or reads them into the system before actually arriving at the selection slot. To keep this from happening, some warehouse operators make the verification digits hard to see from a distance. For instance, the slot identification may be on the front of the rack and the check digits may be posted somewhere back in the rack.

Two factors have a big impact on order selector productivity. The first is the slot location. If the product is easy to reach, productivity goes up. If the selector has to reach up to the picking slot, it takes more time. Reducing travel time between picking slots helps as well. The second factor involves the verification digits. The sequence should be no longer than three digits; two check digits are ideal for best productivity. ■

IN PART THREE OF OUR THREE-PART SERIES, WE WILL DISCUSS THE TYPES AND FUNCTIONS MOST SUITED TO VOICE TECHNOLOGY.



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