RFID JOURNAL
THE WORLD'S RFID AUTHORITY

Honda Italia Shifts Its RFID Deployment Into Second Gear

Topics/Verticals: Operations, Innovation, Asset Tracking, Manufacturing, More...

The company is now using active ultrawide-band tags to track motorcycle production and parts inventory, ensuring that the proper components are installed, as well as automating orders for parts.

By Rhea Wessel

Jan. 26, 2009—Honda Italia is employing a combination of active and passive RFID to track components of the motorbikes it produces in what may be one of Italy's first active ultrawide-band (UWB) RFID applications since the country's government amended a law in early 2008 to allow for use of the technology. Italy had previously blocked the use of UWB RFID on the grounds that it could interfere with frequencies utilized by the Italian military.

The RFID application is an extension of a pilot Honda Italia implemented in mid-2007 (see RFID Revs Up Honda Italia's Motorcycle Production). During that pilot, the company affixed passive 13.56 MHz high-frequency (HF) tags to the motorcycles' chassis and certain components, in order to track the assembly process.

Angelo Coletta

Angelo Coletta, Honda Italia's project manager, says the company was happy with the system designed for the first pilot, which it dubbed Ariana. However, workers were bothered by the antennas that had been installed close to the production line to enable interrogation of the passive HF tags, which have a short read range. In addition, he says, since employees had to confirm that tags were successfully interrogated during the production steps, the RFID application essentially added an additional step to the existing work process.

To eliminate this extra step, and to move antennas farther from the production line, Honda Italia switched to active tags in April 2008, launching a project it calls New Ariana, with IBM serving as systems integrator. The vehicle manufacturer now temporarily installs a UWB active tag made by Ubisense to each motorbike's chassis. Thirteen ultrawide-band RFID readers form a tag-reading zone around the production line.

"We found that active tags were more operator-friendly," Coletta explains.

The system enables Honda Italia to assure that the proper parts are built onto the right motorcycle frames. For instance, the company must make sure bikes shipped to the United Kingdom have the correct headlight design for that nation, where vehicles drive on the left side of the road instead of the right, as they do in the United States and continental Europe. Honda Italia can also utilize the RFID system to trace the production of individual motorcycles. Such historical production information is essential if a bike needs to be recalled for safety repairs.

Honda Italia Shifts Its RFID Deployment Into Second Gear

Containers of components are now fitted with both passive HF tags that support the ISO 15693 standard and offer 1,024 bits of memory, and active UWB tags. The active tags allow operators to easily locate a particular container within the production zone, while the passive tags are used to hold such critical information as the supplier code, part number, lot number and date of production. By tagging containers, Honda Italia can ensure that parts are not mixed up, and that the proper components are installed on the appropriate frames.

In the first step of the production process, workers attach an active RFID tag to the chassis of each motorcycle to be produced, then use a handheld interrogator to save that bike's VIN number onto the tag's memory. The tag transmits its signal every second to the 13 antennas surrounding the 80-meter-long (262-foot-long) production line, which has 38 individual stations at which different production steps are performed.

"From this point on," Coletta says, "we know exactly where the frame is on the production line."

Honda Italia has production lots, or production runs, of 60 units (60 motorbikes, for instance), so it decided to place passive and active tags on only the first and last containers of large parts for each lot (that is, container number 1, which holds a headlight, and container number 60, which holds the last headlight for that lot). All individual containers holding smaller parts, such as 60 cables, are fitted with both a passive and an active tag. These containers are tagged at Honda Italia's warehouse, located in the same industrial area in the city of Atessa as the production facility. Passive tags are linked to active tags in the database. After tagging, the containers are moved to the production facility as required.

When production begins on a new lot, a worker takes one of that lot's tagged containers of components and moves it to the production zone, where the active tag is read automatically. The passive tags are not interrogated in the production zone—they are simply used to store additional information and link that data to the active tags via the database. The company tags containers with active tags so that constant reads help continually confirm that the correct components are being assembled on the proper vehicle. If a worker attempts to bring the wrong active-tagged container to the production line (for instance, the incorrect part for a bike under construction), an alarm will trigger.

As a motorcycle's chassis moves through each production position, employees add components. If shifts change, Coletta says, or if managers suddenly opt to alter production to a different model, the system makes it easier and faster to hand the work over, or to switch production, since managers always know the whereabouts and status of each bike in production. "If we have to produce a different model all of a sudden, we already know which parts are in the production area," he explains. "We only have to go get the missing parts."

The system is set up to automatically calculate the time required to finish a production run, based on the times the active tags on the bikes were interrogated. Before Honda began employing RFID, managers had to call down to the production line to obtain an estimate of when a particular run would be finished, or else manually determine an estimate by hand.

Honda Italia Shifts Its RFID Deployment Into Second Gear

At the end of the line, active tags are removed from the bike for reuse, and production information is stored. With the data collected from the active and passive tags, Honda Italia documents which individual motorcycle frames were built with which part lots.

"A customer can find out when his motorcycle was built," Coletta states, "and which parts were used to build it." The system also gives Honda Italia the ability to automate orders for parts, he adds, since it calculates the estimated time at which production runs will be completed.

Before the first Ariana project, Honda Italia utilized bar-coded labels to manually identify chassis. The company scanned the labels, then wrote down production information by hand.

Honda Italia uses and reuses approximately 3,000 passive and 300 active tags per year. It has tagged most containers with low-cost passive tags, but purchased only enough higher-priced active tags for daily production. As such, active tags are reused quickly after moving through the production line, and are removed from containers and bike frames.

Related Articles

Texas Instruments Reorganizes RFID Business
Utah Researcher Believes RFID Is the Key to Safe Driving
Yacht Owners Take Comfort in TenderTag
RFID Journal LIVE! Canada 2007 Report