ALIEN RFID GOES THE
DISTANCE FOR RACETIMER

Racetimer

Company: Racetimer, Sweden *www.racetimer.se*

Application: Timing system for athletic events

Area of Use: Finish line and checkpoints at races held throughout Europe

Status: Production

Tag and Reader Supplier: Alien Technology

Frequency: 866 MHz

Range: 20 meters

Challenge
- Accurately time individual athletes competing in sporting events, including marathons and bike races
- Older timing systems, using bar codes or low-frequency (LF) RFID tags, are costly

Solution
- Racetimer uses ultra high-frequency (UHF), dispos-able RFID tags, which pro-vide several magnitudes higher read speeds
- Racetimer's system handles high densities of runners and provides instant results
- Toolset includes:
  - Alien ALR-8800 series readers
  - Disposable UHF passive, EPC-compliant, Gen 2 Alien Squiggle® tag

Benefits
- RFID system provides accu-rate reads up to 20 meters, allowing administrators to identify runners in seconds
- Racetimer saves 20 per-cent on costs per event and 5 hours per event in manpower (compared to bar code or LF RFID)

The accuracy and reliability of the timing system used in competitive sporting events such as marathons and bike races can make or break an event. Each athlete has to be assigned—and wear—a unique and unobtrusive identifier tag that tracks their progress and doesn't in any way hinder their race results. The timing system has to handle high densities of runners that may cross the finish line only split seconds apart and produce instant results. And event organizers expect a sys-tem that is cost-effective and failsafe.

CHALLENGE

For more than a decade, event timing systems used LF RFID or bar code solutions to time competitive athletes. Those technologies were commonplace among the early generation of timing systems avail-able for event organizers.

With these older systems, each registered athlete in an event would be assigned a unique identifica-tion (ID) tag number. The unique ID primarily consisted of bar code labels or LF RFID tags attached to the laces of runners' shoes. In con-junction with the tags, costly and cumbersome mats were sometimes required. Race organizers would have to transport these mats to each event and spread them on the ground to track runners on the course. The mats incorporated an integrat-ed radio frequency antenna to track an athlete's time at designated checkpoints.

At the finish line, each runner would line up to be scanned, so the system could accurately record their official time.

Racetimer of Sweden, founded in 2004, set out to improve those systems by developing timing systems for large running events held throughout Europe. The founders were very aware of the flaws in the early timing systems.

"In the beginning, we found many problems with the technology used in race timing systems," explains Joakim Lagergren, cofounder of Racetimer. "Runners would have to stand in line at the finish and wait to cross the scanner to get their time." Needless to say, that solution was quite unpopular with the athletes.
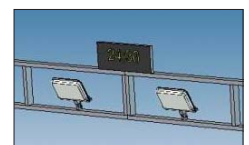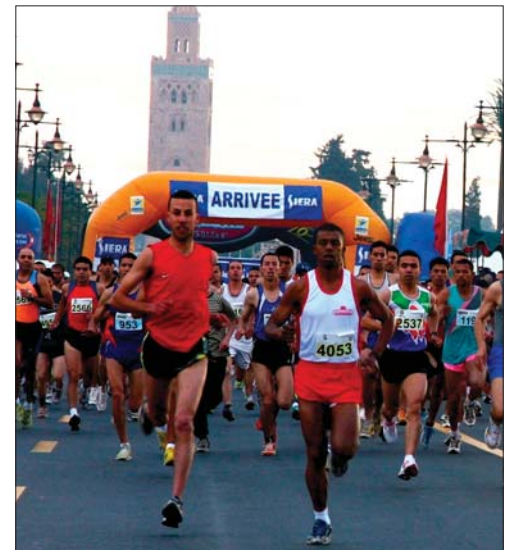
The existing timing solutions were also costly. The LF RFID tags had to be distributed to each individual athlete prior to the event and collected immediately after the race, before the athletes forgot about them or accidentally discarded them.

"Event organizers usually have low budgets," says Lagergren. Racetimer had to find a solution that used accurate, reliable technology. And it had to be available at a price point—including the cost of thousands of tags—that race organizers were willing to pay.

SOLUTION

Racetimer started looking beyond bar code and LF solutions to find a way to improve event timing systems. The company decided after ample testing that the UHF RFID products available from Alien Technology were the right solution.

Racetimer configured a timing event system using Alien ALR-8800 series readers and disposable UHF passive, EPC-compliant, Gen 2 Alien Squiggle® tags. "We tried the Alien RFID system with a local running club," explains Lagergren. Racetimer continually tested and tweaked the configuration for about two years, constantly improving it.

The company decided the best place for the disposable UHF RFID tag was in the runner's numbered bib vs. the shoelaces, which is where the old LF tags had to be placed. Racetimer embeds the RFID tag in the runner's race bib, in a small flap that sits a few millimeters off the body (to avoid interference to the signal from the water contained in a runner's body). The tag/bib combo makes preparation easier for the runners, as they don't have to don two separate items: the bib and the timing device.

RESULTS

With Alien's highly consistent and reliable UHF readers and antennas, runners no longer have to stand in line at the finish to get their unique ID tag scanned. Race organizers benefit from RFID accuracy, as they can get reads up to 20 meters (approx. 60 feet) and identify runners at each checkpoint and at the finish line. This solution saves several minutes per runner over the older bar code or LF RFID systems.

The Racetimer RFID system can handle high densities of runners—an absolute requirement when tracking individual start times. The Racetimer system includes a link to a database that stores each runner's unique ID, so organizers can identify runners within seconds of crossing the finish line.

Race organizers also benefit from Alien's disposable tags. Collecting the tags after completion of a race is a time-consuming distraction for race organizers. "Alien Squiggle tags are low-cost and disposable, which allows the race organizer to give away the race tag as a keepsake to runners," explains Stephen Crocker, Director Sales Channels EMEA/India for Alien Technology.

With the Alien solution, race officials can use fewer staff and volunteers at each race. "Race organizers save time and money with the Alien RFID system," says Lagergren. "They used to pay a fee for tags that they didn't get back, and they had to hire more staff to collect all the tags. Disposable tags offer a big savings."

BENEFITS AND NEXT STEPS

Racetimer is one of the fastest growing companies in Scandinavia and currently under contract for numerous sporting events, including a major cycling event, BMX race, cross-country, triathlons and horse races. Using Alien's UHF reader and tag solutions has made Racetimer's operation significantly more efficient—saving 20 percent on costs per event and up to 5 hours per event in manpower and resources, as compared to LF RFID.

Racetimer will use Alien readers and tags at 30 to 40 races each year, timing more than 250,000 runners. Racetimer provides the timing system for the well-known "Blodomloppet" race, the second largest cross-country race in Scandinavia.

Racetimer also plans to get a timing system ready for others to use, rolling it out on a small scale in 2008. "If all goes well, we hope to get systems out to cover major parts of Europe within the next few years," Lagergren adds.

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Joakim Lagergren, cofounder of Racetimer

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