

Case Study Fortress GB

Access reader enables Fortress GB to create ticketless event entry system

Background

Fortress GB specialises in providing secure, efficient IT systems for customer transactions at sports and entertainment venues and in education, retail and aviation markets. Applications range from ticketing, access, payment, loyalty schemes and running promotional campaigns. The company has implemented systems in over 50 stadia in eight countries. Fortress GB's high-profile customers include Wembley Stadium, Stade de France in Paris, and Arsenal's new home, the Emirates Stadium. Fortress GB's sales pitch is simple: "If you want a single IT platform for lots of services, we can supply it."



The Stade de France, one Fortress GB application (photo courtesy Wikimedia Commons).



An example of a bar coded sports event ticket

The Challenge

With respect to ticketing, the company's business development manager, Richard Pillick, puts the challenge of providing fast and secure entry to events into perspective: "Conventional visual inspection of tickets is no longer fast enough or reliable enough as a means of entry to sports or other events. It's also insecure and open to fraud. At a major event, the organisers have to process perhaps 1500 people every minute so this must be supported by an IT system. Organisers need to get people into the event quickly and reliably, both to improve the visitor experience and to ensure security and safety. System failure would cause chaos at some of these

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events – it’s just not an option. The financial consequences of system failure don’t bear thinking about either.”

As in most IT systems, the greatest risk of error is at the point of data entry. When that point of entry is under pressure from tens of thousands of excited fans, the potential for problems multiplies. Of course, this is no benign environment either, equipment used at entry terminals has to work equally well in snow, rain or sunshine – it needs to be robust.

Ticketing data is now most commonly presented in one of two forms - a membership card or as a ticket with a barcode printed on it. The majority of tickets are delivered to customers by post but there is a growing trend for them to be ordered online and printed at home, either directly from a PC or from downloaded PDF documents, something that is already commonplace with airline tickets. Consequently, the quality of printed bar codes presented at turnstiles is becoming

increasingly variable. What’s more, the home-printed tickets are typically presented on A4 paper, requiring a barcode reader that can accept a large document and that has an omni-directional imager to allow for the bar code being printed anywhere on the sheet. Club members at sports stadia will normally have RFID cards that they use to gain access to the grounds, rather than tickets.

The Solution

To avoid turnstile staff having to manage separate equipment for RFID cards and bar coded tickets, Fortress GB designs its own entry terminals that will read either technology. From the user perspective, it’s a single reader. Richard Pillick explains how components for the reader are selected: “We go to the market and find the fastest, most accurate technology that will work in the toughest conditions.”

When designing their latest reader, the company selected a 2D barcode reader from



The 2D bar code reading kit from Access and the finished product manufactured by Fortress GB, the combined bar coded and RFID ticket reader.

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Access IS, the LSR120-OEM, which was then integrated with an RFID module from another vendor into a custom-designed, weatherproof, aluminium housing. The base of the housing was made from tough plastic to allow RF signals to pass through it for the RFID functionality. The bar code unit was originally designed for +5V operation but Access modified the hardware to allow it to run from +12V, enabling a single external power supply to power both the bar code and RFID reader in the combined device. Using their 2D bar code imager experience, Access also worked closely with Fortress GB during product development to optimise the process for assembling the final unit.

The LSR120-OEM reads both linear and 2D barcodes in under a second. As it's an omnidirectional reader, the device satisfies the need to read a bar code printed anywhere on an A4 sheet of paper, in whichever orientation it's presented to the reader. Successful data capture is confirmed visually through a bright green indicator and aurally from a sounder. Most importantly, the reader uses rugged construction with no moving parts and has an expected operational life of around 10 years.

Bar codes are read face-up with the Access solution which is much faster and more intuitive to operate than the flat-bed alternative, where the user is unable to position the bar code on the reading window with any accuracy.

A further benefit of the LSR120-OEM is its ability to read barcodes from mobile phones and personal digital organizers (PDAs). These are not yet in common use at stadia, but should they become more popular, the Access product means that Fortress GB's system is future-proof and will not need to be re-designed to accommodate the technology.

The Outcome

In working with Fortress GB, Access demonstrated its ability to re-engineer standard products very rapidly. The company's in-house expertise in mechanical design, and hardware and software engineering provides not only optimised products but also the confidence that these products can be supported well throughout their operational life.

Richard Pillick confirms the successful integration the Access barcode reader into Fortress GB's systems with one simple statement: "The barcode readers are fast, reliable and rugged, and not one has ever failed during an event."



Access readers are optimised to also read bar codes from the screens of mobile phones, future-proofing Fortress GB designs

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