FEATURE By Gary Watkins

Invisible link

RFID technology is transforming operations such as stock-keeping and logistics. But these same small-but-effective devices are also helping to make our facilities more intelligent

What do newborn babies, laptops and Marks and Spencer suits have in common? Answer: they are all being individually tagged by radio-frequency identification (RFID). It has been used to protect stock in our high-street stores for several years now, but these have always been relatively simple devices. It was when tags could be programmed with individual numbers and each tag positively identified that the possibilities really started to open up.

It meant, for instance, that we could move on from magnetic-stripe access control swipe cards to using hands-free tags where readers identify us from up to a metre away. It makes authorised access to the building and within the building quick and convenient. Visitors can be issued with RFID tags too, limiting them to specific areas and a specific time. And there's a health and safety implication here as well; when the building is evacuated the FM has immediate online access to data showing who is still in the building, and where. Vehicle security is another add-on; if we install readers at the car park, we can ensure that only authorised people enter, and vehicles can only exit by presenting the owner's access tag.

Hospitals can derive extra benefits from RFID too; many maternity units now put tags on newborns, linking these to the mother's access tag, so an alarm is raised and doors locked, should an abductor try to take a baby. The same concept protects laptops, so system administrators can see when a tagged laptop is being taken out of the workplace, and whether the person carrying it has the correct authorisation.

Obviously, security continues to top the RFID agenda, with asset tracking a prime example. Until recently, most assets would have been labelled with a barcode, but these have two drawbacks. A barcode reader only reads a number; today's generation of RFID tags can contain up to several kilobytes of data, and also have data written to them in situ. In addition, only one barcode can be read at a time, whereas an RFID reader can detect and read multiple tags in an area.

FM QUICK FACTS

- Active tags have an on-board battery. Passive tags have no battery, a shorter range, and are cheaper
- Access control and asset tracking use low-frequency RFID. For reading up to 1.5 m, high frequency is used. Ultra high frequency offers long-read ranges and high reading speeds
- RFID will now fall under a new standard called the Application Levels Event standard or ALE

Born to be WiFi'd: maternity wards use RFID to protect against abductors

Asset tracking

You can have a simple application where, say, valuable books in a specialist library are tagged. There is no restriction on people's access, but the organisation can identify who has each item and when they were returned. Or, an art gallery could trace paintings that are in storage but which have been moved a number of times. Traditionally, this would either mean trawling through records (which may not be up-to-date) or physically searching for the painting. If all the art works are tagged with readers continuously emitting signals within a wireless network, the system will always know where each item is on site. And of course a potential advantage of asset tagging could be a reduction in insurance premiums.

Plant and machinery

The benefits of RFID tagging extend to machinery and plant. Health and safety information can be stored on a tag so potential risks are highlighted, such as the need for certification when staff want to operate fork-lift trucks, or height restrictions when they use cherry pickers. Or take the plant room… The Holy Grail for identifying whether or not an engineer had been on site and maintained a piece of equipment, was always to check whether the barcode behind the unit's faceplate had been read. Here, data such as historic maintenance and performance information or meter readings would have been held on a written log, or more recently received on the engineer's PDA as he toured the building. Paper documents get lost or damaged, and PDAs sometimes can't receive signals in plant rooms, basements and other equipment-heavy areas. If the unit bears an RFID tag, historic maintenance and performance information can easily be stored on its read/write chip, read by the engineer, and updated at each visit.

Unrealised benefits

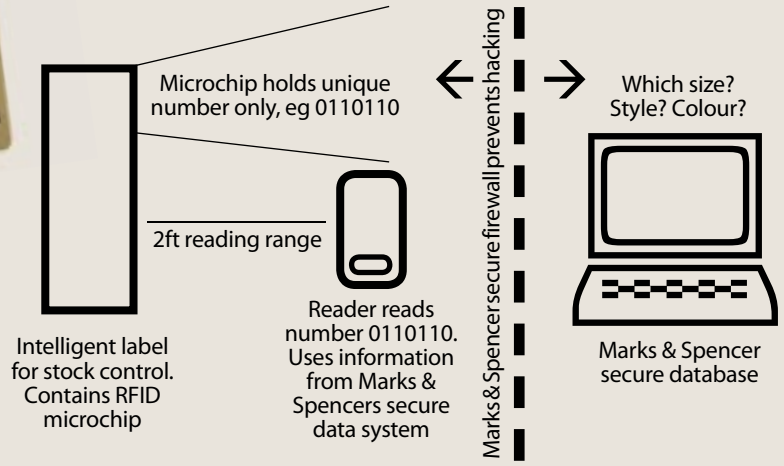
So convenient and full of potential is this technology that we can expect to see significant expansion. But as with many new developments it takes time. For instance, using PDAs and portable RFID readers to read tags has until recently been a problem because there have been so many different models. Now thanks to standardisation and miniaturisation you can use a standard off-the-shelf PDA with a reader plugged in. There is also often an assumption that RFID tagging is more expensive than bar coding, but as time goes by the cost is falling, so FMs shouldn't assume they won't be able to afford a system. Another misconception is the range that readers can achieve. The proximity tags for door access on many sites only give a reading range of 30 cm range but, depending on the system, today's tags can be read at 100 metres or more.

IMAGES: GETTY

TOP TIPS

- If you're using active tags that contain batteries, you need to set up a schedule within the maintenance regime to check that the batteries are still viable.
- Make sure you comply with the Data Protection Act. If you have personal information stored on tags it could potentially be read by anyone with a scanner. The answer is to store the information on the server and simply have an ID number on the tag, or to encrypt the data.
- There is also a potential cross-border issue around the frequencies that tags use. Tags that come from different countries commonly operate within different frequency ranges – and if you take tagged equipment overseas you may need a licence to use a particular range.

THE INTELLIGENT LABEL AT M&S



> "There is an assumption that RFID tagging is more expensive but as time goes by the cost is falling."

The future

It's clear that, in time, RFID technology will help to make our buildings more intelligent. Just as Amazon recognises us when we log on and recommends books that we may like, so buildings are going to be able to tailor services to people visiting particular areas. For instance, RFID tags can potentially be linked into signage and meeting room management. If your visitors are issued with RFID tags, as they walk through the building to find a meeting, the signage will detect them and give them directions. Once the meeting starts, the heating and ventilation levels could even adjust automatically. The future for RFID is golden. Marks and Spencer is introducing tagging for better stock accuracy, and we're going to see many more applications in retail and logistics. But the FM is going to benefit too. This technology could enable you to detect needs and preferences in any area of building management, so watch this space. FM

Gary Watkins is managing director of Service Works Global