

REDBITE SOLUTIONS LTD
KEY DATA: FACT FILE

Technology
RFID trace and track software

Established
2006

Type
University spinout

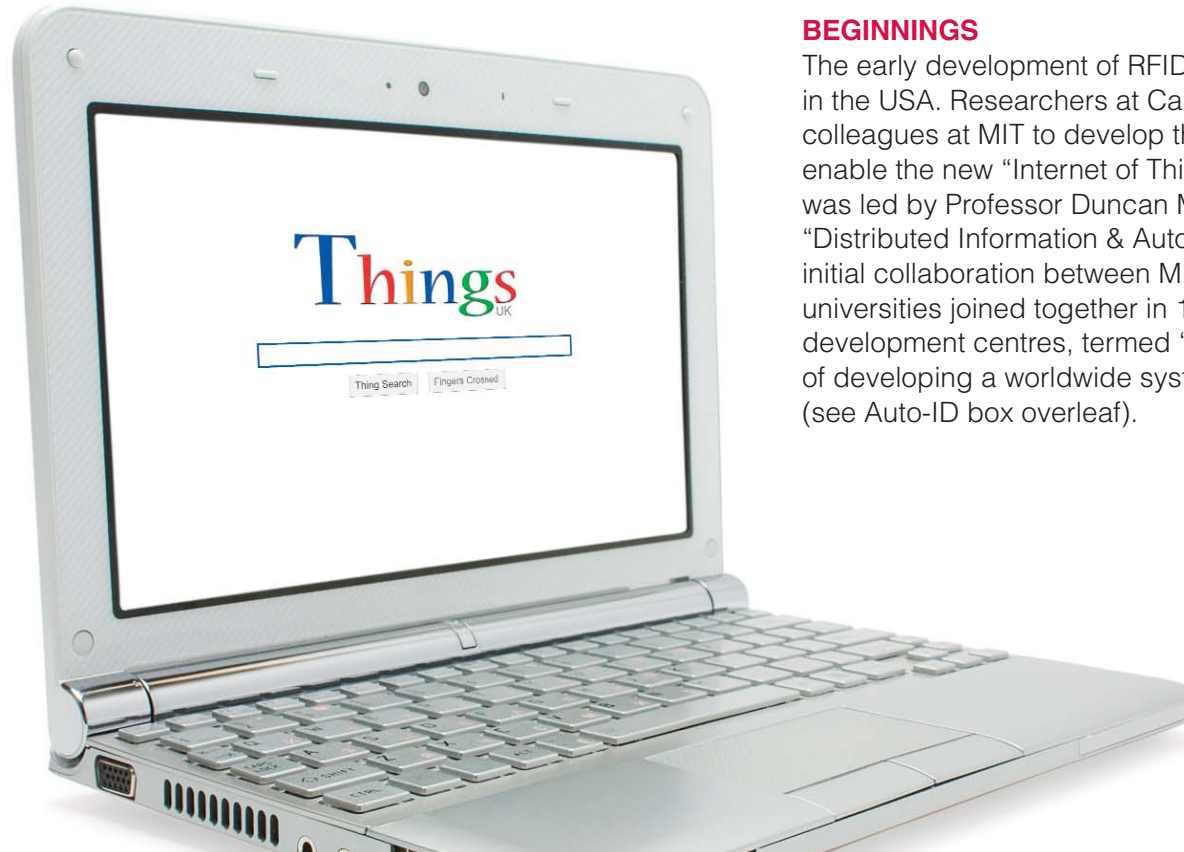
Location
Cambridge

Employees
7

Funding
Corporate investor

CEO
Dr Alex C Y Wong
While a PhD at Cambridge, he was one of the contributors to the RFID standardisation activities through the Cambridge Auto-ID Centre. After his PhD, he continued to work in the Auto-ID Centre as a researcher, before leading the spin out of RedBite Solutions from the University in 2006.

The term “Internet of Things” was first coined in 1999 by Kevin Ashton of Procter & Gamble as the next generation Auto-ID technology to revolutionise the future of logistics. He was discussing in particular how to enhance track and trace products within retail supply chains and fundamentally change the supply chain business itself. RedBite, a spinout from the University of Cambridge, was established to build on the conceptual underpinnings established in the University, and make it commercial.



BEGINNINGS

The early development of RFID standardisation initiated from MIT in the USA. Researchers at Cambridge University worked with colleagues at MIT to develop the architecture which would enable the new “Internet of Things”. In Cambridge, the work was led by Professor Duncan McFarlane, head of what is now the “Distributed Information & Automation Laboratory”. From the initial collaboration between MIT and Cambridge a group of universities joined together in 1999 to establish a network of development centres, termed “Auto ID-Centers” for the purpose of developing a worldwide system built on common standards (see Auto-ID box overleaf).



AUTO-ID CENTER

Cambridge Auto-ID Lab is one of seven labs world wide involved in the area of Automated Identification of objects in the supply chain. The initial Auto ID Center project ran from 1999-2003. Partnerships were formed between almost 100 global companies and Auto-ID Centers based at: the Massachusetts Institute of Technology in the US, the University of Cambridge in the UK, the University of Adelaide in Australia, Keio University in Japan, the University of St. Gallen in Switzerland, Fudan University in China, and KAIST (formerly ICU) in Korea. Since 2003, the work has been carried on principally as part of the “GS1 EPCglobal community”. The goal is to put in place the building blocks for an “Internet of Things” which will allow computers to identify any object anywhere in the world and gather and exchange information related to that specific object.



THE BOTTOM UP APPROACH

RedBite advocates a bottom-up approach where organisations deploy a simple, standalone RFID application as the first step towards a fully integrated solution. Once the business case for the application has been proven, the appropriate links back into the ERP system can be established. RedBite’s application platform is designed to allow networked deployment across the supply chain and to reduce the need for ERP integration along the chain.

This is the opposite from the top-down approach where existing ERP system are extended to cope with the real-time, heavy processing required of an RFID application. ERP systems are typically document-centric so do not extend well to serialised object tracking, consequently many implementation failures result. RedBite by contrast have designed their application from the ground-up which makes integration into ERP systems if required seamless.

The early work on RFID generated tremendous interest, resulting in many high profile announcements, and the inevitable new technology hype. However, although there were successes in RFID implementations, there were also failures. The failures were compounded by the high cost of implementing an RFID project due to the level of customisation required to the software and hardware in order to deploy a bespoke RFID solution. There was also no common link to the backend ERP system. This deterred many smaller companies in particular from participating.

THE START

RedBite Solutions was established to resolve these challenges by embedding device and process intelligence for RFID (and other tracking technologies) into their core software engine. Dr Alex Wong, the CEO of RedBite Solutions, explains that this approach simplifies software deployment whilst at the same time providing a powerful software application engine for a standalone application or one that integrates back to the ERP system.

Together with RedBite’s co-founder, Professor Duncan McFarlane, who is still leading research at the Cambridge Auto-ID Centre, the RedBite team have developed a web-based, track and trace application platform. Applications can be deployed in an enterprise server within an organisation network or as software-as-a-service in the cloud.

RADIO FREQUENCY IDENTIFICATION (RFID)

RFID covers any method of identifying unique items using radio waves. The advantage of RFID is that it allows for simultaneous tag identifications with no line-of-sight requirement and therefore can be much more automated than a barcode system. Each RFID tag or “smart label” contains a unique serial number that is transmitted to the RFID reader through radio waves. The passive RFID tag derives its energy completely from the RFID reader – therefore, it is cheaper and lasts much longer than the battery-powered tags. The serial number encoded within the tag can be based on the Electronic Product Code (EPC) which is a global tag identification and data standard recommended by EPCglobal – a GS1 organisation dedicated to the design and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains globally.

RedBite’s first customer, Sony Europe, was a partner in an EU programme, called “Building Radio Frequency IDentification for the Global Environment (BRIDGE)”. The project involved one of Sony’s factories in Barcelona, its distribution centre in Tilburg, a Sony retail store in Berlin, linked through to a network of authorised repair centres. RedBite developed the software that could track Sony’s tagged products from manufacturing on to the end of the supply chain, automating inbound and outbound processes and removing the need for manual paperwork.

SOLUTIONS PLATFORM

Besides Sony Europe, RedBite has worked with numerous other industrial organisations to develop and fine-tune its software applications. As a result, RedBite now has a robust appliance server platform (called “RedBox”), which not only manages, filters and reports track and trace information, but provides a powerful inventory application that could be configured to track a variety of objects.

On top of this platform, RedBite has built a number of tailored solutions. Its flagship product, *RedStore*, is designed to manage spare parts in manufacturing facilities. RedBite has also developed an asset management software, called *RedAsset Lite* to manage high value and critical assets. Other products include *RedLog* for logistics management and *RedWarehouse* for warehouse management with RFID-enabled forklifts.





IP AND PATENTS

RedBite has been granted a significant number of patents worldwide. They are in the areas of secure, networked RFID deployment, and methods in deducing and enhancing RFID processes and performance. Their best protection however, Wong says, is feeding insights from the field to make continuous improvements to the software. Wong adds that they have been moving beyond RFID to become an applications software provider, which is able to integrate RFID into barcode as well as other sensor networks.

ASIAN STRATEGY

Redbite's team is proud of its Cambridge roots, and walking in the footsteps of such giants as Clerk Maxwell who discovered the principles of electro-magnetism, the basis on which RFID operates. It also benefits from working inside one of the most innovative wireless clusters in the world.

However, as an increasing proportion of goods are now manufactured in Asia, Redbite sees its business naturally migrating east. In 2009, the company received funding from Wilmar Consultancy Services (WCS), a Singapore-based IT company with a significant presence in Asia, especially China. With WCS's backing, RedBite has established a development centre in Singapore and is working closely with WCS to roll out systems in Asia.

OUTLOOK

There are few companies globally that have the same deep knowledge of RFID as RedBite, Wong believes. Furthermore, he adds, RedBite focuses on spare parts management in the manufacturing sector, whereas most RFID companies focus on the retail industry. Wong also points out that RedBite's products have been designed to integrate with existing ERP systems making them much easier to implement.

RedBite released a version 2.0 of its RedBox software this summer. The next goal is extending version 2.0 into the cloud. Wong says he wants RedBite to be the “Google of Things”. By linking its Cambridge software edge, with emerging markets in Asia, he may have found the perfect match. ■

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RedWarehouse