Foreword

RFID has come of age. Recent years have seen a proliferation of RFID technologies and, more importantly, novel applications in areas ranging from fine arts to manufacturing. Inventory tracking through RIFID in a factory is now quite common, and who hasn't used an RFID swipe card to unlock the door to their building? It is also beginning to be seen in health applications such as patient tracking and medication monitoring in hospitals. A quick scan of currently existing RFID solutions and implementations reveals applications including, just to name a few, pigeon flight monitoring, beer barrel stock control, pet identification, toxic waste monitoring, person identification, food production control, blood analysis identification, timber grade monitoring, vehicle parking monitoring, valuable objects insurance identification, asset management, and stolen vehicle identification.

Though the cost of the RFID tags has always been relatively low, it is reductions in the prices of RFID scanners (and in their sizes) that is beginning to see an increase in the number of new applications being found for these technologies. Contemporary artists are now seizing the potential of RFID to create interactive artworks that react to the users RFID tags as they move around the artwork or environment. These cost reductions have also seen RFID beginning to be used to create ubiquitous computing networks. A ubiquitous network is one that is present everywhere throughout an environment and has the ability to detect where users are within the network and based on that information meet their needs or serve them information. A simplistic example of the use of a ubiquitous network could be that of a user working on a document on a computer, and then moving to a different part of the building to another computer and having the document automatically follow them to that computer allowing them to seamlessly continue their work.

Tokyo, as well as many other Japanese cities, is a city without street names. This can cause great difficulties to business and tourism. The Japanese (especially trainee post workers) and bewildered visitors spend countless hours lost in Tokyo's labyrinth of streets with no names. This, in the 1980s led to improvements and miniaturization of the fax machine so that people could send maps and directions to each other. This problem has also led to the Tokyo Ubiquitous Network Project, in which scientists are planning an RFID and computer infrastructure that will fill such information gaps for good and create a true ubiquitous network. Streets, and any other structures or points of interest, will be tagged with RFID tags allowing low cost readers to be installed in a variety of devices and allowing users to know not only where they are, but also to receive other information that could be of use or interest to them on their mobile phones.

RFID has now become a truly convergent technology that allows a number of sensing, communication and computing technologies to be transformed into useful applications. RFID is the communication medium through which devices can talk to each other when within range and, when used to its full potential, allows for a truly seamless integration of people, devices, and software.

This book presents a number of leading examples of RFID research being developed for part identification, health systems and on the data convergence required for the technology to be used effectively. It presents how RFID is being used as a point of convergence for a number of disciplines and how the technology can be used in new and innovative ways.

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