Report from the British Computer Society
Heath Informatics (London & South East) Specialist Group

THE BRITISH COMPUTER SOCIETY

November 2005

Editorial

The Committee met on 17th November mainly to continue planning the forward programme. We are trying to leaven the loaf of NPfIT and CfH by finding a wider range of topics, which is not always easy. So far, we are working towards

Thursday 19th January. "Best Practice". This is a functional issue within CfH, where part of the aim is to coordinate care around the NHS. In turn that requires some standardisation, which means we must agree. Getting clinicians to agree on anything is difficult, to put it mildly. We shall see how CfH is tackling the problem.

March 2006. "Debate". We will have a debate session at HC2006 in Harrogate. The topic is suitably ambiguous, and will appear in the conference programme. Be there, and join in.

Thursday 18th May. "Update on Telemedicine". A joint meeting where our guests will be the new Interactive Care specialist group, and the Kingston & Croydon branch.

And these dates with outline topics yet to be confirmed.

Thursday 20th July. Update on the London programme.

Thursday 21st September. Aspects of robotics in medicine.

Thursday 16th November. Informatics in the independent healthcare sector.

Meeting Report
RFID in Healthcare
Thursday 17th November 2005

The Group welcomed one of its committee members, **Colin Jervis**, as the speaker on the topic of radio-frequency identification in healthcare. Colin spoke as an independent consultant (Kinetic Consulting), although he has also recently been appointed interim IT Director at University College London Hospitals.

The rate of clinical errors in healthcare is quite high. Although the exact rate is unknown, there is confirmation of a similar order of errors in several countries.

Part of the aim within NPfIT/CfH is to reduce these errors. Success is assumed to follow from better recording, better information presentation at the time of decision taking, and generally better sharing of data. Medication errors particularly need to be targeted. Prescribing alerts, and better dispensing and administration recording could all play a part.

Meanwhile, patient care requires rapid actions which are not facilitated by slow input devices such as keyboards. RFID is one technology which promotes rapid and reliable data capture. The principal features of RFID include:

RFID tagged objects can be located and identified at some distance.

Passive RFID tags are powered from the detector signal via their built-in aerial. The tag contains a unique ID which is sent back to the detector. The tags can be very small and flexible, and are easily attached or embedded.

Active RFID tags contain a battery so that they are larger, with a finite life. The ID signal range is also larger.

RFID tags use several wavelength bands.
Low frequency - 125-134 KHz.
High frequency - 13.56 MHz
Ultra high frequency - 868-956 MHz
Microwave - 2.45 GHz
Each has its own uses, sizes, and ranges. In the healthcare environment, interference with other devices must also be considered.

The range at which a tag can be read depends on frequency, the reader power, and the built environment. (Refer to our Issue 55, May 2005, for a discussion of the similar problem with wireless LANs.) Reader power is limited by radio licence conditions, except we need to be aware that a hacker would not be bothered by such a condition.

RFID tags have similarities with barcode tags, but there are some differences. RFID requires no line of sight, whereas barcode does. It is possible to read more than one RFID tag simultaneously, whereas barcode is one at a time. RFID tags are difficult to clone (copy identically), whereas barcodes are easily reprinted. These differences mean that RFID and barcode may be separately preferable for some purposes.

The most obvious use for RFID tags is for positive identification. Assuming that some index of tag values is held, and that the tag cannot be detached, then the tag value confirms ID. This could be used for patient ID, but other uses include checking for counterfeits eg, drugs.

A second use is for tracking. With a field coverage of detectors, a tag is read when it comes within range so that its location can be recorded. Asset finding and panic alarms are feasible.

If there is a prior expectation of a particular tag, then a comparison with the actual tag value may be used to trigger an alert.

With a high density of tagging, it becomes possible to record tag pairs in proximity. This might be used to record use of instruments or devices for patients.

Tag value recording can be used to count events.

Unfortunately, there are several available standards for RFID tags, and no universal system for use. There happen also to be many standards for barcodes, although modern barcode readers can manage several at once.

RFID tags are each unique. They have a significant cost which only decreases at very high quantity.

While the benefits of RFID tags are around simplified data capture, this can come at the cost of a very large data management problem.

RFID technology use is increasing, but it may be subject to over-enthusiasm. Big users like Wal-Mart can use it mainly because they are big. RFID technology has a definite role to play in healthcare but, like any technology its use has to be really helpful.

A couple of Q&A were recorded from the discussion after Colin's presentation.

Q. How much data is held on a tag.

A. Active tags hold several KB. Passive tags have only an ID value.

Q. What is the best and most use of RFID

A. Most use is for simple ID, perhaps related to alarms.

Colin was thanked for his interesting presentation. Further information may be available at

www.kineticconsulting.co.uk

