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Competitive Exams Near Field Communications

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There is a growing number of applications where a form of very short range communications is needed. One technology that can meet this need is called Near Field Communications or NFC. While it does not have the hype of Bluetooth, Wi-Fi, WiMax, Zigbee, RFID or others, Near Field Communications (NFC) appears to be set to become a major presence in the wireless communications arena.

NFC technology has evolved from a combination of contact-less identification and interconnection technologies including RFID and it allows connectivity to be achieved very easily over distances of a few centimetres. Simply by bringing two electronic devices close together they are able to communicate and this greatly simplifies the issues of identification and security, making it far easier to exchange information. In this way it is anticipated that Near Field Communications, NFC technology will allow the complex set-up procedures required for some longer range technologies to be avoided.

In one application being proposed it could be used to configure the connection between two wireless devices. By bringing them together and initiating a set-up procedure, communication could take place over the NFC interface to configure the longer range wireless device such as Bluetooth, 802.11 or other relevant standard. Once set up the two devices could operate over the longer range allowed by the second communication system.

NFC is ideally placed to provide a link with the contact-less smart card technology that is already used for ticketing and payment applications. It is broadly compatible with the existing standards that have been set in place. Accordingly it is quite possible that NFC enabled devices could be used for these applications as well.

There are many other applications for near field communications, NFC. These could include general downloading data from digital cameras or mobile phones, as well as any other data communication required between two devices.

NFC and RFID

There are many similarities between Near Field Communications (NFC) and RFID as both NFC and RFID both operate very much in the contact-less connections arena. In

this way NFC is ideal for many applications such as ticketing and e-commerce where RFID has already made an impact. However as NFC is able to act as a peer-to-peer communications link and this enables it to be far more powerful. Accordingly using NFC it is possible to transfer large amounts of data, allowing it to be used in a wide variety of applications. However it is anticipated that NFC will develop many new applications and RFID will still remain a h4 player in the contact-less monitoring arena.

Near Field Communication Technology, NFC has many of its routes in the RFID business. Some of the basic ideas came directly from RFID work that had been previously undertaken. Now Sony and Phillips have taken the lead and jointly developed the technology. It follows on from their proprietary smart card protocols and can be seen as an initiative to move forward the contact-less ticketing and payment applications that are seen as the next stage in this market. The standard for the technology was approved as an ISO/IEC standard on December 8 2003, having been approved earlier as an ECMA standard. The next stage in the standardisation process came when Nokia, Sony, and Phillips formed the NFC forum on 18th March 2004.

Standards and Capability

With Near Field Communications set to become widely accepted in many applications, the system has been standardised by a number of globally accepted standards bodies. NFC has standards accepted by ISO (18092) , ECMA (340) and ETSI. Additionally NFC is compatible with Philips ' MIFARE (ISO 14443 A) and Sony ' s FeliCa smart card protocols.

Basic Capability

NFC technology operates by using magnetic field induction. It also uses operates within the globally available and unregulated 13.56 MHz frequency band. However with a maximum operating distance of around 10 centimetres it is unlikely to cause interference to other users.

The data transfer rate may be either 106,212 or 424 kbps and there is a possibility of higher data rates later. There are also two modes of operation, namely one way (passive) , or two way (active) . In addition to the original modes a third mode of operation is being introduced where the NFC unit communicates with un-powered tags, supplying them with the power required as the NFC device with power is brought into range.

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