Area 2 Computers & Technology Group

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Bluetooth -

present and future

What is Bluetooth?

Only of interest to dentists?   ;-)

Bluetooth is a wireless technology

- It is a short-range radio frequency (RF) technology

- It operates in the 2.4 Ghz band (like cordless phones)

- Usual effective range is 32 ft (10 meters) (Class 2)

Why "Bluetooth" ?

◆ Bluetooth is named after 10th century Danish King Herald Blatand (Blatand translates to Bluetooth). The King united Norway and Denmark, hence the link with the Bluetooth we think of today - uniting electronic devices.

King Herald Blatand's Rune Stone

H B Rune

Bluetooth today!

◆ Ericsson began investigating Bluetooth in 1994, and in 1998 they formed the Bluetooth Special Interest Group (SIG) along with Intel, Nokia, Toshiba, and IBM.

Bluetooth in 2008

◆ With an expected compound annual growth rate of 60% from 2003 to 2008, it is estimated that there will be more than 100 million Bluetooth devices worldwide by the end of the year.

Bluetooth works in a simple manner

◆ It provides a way for different devices to communicate with each other by sending data via a short-range narrow spectrum radio frequency. Using the technology, cell phones and computers can talk to each other completely wirelessly.

Simple eh!?

- The Bluetooth protocol operates in the license-free ISM band at 2.4-2.4835 GHz. To avoid interfering with other protocols that use the 2.45 GHz band, it divides the band into 79 channels (each 1 MHz wide) and changes channels up to 1600 times per second.

Pairing Bluetooth devices

- All that is needed for any Bluetooth enabled devices to work is for them to be *paired*, a hassle free "handshaking" process for establishing a connection in seconds.

Bluetooth is a very low power technology

◆ Uses a 1 milliwatt weak signal
   – cell phones transmit at 3 watts

◆ Best suited for point-to-point devices
   – WiFi is intended for networking

◆ Transmits at 1Mbps to 3 Mbps
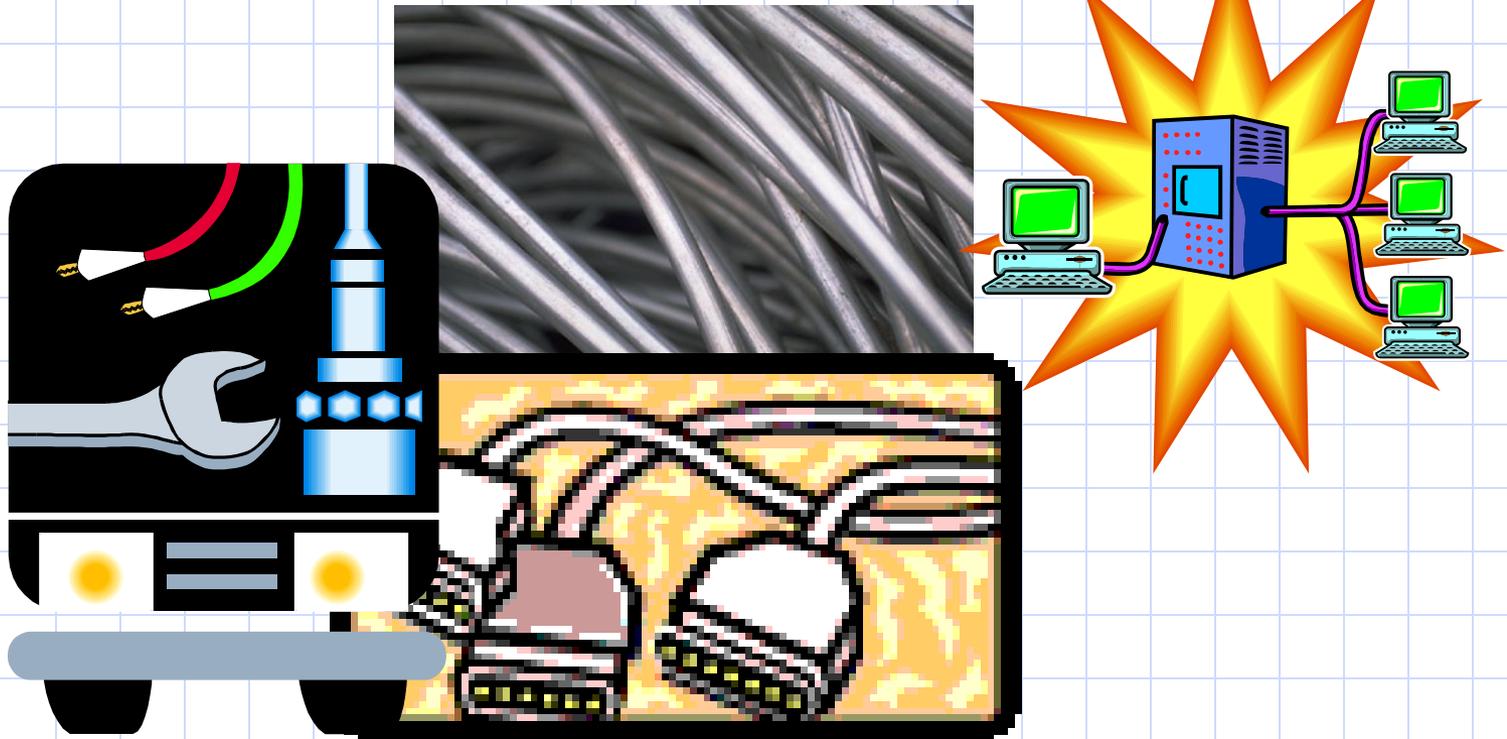   – 3 to 8 times faster than parallel or serial ports

Bluetooth piconet

◈ Bluetooth can connect up to 8 devices in the same 10 meter radius simultaneously creating a personal-area network (PAN) or "piconet"

Bluetooth replaces cables!

Some Uses for Bluetooth

◆ Replace wires to devices (mice, keyboard, printer, etc.)

◆ Replace infrared controls (e.g. TV controllers)

◆ Replace traditional wired serial test equipment (GPS, Medical equipment, bar code scanners, traffic control devices, etc.)

Common Bluetooth Devices

- Cell phone hands-free headset
- Mice, Keyboards, printers, microphones
- GPS, Headphones
- Wireless PC networking in small space
- PDA devices (e.g. Blackberry's)
- Nintendo's Wii, Sony PlayStation 3
- Many more…..

Examples

What can the BlackBerry solution do?

Live wirelessly.
Print wirelessly.

Bluetooth and …

◆ GPS

GPS

Connect to the Internet through a mobile phone to update "Points of Interest" database and other map data. Send GPS satellite signals to your *Bluetooth* laptop or mobile device. Use the built-in micropohone to talk hands-free.

Bluetooth and ...

◆ Digital camera

DIGITAL CAMERA

Use your *Bluetooth* enabled digital camera and you can send your images wirelessly to your printer, mobile device or PC intstantly without the hassle of messy cables.

Bluetooth and …

◆ Blood pressure monitor!

BLOOD PRESSURE MONITORS

Decrease trips to the doctor's office; *Bluetooth* technology will help you track your blood pressure from the convenience of your own home. That information is sent to an access point via *Bluetooth* technology, which will send the information to your medical provider.

Bluetooth and ...

- ◆ iPod or MP3 player

iPOD AND MP3s

Stream music from your iPod using an adapter or music phone to the car stereo.

Bluetooth and …

◆ Phone to printer

PRINTER

Print your favorite photos right from your *Bluetooth* enabled phone or PDA to your *Bluetooth* enabled printer. No wires or PCs required.

Bluetooth and …

◆ Polaroid PoGo

The Gadget: The Polaroid PoGo, an inkless printer that prints 2″ x 3″ sticker pictures from digital cameras via USB and cellphones over Bluetooth.

The Price: $150 for the unit, 30-packs of photo paper cost $10.

Installing Bluetooth devices

◆ To install a mobile phone, keyboard, mouse, or personal digital assistant (PDA), use Bluetooth Devices in PCs Control Panel.

◆ To install a printer, run the Add Printer Wizard.

◆ You can also install any Bluetooth device by using Bluetooth Devices in the Control Panel.

[from Win-XP help menu]

Setting up a Bluetooth device

- Turn it on
- Make it discoverable (or visible)
- Give it a name (optional)
- Install the device.

How secure is it?

- Remember it is wireless and is susceptible to spying and remote access if the network isn't secured.

- Several security modes are available and manufacturers include them in their devices.

- Bluetooth can establish "trusted devices" that work without intervention and reject other device transmissions from unauthorized devices.

Security Measures

- Authorization and identification procedures limit use to the registered user

- Can be switched to "non-discoverable" to prevent connecting to other Bluetooth devices.

- These measures make it very unlikely unauthorized access might occur

Can Any Bluetooth Enabled Cell Phone Be Used as a Modem?

- ◆ Yes; provided the Bluetooth capability has been unlocked by the provider.

- ◆ Some cell phone service providers only want Internet access enabled for the phone, and not for the phone to be used as a modem. Others will provide information to use when using the cell phone as a modem.

- ◆ You need to find out if the Bluetooth enabled cell phone and data service plan will support tethering.

Bluetooth future

◆ **Bluetooth 3.0**
The next version of Bluetooth after v2.1, code-named Seattle (the version number of which is TBD) has many of the same features, but is most notable for plans to adopt ultra-wideband (UWB) radio technology. This will allow Bluetooth use over UWB radio, enabling very fast data transfers of up to 480 Mbit/s, while building on the very low-power idle modes of Bluetooth.

Bluetooth Low Energy

◆ **Bluetooth low energy**
In 2007 Nokia and Bluetooth SIG announced that Wibree will be a part of the Bluetooth specification as an ultra-low power Bluetooth technology. Expected use cases include watches displaying Caller ID information, sports sensors monitoring your heart rate during exercise, as well as medical devices. Battery life for devices using Bluetooth low energy technology is designed to be up to one year.

Questions?

For more info, do a Google search on "Bluetooth"