

Bluetooth technology

Technology



" Bluetooth technology operates in the unlicensed industrial, scientific and medical (ISM) band at 2.4 to 2.485 GHz, using a spread spectrum, frequency hopping, full-duplex signal at a nominal rate of 1600 hops/sec" (Bluetooth SIG, Inc. , 2008, p. 1). The wireless signals transmitted by Bluetooth support both short-range data and voice communication between devices, and have an operating range from one meter (three feet) up to hundred meters (three hundred feet), and data transmission speeds from one Mbps to three Mbps (Bluetooth SIG, Inc. , 2008).

Besides enabling seamless communication, Bluetooth technology is robust, inexpensive, consumes less power, and eliminates the need for wires (Bluetooth SIG, Inc. , 2008). As the technology simultaneously handles both data and voice communication, Bluetooth is used extensively in cell phones, handheld PDAs, computer systems, printers, MP3 players, GPS receivers, digital cameras and various other network devices. Also, the radio communication system of the Bluetooth devices permit transmission of signals through closed doors, meaning the devices can communicate even without being in sight of each other.

Technically, to establish a Bluetooth connection, the Bluetooth enabled devices need to be first set in the discoverable mode and then paired (or bonded) (Mehta, 2003). A not-for-profit trade association called the Bluetooth Special Interest Group (SIG) supports the technology and has assigned seven protocols to Bluetooth (Blasdel, 2004). To maintain a high level of security, the Bluetooth devices communicate with each other by following the standard protocols (Blasdel, 2004). Manufacturers follow the Bluetooth protocols, and hence produce compatible Bluetooth enabled devices.

Key Technology Vendors The Bluetooth Special Interest Group (SIG) are the biggest supporters and vendors of the technology, and comprise of big companies such as IBM, Intel, Nokia, Toshiba, Ericsson, Microsoft, Agere Systems, 3Com and Motorola. A few key companies that have been using Bluetooth for a long time are the following: Jabra, Logitech, BMW, DaimlerChrysler, Ford, Honda, Nissan Toyota, LG, Samsung, and Toshiba (Quain, 2007). As Bluetooth becomes popular by the day, the technology-vendor list is increasing too.

New vendors that have included Bluetooth technology as part of the existing business solutions are the following: ATM SpA (a public transport company), United Way California Capital Region (UWCCR), Norwegian Centre for Telemedicine (NST), California Red (a Hong Kong-based karaoke company), Schwan's, Securecom, and Oslo Municipality (Bluetooth SIG, Inc. , 2008). In conclusion, Bluetooth has been well accepted by major players in the technology, telecommunication, and automotive industries, to name a few.

History and Current State of Bluetooth Technology

The Bluetooth technology was originally invented by the Swedish cell phone company, Ericsson, back in 1994 (Hattori, 2000). In an attempt to create a technology that could enable mobile phones to communicate wirelessly with the phone accessories, the inventors of Bluetooth made small Bluetooth chips (radio chips) (Hattori, 2000). Instead of using wires to connect devices, radio chips were built into mobile phones and accessories which helped wirelessly connect the devices. Hence, the devices that contained the Bluetooth chips could then communicate wirelessly with each other (Hattori, 2000).

<https://assignbuster.com/bluetooth-technology/>

To encourage the research and use of Bluetooth technology, the Bluetooth Special Interest Group (Bluetooth SIG), initially comprising of five big giants- IBM, Intel, Nokia, Toshiba and Ericsson, was formed in September 1998 (The Wireless Directory, 2003). The wireless technology was officially named " Bluetooth" in 1998 by the SIG (Bluetooth SIG, Inc. , 2008). The technology is named " Bluetooth" after the tenth century Danish King Harald Blatand (or Harald Bluetooth) (Bluetooth SIG, Inc. , 2008) The King was responsible for bringing together the countries Norway, Sweden and Denmark in times of war (Bluetooth SIG, Inc., 2008).

As the technology was first developed in Sweden and helps to bring different industries together on the same ground, the SIG thought that the name " Bluetooth" was the most appropriate for the wireless technology (Bluetooth SIG, Inc. , 2008). The Bluetooth logo too picks up from the " H" and the " B" letters of Harald Bluetooth (" The History of Bluetooth", 2008). By the end of 1999, another four big companies- Microsoft, Agere Systems, 3Com and Motorola- had become a part of the Bluetooth SIG (The Wireless Directory, 2003).

Just as the Bluetooth SIG has grown from five members in 1998 to more than 9000 members today (Bluetooth SIG, Inc. , 2008), so has the Bluetooth technology evolved over the time. Bluetooth version 1. 0 and 1. 0B were the very first Bluetooth specifications to be released in 1999 (" Bluetooth Core Specification Versions", 2008; see also Bluetooth SIG, Inc. , 2008). Due to certain interoperability issues, the initial versions did not manage to create an impact on the industry (" Bluetooth Core Specification Versions", 2008).

The interoperability issues were resolved with the release of Bluetooth version 1. 1 (" Bluetooth Core Specification Versions", 2008). The years 2000 to 2003 saw the launch of various mobile devices, such as cell phones and laptops, car-kits, cameras, headsets etc. embedded with the Bluetooth technology (Bluetooth SIG, Inc. , 2008). Bluetooth version 1. 2, which was designed to allow faster data rates of up to 1Mbps (" Bluetooth Core Specification Versions", 2008) and had a range of around 10 meters, was launched in 2003 (Bluetooth SIG, Inc. , 2008).

Version 1. 2 found increased use in the mobile phones and the medical industry. SIG worked aggressively to increase the range and speed of Bluetooth and announced the release of Bluetooth version 2. 0 + Enhanced Data Rate (EDR) in 2004 (" Bluetooth Core Specification Versions", 2008). Version 2. 0+ EDR not only had speeds of up to 3Mbps but also consumed lower power and supported multiple connections (" Bluetooth Core Specification Versions", 2008).

The release of version 2. 1+ EDR, developed to provide enhanced security, was announced in 2007 (Bluetooth SIG, Inc., 2008). Over the years, the Bluetooth technology has continued to advance and has found increased use in the computer, medical, automotive, and in hundreds of other industries. Manufacturers are constantly coming up with innovative ideas to use Bluetooth. Bluetooth technology has helped companies save money and improve worker efficiency. Bluetooth has made millions of customers happy by making daily tasks convenient and simple. The world today would be " blue" without Bluetooth. Managerial/ Business Issues Surrounding Bluetooth Technology

<https://assignbuster.com/bluetooth-technology/>

Pearlson & Suanders (2006) in the text *Managing and Using Information Systems: A Strategic Approach* stress on how managers should make important business decisions and information system (IS) decisions only after thorough consideration of the complexities and needs of both the business and the IS. According to the Information Systems Strategy Triangle shown in Figure 1, " Business strategy drives organizational strategy and IS strategy" and that " IS strategy must complement business strategy" (Pearlson & Saunders, 2006, p. 20, 33).