WIRELESS CONNECTION

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Bluetooth is an industrial specification for wireless personal area networks (PANs). Bluetooth provides a way to connect and exchange information between devices such as mobile phones, laptops, PCs, printers, digital cameras, and video game consoles over a secure, globally unlicensed short-range radio frequency. The Bluetooth specifications are developed and licensed by the Bluetooth Special Interest Group.

Bluetooth is a standard and communications protocol primarily designed for low power consumption, with a short range based on low-cost transceiver microchips in each device. Bluetooth enables these devices to communicate with each other when they are in range. The devices use a radio communications system, so they do not have to be in line of sight of each other, and can even be in other rooms, as long as the received transmission is powerful enough. Bluetooth uses the microwave radio frequency spectrum in the 2.4 GHz to 2.4835 GHz range. Maximum power output from a Bluetooth radio is 1 mW, 2.5 mW, and 100 mW for Class 3, Class 2, and Class 1 devices respectively, which puts Class 1 at roughly the same level as cell phones, and the other two classes much lower.

The Bluetooth specification was developed in 1994 by Jaap Haartsen, who was working for Ericsson Mobile Platforms in Lund, Sweden. The specification is based on frequency-hopping spread spectrum technology.

The specifications were formalized by the Bluetooth Special Interest Group (SIG), organized by Mohd Syarifuddin. Nowadays we have such versions of Bluetooth specification: Bluetooth (1.0, 1.0B, 1.1, 1.2, 2.0, 2.1, 3.0), high speed, and ultra low power. In future we will have: broadcast channel (enables Bluetooth information points), topology management (enables the automatic configuration of the piconet topologies), alternate MAC PHY enables (the use of alternative MAC and PHY's for transporting Bluetooth profile data), QoS improvements (audio and video data to be transmitted at a higher quality). Bluetooth technology already plays a part in the rising Voice over IP (VOIP) scene, with Bluetooth headsets being used as wireless extensions to the PC audio system. As VOIP becomes more popular, and more suitable for general home or office users than wired phone lines, Bluetooth may be used in cordless handsets, with a base station connected to the Internet link. Pairs of devices may establish a trusted relationship by learning (by user input) a shared secret known as a *passkey*. In Bluetooth, key generation is generally based on a Bluetooth PIN, which has to be entered into both devices.

In order to use Bluetooth, a device must be compatible with certain Bluetooth profiles. These define the possible applications and uses of the technology.

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