

Bluetooth Technology In Operation and Their Profiles

The networking standards of Bluetooth will transmit data via low power radio frequency. Bluetooth communicates on a 2.45 GHz frequency. This very band of frequency has been set aside by international agreement for the use of industrial and medical devices. Many devices that you already know and use take advantage of this frequency band. Garage door openers, baby monitors, and the next generation of mobile phones all use this frequency within the ISM band. Ensuring that Bluetooth and the other devices do not interfere with each other is a crucial part of the design process. One of the ways Bluetooth will avoid interfering with other electronic devices is by sending out weak signals of around 1 mw. In comparison, even the most powerful of cell phones can transmit a signal of 3 watts. The low power signals will limit the range of a Bluetooth device to around 32 feet, which cuts the chances of interference between your computer and other electronic devices. Even though it has low power, Bluetooth does not require a line of sight between the communicating devices. The walls in your home will not stop the signal, making it great for rooms throughout the house. Bluetooth can connect 8 devices at the same time. With each of those devices on the same radius, you may think they would interfere with each other, although it is very unlikely. Bluetooth utilizes a technique known as low frequency hopping, which makes it harder for more than one device to transmit on the same frequency at the same time. With this technique, a device will use 79 individual, randomly chosen frequencies within a designated range, which change from one another on a regular basis. In the case of Bluetooth, the transmitters will change frequency 1,600 times or more every second, meaning that more devices can make full use of the radio spectrum. Since every transmitter of Bluetooth will use spread spectrum automatically, it is very unlikely that two transmitters will be on the same frequency at the exact same time. When the Bluetooth devices come within close range of each other, an electronic conversation will occur to determine whether or not they have data to share or whether one needs to take total control. The user does not have any buttons to press or commands to give, as the conversation will occur automatically. Once the conversation has occurred, the devices will form a network. Bluetooth devices will create a PAN (Personal Area Network) or piconet that may fill a room. Once the piconet has been established, the devices will randomly hop in frequencies. Bluetooth technology profiles will describe how the technology is used. Profiles can be best described as vertical slices through the protocol stack. It will define options in each protocol that are mandatory for the profile. The profile will also define the parameter ranges for each protocol. The concept of the profile is used to decrease the risk of interoperability problems between the different products. These profiles will not normally define any additions to the Bluetooth specification, which is why you can add new profiles where you need them. The Bluetooth underlying technology is the same, only the specific method that it's used is defined. Generally speaking, all profiles of Bluetooth are based on the GAP (Generic Access Profile). There are many profiles that fall in the GAP category. a) AVRCP, Audio/Video Remote Control Profile b) ESDP, Extended Service Discovery Profile c) CIP, Common ISDN Access Profile d) PAN, Public Area Network Profile e) HCRP, Hardcopy Cable Replacement Profile f) GAVDP, Generic Audio/Visual Distribution Profile g) A2DP, Advanced Audio Distribution Profile h) VDP, Video Distribution Profile i) HID, Human Interface Device Profile To put it another way, usage models will describe Bluetooth device applications and the associated profiles that are used. The usage model focuses mainly on three categories; voice/data access points, peripheral interconnects, and PAN (Personal Area Networking). The voice and data access points involve connecting computing devices to communicating devices through a wireless link. This way, data can be transferred in a wireless manner, without the need of cables or other types of connectivity. PAN is another very important usage model with strong appeal to business customers. Bluetooth networks are easy to set up in virtually any type of environment. An example would be meeting others at a trade show. Instead of having contact information beamed via infrared, business cards can quickly and easily be transferred via Bluetooth wireless. The fact is that many documents can be exchanged this very same way, making the uses and possibilities virtually endless. The Bluetooth profile is very important to the specification, as it enables you to do so much more. You can use peripherals and devices with the profiles, and virtually anything else that you decide. As Bluetooth expands and gets bigger and better, you can count on the profiles to expand and get even more functions. If you have experience with Bluetooth profiles, you should know exactly what they are and what you can do with them. If not, all you need is a Bluetooth device, and a vivid imagination.

About the Author

James Murray is a successful writer and online gambling expert providing valuable tips and advice for those interested in gambling and online gambling strategies. His numerous articles found on the Internet provide useful and factual gambling information and insight. Some of his websites are <http://www.casinospokerrooms.com>, <http://www.bingosbingos.com>, <http://www.top-sportsbook.ca>

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