Development of Bluetooth Technology

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Abstract— Bluetooth is a wireless technology that uses low energy radio waves to transmit data wirelessly between Bluetooth-enabled devices. It is similar to Wi-Fi in that it can handle radio waves. However, Bluetooth can be used between two active devices and no other network equipment such as a router or modem is required. This makes it popular for transferring data between portable electronic devices and short-range electronic devices. The maximum distance of Bluetooth technology between devices is 30 meters. However, this range is sufficient for applications in consumer electronics, automotive, medical and consumer electronics. This paper is a short history of bluetooth.

Keywords— Accounting; Accounting Principles; Style; Management Accounting Principles.

I. INTRODUCTION

Bluetooth is a wireless technology that can transfer data from one device to another. The distance between the two devices is too small to create fixed mobile devices and personal networks. Bluetooth technology is developed by the Bluetooth affinity and has a range of 10 to 100 meters. Up to seven devices can be connected to Bluetooth devices, which are used in smartphones, computers, game consoles and other industries. Bluetooth is standardized by the IEEE as IEEE 802.15.1, but the device has a very short storage time.

Bluetooth is a wireless technology used to transfer data between various electronic devices. The transmission distance between two electronic devices is very short. This technology does not require cables, wires or adapters to communicate with other devices.

A Bluetooth network is a personal area network or Picon with 2-8 Bluetooth peers (usually a master and up to 7 slaves). The host computer is a Bluetooth device that communicates with other devices. Manage data traffic between the link and the attached secondary device. A slave is also a device type and can respond to a master.

When sending / receiving, the slave must synchronize with the master. In addition, the transmission of the slave is controlled by the master. In particular, the slave device can initiate transmission only in a time slot immediately after the time slot specified by the master, or in a time slot explicitly reserved for use by the slave.

The frequency hopping order is determined by the Bluetooth master address (BD_ADDR). The master device first sends a wireless signal to request a response from a specific slave device within its address range. Reacts and synchronizes the dependent frequency, hop frequency and clock frequency with the fundamental frequency.

Different Bluetooth versions

The table below shows the different versions and specifications of Bluetooth technology.

We often see these types of earbuds on mobile phones or smartphones. The headset allows you to make or receive calls from your mobile phone without using hands or cables. Fixed audio change in headset so you can talk and talk without using a portable headset.

The stereo headset function is compatible with regular wireless headset. This type of headset connects to a music player wirelessly to listen to music from a mobile phone or smartphone. The distance between the stereo headset and the smartphone is small. These headsets can also be used with Bluetooth-enabled cell phones.

In the car, we saw a music playback system that connects wirelessly to a portable Bluetooth system. We can answer calls using a car speaker system. No need to use a mobile device.

A Bluetooth printer is a printer that can print text and photo documents from any Bluetooth device. Bluetooth devices

(such as laptops and PDAs) can print data without cables. The device syncs immediately and connects to the printer.

The Bluetooth webcam works like a standard webcam. It connects wirelessly. Unlike traditional webcams, which are still installed on or near a computer, wireless features make the device more portable.

The Bluetooth GPS device is an improvement over the traditional GPS system. The device will communicate loudly. When we say or mention a GPS address on the screen, you can get directions to that address and display the address in that language.

The Bluetooth keyboard works without a cable connecting the device to a computer or laptop. This Bluetooth device can also be used with a mobile phone or smartphone.

II.   HOW AND WHY?

With built-in Bluetooth in computers and peripherals, you can connect your laptop or desktop computer to a device such as a mouse, keyboard, or speaker without using cables. In addition, you can use Bluetooth to transfer files between two computers with Bluetooth chips, or to send documents to a printer with a wireless option. The short range of Bluetooth technology makes it very suitable for office environments with many possible devices nearby. The technology can also be used to transfer information outside the office to transfer files from computers to mobile devices such as tablets and smartphones.

In homes with Bluetooth devices, users can wirelessly control thermostat settings, alarms, devices, and lighting from a central location. For home entertainment, this technology lets you wirelessly connect to any home theater system and stream audio or video from mobile devices or computers to TVs or speakers. When away from home, Bluetooth can also connect active devices to the car's electronic control panel so you can answer phone calls, play music from your mobile device, or receive directions from GPS devices right on the car's navigation screen. car.

Bluetooth wireless connections can automatically save information from medical devices (such as stethoscopes, pacemakers, or blood glucose meters) to a computer or electronic record. This saves valuable time for doctors and patients and simplifies access to medical equipment. Fitness equipment with Bluetooth makes exercise easy. The heart rate watch and GPS tracker automatically reports track or calories burned on your smartphone or stereo headset, thus streaming music from wireless handheld devices to distract you and exercise.

Bluetooth-enabled electronic devices such as phones, cameras, televisions, speakers, and headphones make it easy to exchange data between devices. For example, you can connect a Bluetooth wireless phone to a headset to easily make hands-free calls or send a picture to another phone or computer. Bluetooth via mobile phone and internet connection can be used to collect information about the phone transmitted over the internet and has various applications such as sending an image to a travel partner or automatically sending an emergency call after a phone call. Car accident.

III.   VALUE

Radio waves. Every Bluetooth-enabled device has a card-like accessory called a Bluetooth adapter. This bluetooth adapter sends and receives data. The Bluetooth adapter has a specific connection range. If the second device is within range of the first device, the electronic adapter can only discover the other Bluetooth device. If they are within reach, you can find them. The connection between two Bluetooth devices is paired.

It uses a radio wave connection between two devices to send and receive data between two Bluetooth devices. Data sent and received in parallel is 720 kbps. There are 79 channels in the 2.45 GHz band through which devices can send and receive data to each other. When two devices try to pair, they are actually looking for universal redundancy that can send and receive data. When the frequency is detected, the device is "on". Connecting two devices does not prevent the other two devices from connecting, as they often use different channels and therefore do not interfere. In short, this is the principle of Bluetooth technology.

One of the advantages of Bluetooth technology is that two or more devices can exchange information at the same time. When two or more electronic devices send and receive data, they form a small network, such as a computer network. This thin network of electronic devices is called Picont. Picont has more than two devices. The maximum number of devices supporting one peak is seven. Each of these devices functions as a master device or a master device. A host is a device that initiates or "initiates" a process. The rest of the devices are called slaves. Works according to the owner's instructions. Depending on the situation, the Bluetooth device can be used as a master or slave device. The device can log in and out of Picont. If more than one picon is connected, then we are talking about distribution.

As we all know, wireless connections are always more vulnerable to attacks than wired ones. The media used for wiring is usually only available for the devices participating in the link. For example, an attack could only penetrate one of the active devices on the device. Even these connections are not as secure today as they used to be, but wireless connections are always more fragile. Bluetooth is a wireless technology and cannot be called secure. Today we heard about hacker attacks on Bluetooth devices. Bluetooth security measures are required to prevent this.

 Connect your mobile phone to PC via Bluetooth to browse the web, connect your adaptive Bluetooth mobile device to your PC, let the GPRS connection connect to the network on your computer, and browse via Bluetooth to help connect to your computer and computer with internet via Bluetooth. View from mobile devices and from mobile devices via Bluetooth.

 The debate over the club's national player choice began with renewed controversy over Gotham Gambier, and a shoulder injury escalated during the Indian Premier League. The experts claiming to be the experts have done their best and it looks like the players are getting ready to play.

Connecting Bluetooth is a complex process. The device is initially in a "passive" state, i.e. inactive only when connected to the network. The next step is to contact the consultation process. A "request" is a request sent by the host to all devices in your area. Whichever device receives this request, send a response with the appropriate address. Now the teacher chooses the address and synchronizes with the access point. This process is referred to as "alternative technology" and involves matching the clock frequency and frequency with that of the access point.

IV.   OTHER FACTORS

Bluetooth is a communication protocol. This is similar to what language devices use to communicate wirelessly with each other. In fact, it is based on a master / slave playback format. Picot Net is the term used to describe a network made up of one device and all other devices defined in the range. Personally, there can be about 10 piconets at a time. The host computer can communicate with multiple processors at the same time. In fact, the master is constantly switching between subordinates. Bluetooth technology links the two Pico networks together to form a larger network.

It is effective in the short term and can be used to connect PDAs, cell phones, laptops, digital cameras, printers, scanners, and many other electronic devices.

In 1997, Adalio Sánchez, director of product development for IBM ThinkPad, hired Niels Redbeck and worked together to integrate mobile phones into ThinkPad laptops. This idea is being worked on by two engineers responsible for Ericsson and IBM. Most importantly, the power consumption of mobile phone technology is currently too high to be integrated into a laptop while maintaining satisfactory battery life. Rather, the two companies have agreed to integrate Ericsson shortcut technology into ThinkPad laptops and Ericsson phones to achieve this goal. While not leading the market for IBM ThinkPad notebooks and Ericsson mobile phones, Adalio Sánchez and Nils Redbeck agreed to make shortcut technology an open industry standard to ensure maximum reach for every player. Market. ... Ericsson provides short-line radio technology and IBM grants logic level patents. Later, IBM's Adalio Sanchez appointed Intel spokesman Stephen Nitzheim, Intel also appointed Toshiba and Nokia. In May 1998, the Bluetooth SIG was founded with IBM and Ericsson, with five members: Ericsson, Intel, Nokia, Toshiba and IBM.

Data can be transferred between the host and another device at any time (except for rarely used transfer modes). The master selects the slave device for access. Typically the Robin Spin method is used to quickly switch from one device to another. Since the master is the one who chooses the slave to process, and the slave (in theory) should listen on every receive frame, it is much easier to be the master than the slave. You can be the master of seven slaves. He can be the slave of more than one teacher. There is no certainty in the specification about the expected behavior of Scatternet.

Effective range will vary based on propagation conditions, material coverage, changes in production mode, antenna configuration, and battery condition. Most Bluetooth applications are suitable for indoor use: indoors, darkening of walls and signal attenuation caused by signal reflections causes the product's range to be well below the line of sight.

V.   RESULTS

Bluetooth is a very useful technique and it is impossible, even in 2020, to live without it.

VI.   REFERENCES

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