

DEVELOPMENT MEDIUM ACCESS CONTROL USING RESOURCE MANAGER

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Abstract:

Video communication over wireless networks is an increasing technology in a wide range of important applications. In order to reduce the image data traffic, video compression is general employed in a video codec. There are some video compression standards such as H.263, H.264 and MPEG4. Among these standards, H.264 has more advanced compression methods than the MPEG-4 compression, having significant improvements in coding efficiency, error robustness and network friendliness, meeting the growing demands for video compression application in embedded system. In order to realize wireless communication over short distances in embedded system, Bluetooth and WiFi are two main technologies to choice recently. Bluetooth is reported to be more power competent than WiFi. Video transmission over Bluetooth is still a expensive research ideas. Currently, the Bluetooth v4.2 Specification is released on December 2014. But target at very poor power applications running off a think up cell, which is inapt for wireless video transmission. Bluetooth v3.0+HS (High-Speed) Specification is released on 21 April 2009. It supports theoretical data transfer speeds of up to 24 Mbit/s, of which the high data rate traffic is carried over a collocated 802.11 link and consumes more energy. in embedded system is proposed in the paper. In order to solve the problem that H.264 variable bit rate (VBR) in video transmission is untrustworthy and Bluetooth channel is instable, it adopts store manager (RM) to control video transmission, which analyzes the condition of Bluetooth, and uses a method of traffic credits and a buffer to smooth the video output traffic and to partially eliminate the peaking of the video stream transmitted in Bluetooth channel.

Introduction

Exponential growth of the volume of Bluetooth-enabled devices indicates that it has turned into a mainstream method for remote interconnections for trading data. Bluetooth technology has turned into a vital piece of this advanced society. to the protection of individual data of client.

It is the class of remote Ad hoc system. Ease, low power, low many-sided quality and strength are the essential gimmicks of Bluetooth. It takes a shot at Radio reappearance. Bluetooth communication extent is sorted as high, medium and low relying on force level. High scope of Bluetooth and poor range is dependent upon 1 meter. Bluetooth is an as of late proposed convention for nearby remote post and has twisted into a right

1.2 Bluetooth History:

The original purpose of BWT was to eliminate the need for proprietary cable connections between devices such as PDAs and notebook PCs. Although infrared communication existed at the time, it required line-of-sight contact. Therefore, Ericsson chose to use an inexpensive, low-power radio built into each device, making it possible to wirelessly connect devices through walls and other nonmetallic

materials. After Ericsson began work on BWT, the concept blossomed into a radio technology that simultaneously connects several devices in a wireless personal area network (WPAN). Because of the unlimited potential of BWT, the Bluetooth Special Interest Group (SIG) 1 was formed in

1998 to develop the Bluetooth Specification IEEE 802.15. The specification standardized the development of BWT-enabled devices so that devices from different manufacturers can work together. What does this mean for you? With BWT, you can run your presentation on a client's BWT-enabled projector without a cable connection. If you leave a file on the desktop PC back at your office, don't fret. Use your BWT-enabled PDA or laptop to connect to your office LAN via your BWT-enabled mobile phone without taking the phone out of your briefcase.

Communication of device:

A Bluetooth device uses radio waves instead of wires or cables to connect to a phone or computer. When two Bluetooth devices want to talk to each other, they need to pair. Communication between Bluetooth devices happens over short-range, ad hoc networks known as piconets. Bluetooth 101:A Bluetooth device uses radio waves

instead of wires or cables to connect to a phone or computer. A Bluetooth product, like a headset or watch, contains a tiny computer chip with a Bluetooth radio and software that makes it easy to connect.

When two Bluetooth devices want to talk to each other, they need to pair. Communication between Bluetooth devices happens over short-range, ad hoc networks known as piconets. A piconet is a network of devices connected using Bluetooth technology. When a network is established, one device takes the role of the master while all the other devices act as slaves. Piconets are established dynamically and automatically as Bluetooth devices enter and leave radio proximity.

Bluetooth allows high quality streaming: One of the most popular applications for Bluetooth historically has been wireless audio—headsets and hands-free connectivity in cars to wireless speakers and headphones that stream music from your phone or tablet. This uses a version of Bluetooth called BR/EDR (basic rate/enhanced data rate) that is optimized for sending a steady stream of high quality data (i.e. music) in a power efficient way. BR/EDR: Point-to-Point: Bluetooth Core Specification Version 2.1, referred to as Basic Rate/Enhanced Data

Rate (BR/EDR), made it easier for consumers to connect Bluetooth devices. With the introduction of simple, secure pairing, Version 2.1 allowed consumers to select "add Bluetooth device" from a connection menu to let devices automatically find and connect to each other. Difference between basic rate and enhanced data rate The Bluetooth RF (physical layer) operates in the unlicensed ISM band at 2.4GHz. The system employs a frequency-hop transceiver to combat interference and fading, and provides many frequency hopping spread spectrum carriers.

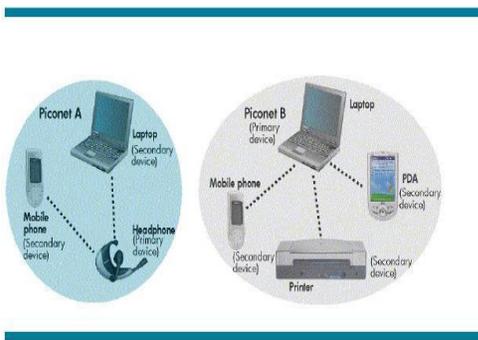
Supporting topologies:

Bluetooth wireless technology is a short range communications technology intended to replace the cables connecting portable unit and maintaining high levels of security. Bluetooth technology is based on Ad-hoc technology also known as Ad-hoc Pico nets, which is a local area network with a very limited coverage. WLAN technology enables device connectivity to infrastructure based services through a wireless carrier provider.

The need for personal devices to communicate wirelessly with one another without an established infrastructure has led to the emergence of Personal Area Networks

(PANs). Bluetooth specification details the entire protocol stack. Bluetooth employs Radio Frequency (RF) for communication. It makes use of frequency modulation to generate radio waves in the ISM band.

BWT-enabled devices operate in the unrestricted 2.4-gigahertz (GHz) Industrial, Science, Medical (ISM) band. The ISM band ranges between 2.400 GHz and 2.483 GHz. BWT-enabled devices use seventy-nine 1-megahertz frequencies (from 2.402 to 2.480 GHz) in the ISM band as shown in Figure 1. BWT-enabled devices use a technique called frequency hopping to minimize eavesdropping and interference from other networks that use the ISM band. With frequency hopping, the data is divided into small pieces called packets. The transmitter and receiver exchange a data packet at one frequency, and then they hop to another frequency to exchange another packet.



Common Versions

Bluetooth has been constantly evolving since it was conceived in 1994. The most recent update of Bluetooth, Bluetooth v4.0, is just beginning to gain traction in the consumer electronics industry, but some of the previous versions are still widely used. Here's a rundown of the commonly encountered Bluetooth versions:

Bluetooth v1.2

The v1.x releases laid the groundwork for the protocols and specifications future versions would build upon. Bluetooth v1.2 was the latest and most stable 1.x version. These modules are rather limited compared to later versions. They support data rates of up to 1 Mbps (more like 0.7 Mbps in practice) and 10 meter maximum range.

Bluetooth v2.1 + EDR

The 2.x versions of Bluetooth introduced enhanced data rate (EDR), which increased the data rate potential up to 3 Mbps (closer to 2.1 Mbps in practice). Bluetooth v2.1, released in 2007, introduced secure simple pairing (SSP), which overhauled the pairing process. Bluetooth v2.1 modules are still very common. For low-speed microcontrollers, where 2 Mbps is still Fast, v2.1 gives them just about everything they could need. The RN-42 Bluetooth module,

for example, remains popular in products like the Bluetooth Mate and BlueSMiRF HID

Conclusion

The current challenges with providing multimedia over wireless networks such as Bluetooth include limited bandwidth and much higher error rates than with existing reliable wire-based networks. The best ways of overcoming both these factors and possible, limited solutions are available. The proposed method of reducing video and audio to meet the requirements of the Bluetooth data bandwidth is to use compression. MPEG-4 is the most appropriate compression method for use in this situation as it provides very low bit rates and high compression. The video decoder can also provide extra functionality to smooth out any packet losses by providing error concealment algorithms to 'cover up' gaps in a video frame. With these techniques in place, high quality video transmission over Bluetooth wireless technology would be possible. With increment of Bluetooth bandwidth, the video transmission over Bluetooth network is an emerging area. This paper proposes an optimized Qos control of video transmission system for mobile applications. The system

has advantages of high transfer bit rates of H.264 video streams, adequate video quality and efficient resource management. And more, the suggested system design has good expansibility and portability, the Bluetooth

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