BLUETOOTH CHAT APP IN ANDROID

Rekha S 1 ,Spoorthi P 2 , Sandhya V 3 ,Ranjani R 4 ,Srinivas Kalyan Varma G 5

Assistant Professor, Department of Computer Science & Engineering,

Atria Institute of Technology, Bangalore, India 1

Student, Department of Computer Science & Engineering,

Atria Institute of Technology, Bangalore, India 2,3,4,5

Abstract
Bluetooth talking is a novel method of mobile communication. This application demonstrates the use of Bluetooth for communicating. This means that people can communicate over Bluetooth. The goal is to create a real-time talking Android application for data exchange (Text) in a real-time process. Other Bluetooth devices will be scanned by real-time chatting program. Establish RFCOMM channels by querying the local Bluetooth adaptor for linked Bluetooth devices, connect to other devices via service discovery, exchange

Keywords: Bluetooth, RFCOMM, Android Application.

1. INTRODUCTION

Bluetooth talking is a novel method to mobile communication. This application demonstrates the use of Bluetooth for communicating. This means that people can communicate over Bluetooth. On the primary screen, there is only a list with two options: server and client. The corresponding instance is created by selecting one of these two values. The connection is established via the main screen. It performs the following actions at this location. The system was designed built utilizing the Android Framework Integrated Programming Environment in conjunction with additional development languages such as java for the backend, XML for the frontend, and static files. These applications are then evaluated on a mobile phone or emulator that runs on the Android operating system after they have been compiled. There are four modules in this application they are modules for scanning, identification, pairing, and data exchange. The scanning module scans for additional devices within the range of connectivity, and the scanning device recognizes them and prepare them for pairing with unique identifiers such as numeric keys or asymmetric data connection processes, after which the data exchange operations are started. The technology for data communication is Bluetooth Technology, which has advantages over other communication medium such as the internet and Wi-Fi hotspot in terms of cost and low power consumption.

2. LITERATURE SURVEY

Bluetooth is a low cost low power short range radio technology designed to eliminate the need for wired connections between phones, PDAs, and other portable devices. It can significantly reduce the amount of clutter on your desk by eliminating connections connecting your workstations, mouse, laptop computer, and a variety of other gadgets

In 1994, Ericsson Mobile Communication began developing the Bluetooth system as a replacement for the cords that connected their phones and accessories. Harald Blatand, a tenth-century Danish Viking King who united a dominated Norway and Denmark, is the inspiration for the Bluetooth system. Around 1999, the first Bluetooth devices were released on the market.

The Bluetooth SIG is in charge of Bluetooth standard's future development. Some of the firms active in the SIG are Sony Ericsson, Intel, IBM, Toshiba, Nokia, Microsoft, and Motorola. One of the key strengths of Bluetooth technology is the Bluetooth SIG's composition. Bluetooth goods are made available to end users thank to the participation of both software and hardware suppliers in the technology's further development. Bluetooth is supported by Microsoft's windows operating system. The great majority of desktop software users have access to Bluetooth software.

Bluetooth technology is included in the latest Nokia and Sony Ericsson phones. All of this translates to a broad availability of Bluetooth technology for end consumers. Bluetooth technology information of a more commercial kind is available on the Bluetooth technology website.

3.ARCHITECTURE

The specification is designed to allow Bluetooth devices from various manufacturers to communicate with one another, specifying only a radio system is insufficient. As a result, the Bluetooth specification includes not just a radio system but also a protocol stack that ensures Bluetooth devices ca discover, investigate and use these services with one another.
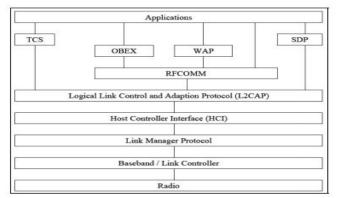
Figure 1.1 The Bluetooth Protocol Stack

There are numerous layers to the Bluetooth stack. HCI is typically the layer that separates hardware software and it is implemented in both software and hardware. In most cases, the layers beneath HCI are implemented in hardware rather than software.

Layer	Description
Application	Bluetooth profiles guide developers on how applications should use the protocol stack
Telephony Control System (TCS)	Provides telephony services
Service Discovery Protocol (SDP)	Used for service discovery on remote Bluetooth devices
WAP and OBEX	Provide interfaces to higher layer parts of other communications protocols
RFCOMM	Provides an RS-232 like serial interface
L2CAP	Multiplexes data from higher layers and converts between different packet sizes
HCI	Handles communication between the host and the Bluetooth module
Link manager Protocol	Controls and configures links to other devices
Baseband and Link Controller	Controls physical links, frequency hopping and assembling packets
Radio	Modulates and demodulates data for transmission and reception on air

Figure 1.2 Layer and Description

4. ALGORITHM

Algorithm (requesting client)

1. Launches Bluetooth messenger
2. Inputs its name
3. Chooses to be connected to a device
4. Chooses no to be in listen mode

5. Selects the device it wants to chat with from list of nearby Bluetooth Devices
6. Sends its own identity from udetails.txt on server phone's request
7. Receives server's identity
8. Inputs and exchanges messages
9. All messages exchanged gets stored in "chat.txt"

Algorithm server side

1. Launchers Bluetooth messenger

2. Inputs its name

3. Chooses to be connected to a device

4. Chooses to be in listen mode and waits

5. When a client tries to connect it asks for identity

6. Receives client identity and saves it.

7. Sends its identity to chat

8. Inputs and exchange messages

9. All messages exchanged get stored in "chat.txt'

5. PROPOSED SYSTEM

This app allows two Android smartphones to communicate through Bluetooth in a two-way text chat. It demonstrates all of the basic Bluetooth API features, including: 1] checking for other Bluetooth devices 2] RFCOMM channels/socket are established by querying the local Bluetooth adapter for linked Bluetooth devices 3] establishing a connection with a remote device 4] data transfer using Bluetooth.

The Bluetooth network stack, which allows a device to wirelessly share data with other Bluetooth devices, is supported by the Android platform. The Android Bluetooth APIs give the application framework access to Bluetooth functionalities. These APIs enable point-to-point and multipoint wireless functionalities by allowing apps to connect wirelessly to other Bluetooth devices.

Classic for battery-intensive tasks like streaming and chatting between Android devices, Bluetooth is the best option. Android 4.3 (API level 18) adds Bluetooth Reduced Energy API compatibility for Bluetooth devices with low power needs. This project's research focusses on the creation of an Android application for real-time talking and data exchange in a real-time process.

Scan for other Bluetooth devices, ask the local Bluetooth adapter for paired Bluetooth devices, establish RFCOMM channels, connect to other devices through service discovery, data exchange through socket from other devices, and manage

multiple connections are all features of the real-time chatting applications.

The real-time socket chatting activities can be carried out via Bluetooth communication channels in a peer-to-peer topology.

The current technology exchanges data at a high rate of charge and consumption of power is high. Before text files are exchanged, this system makes use of internet connection capabilities. A significant amount of money was spent before the amenities could be used such as the Wi-Fi Router, Internet LNB, and so on.

Some issues with the present system spurred the development of a research project to create an automated system that would be able to solve the issue that exist in the current system.

The problems are:

1. High charges on data change.
2. High power consumption
3. Uses internet connection facilities
4. High cost of facilities and extension facilities

6. CONCLUSION

The following is the summarizes this study: the system was designed and built utilizing the Android Framework Integrated Programming Environment in conjunction with additional development languages such as Java for the backend, XML for the frontend, and static files. These applications are then evaluated on a mobile phone or emulator that runs on the Android operating system after they have been compiled.

Scanning, identification, pairing, and Data Exchange are the four key modules in this program. The scanning module scans for additional devices within the range of connectivity, recognizes them, and prepares them for pairing with a unique identifier such as a numeric key or an asymmetric data connection process, after which the data exchange process begins.

The technology for data communication is Bluetooth Technology, which has advantages over other communication mediums such as the internet and Wi-Fi hotspot in terms of cost and low battery consumptions. The system is compatible with any device that supports Bluetooth technology, as well as the Android Bluetooth chat software. As the host engine or machine, it runs on the Android operating system platform. At a short distance, it can be used with a lower-powered mobile phone.

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