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WIRELESS FIDILITY BASED INSTANT MESSAGING USING PEER TO PEER COMMUNICATION

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Abstract:

In recent years, most of the people in the world have increasingly realized the importance of the Communication system. The growth in Communication system and its demand is leading us towards its necessity. There are many ways of communication and messaging application are available which is entirely dependent on the active internet connection and connectivity between the devices. If there is no cellular network and network connectivity, it is very difficult to communicate between the persons. In order to overcome this complexity we are proposing a system in which it allows to communicate between the persons up to certain distance using the wireless fidelity, so that users can communicate in such places like forests ,airplanes etc. In this paper, we used Wireless Fidelity and Bluetooth for making an Instant Messaging application using the android. We also made a demonstrated our work with the help of the android application.

Keywords: Bluetooth, Wireless Fidelity, Communication, Messaging.

Introduction

Instant messaging is becoming an increasingly popular method of communication because of its role as intermediary between the asynchronous e-mail and real-time phone systems, even in business organizations. However, users are facing problems with IM services when there is no network for communication. Such cases we can use this Wi-Fi based instant messaging services that does not require any network during the communication. Using instant messages for interoffice communication is quicker than phone calls or emails. More than one person can chat at the same time. This is a huge benefit of using an instant messenger. Instead of relying on a conference call or copying others on an email message, everybody can join and have a discussion in real time. Better than email, if you truly want to communicate instantly you need to consider all your options. With an instant message you can send a message and receive a reply within a matter of seconds. Email was the first killer application for the internet but now instant

messaging is coming to cellphones. Instant messaging is a form of communication over the internet that offers quick transmission of text-based messages from sender to receiver.

Wi-Fi Technology: Wi-Fi Technology is a proficient used by mobiles, workplaces, home and computer systems all around the world. Wi-Fi Technology is a spectrum radio technology and OFDM radio technology therefore it is an alternate of wireless LAN'. Technology based on the IEEE 802.11 and Wi-Fi Technology Alliance so we can say that it is a synonym of IEEE 802.11. Wi-Fi Technology is executing by remote supervising structure like as security and medicine. Newest entrenched wireless fidelity representations are outfitted by real time operating systems that allow communication by means of serial ports so we can say that Wi-Fi Technology is a standard of communication among wireless devices and computers all over the world. Wi-Fi is creating new strength to connect anything or any task without giving up task. There are lots of utilities initiated by Wi-Fi. Music streamers are a great utility by Wi-Fi Technology that put your music to speakers without any cable. Wi-Fi Technology also enables you to play radio online and enjoy music via remote computer. Downloading of songs, sharing of files, above the ground speed makes Wi-Fi Technology matchless mobility. Wi-Fi has no cable so you can easily move your pc from one location to another because it is very helpful, easy and convenient.



Fig. 1: Wifi in Android.

Wireless Fidelity provides so much entertainment and information than before with because it enables all devices like PC, games, mp3 player, smart phone, laptop, printer and other tangential. The uses of the WiFi Technology contain any type of WLAN product support any of the 802.11 together with dual-band, 802.11a, 802.11b. WiFi Technology is through accessible hot Spots like Home, Office, Airports, Hotels, Railway stations, Restaurants etc..

Bluetooth: Bluetooth is a wireless device for transferring data over a small range of distance (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz). Bluetooth was invented by Ericsson in 1994.

[4]



Fig. 2: Bluetooth.

Bluetooth is low power device which has a range of about 10 meters. It uses a technique called spread-spectrum frequency hopping.

Android OS: Android, the popularly used mobile operating system has so many sophistications which displays live contents and notifications directly on the home screen mainly accomplished with widgets and applications. Android being open source allows the users to modify the codes and applications and enrich them. This makes young developers much enthusiastic and lets them contribute to this open source. Moreover Android's source code is available for free by Google under the Apache License allowing the software to be freely modified and distributed. It is also found that as in 2013, Android has the largest number of applications ("apps"), available for download in Google Play store which has had over million applications published and completed billion download. A developer survey conducted in Jan– Jun 2013 also says that Android is the most used platform among developers and is used by 81% of the mobile developers' population. Android is prevalent with expertise syndicates which require a retail, cheap and customizable operating systems for high-end devices. Despite being primarily designed for tablets and phones. A large community of developers and supporters are being encouraged to use the open-source code as a substance for community-driven developments by Android's open nature. Android has become the most common mobile OS since 2012 and is an arcade frontrunner in most of the countries including the United States.

Application Database Tier: Our project works keeping all such application basics so that privacy has to be preserved. Application database existing in that application maintains and stores the data based on the information retrieved from the bus. Thus when a device reaches the bus stop, the application will connect the database thoroughly and updates the information.

Existing System: Internet- based instant messaging applications allow users to send/receive messages over the internet. It requires internet connection to transfer messages from one device to another device. There are various applications like BBM (Black Berry Messenger), Whatsapp, Hike etc. are messengers used for communication over the internet. BlackBerry Messenger (BBM) is a proprietary Internet-based instant messenger application included on BlackBerry devices that allows messaging between BlackBerry users. The service communicates over the phone's Internet connection using the mobile phone network

Proposed System

In this paper, we propose a wifi based communication system that allows android mobile phone users to communicate by sending and receiving the messages over the wifi which does not require any connectivity to the internet. This

allows the smartphone users to use the wifi for communication between the other users using this application designed to work on the android devices. During the communication, a join request message is passed to the other user and if the request is accepted by the other user, then he can start the conversation with that user. In such way all the users can communicate by passing the request initially.

Our proposed system has the following Objective.

- First of all server program runs on server machine.
- Then client program runs on android based mobile device and send a request to connect with server.
- Once the client is successfully connected, the server broadcast the list of all other active users to the client.
- Client can view the list of all active users and can communicate with them.

Algorithm of our proposed system

1. Android Smartphone user turns on the Wifi Tethering.
2. Others users can join by connecting to the specified wifi network
3. Using this application user can view number of other users connected to the same network
4. A request is sent to the user for starting the conversation
5. If the other user accepts the request, then they both can start the communication.
6. When conversation ends, connection is terminated with that user.

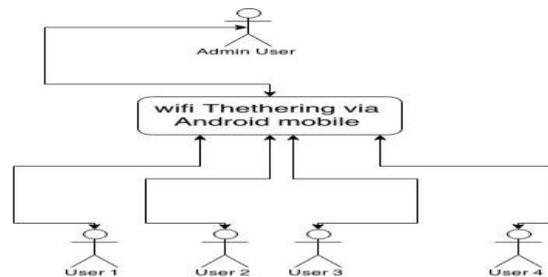


Fig. 3 Flow chart for the proposed system.

Working of Proposed System

Connecting to Wifi

Users can connect to any nearby wifi network. In absence of the wifi network the proposed system will raise its own wifi network which is inbuilt within android device or smartphone and make others users to connect within the same network to start the conversation. In such case the each user is given with the unique IP address through which the communication takes places.

Peer to peer communication

Our proposed system uses the mesh topology for communication between the each device. One user is directly connected to the other user for sending and receiving the messages and thus forming the Peer-to-Peer network. Hence participants in a P2P network do not need a central server to communicate like the traditional client-server architecture which has existed for many years. Unlike client-server architecture, a P2P network is considered alive even if only one peer is active

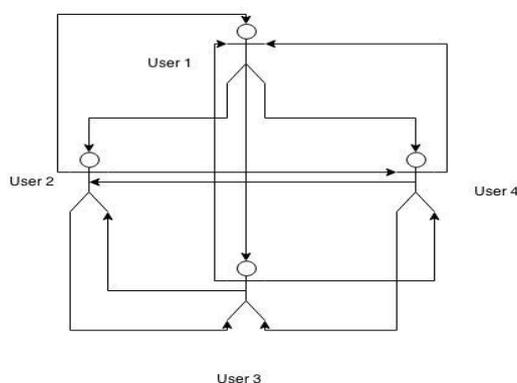


Fig 4. Peer to Peer Network.

Resource Sharing

Users can send and receive files during the conversation. Files such as images, documents, videos etc. In our Proposed system we have included network sharing such that user can access the others enjoy using the other users internet connection. Sms Sharing is also an one more important feature that allows to use the sms services of the other user. Resources of a user can be accessed by sending request for resource to the other user. When the user accepts the request he can start using his resource.

Conclusion

In our proposed system allows the user to communicate using the wifi present in the android devices. It is easy to carry an android device and helps to create a wifi network for communication between the users free of cost. This does not require and internet connection or data plan for communication. This system reduces the cost of conversation and increases the communication between the various devices. Distance of communication is the only imprudent which is to taken care of to connect with more users for communication.

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