

Learning Based Voice Transmission through Wifi Network

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Abstract—The use of Wi-Fi is increasing day-by-day. The use of Wi-Fi enabled phones as android phones, and their communication within a wireless LAN is to be discussed in this paper. This proposed system is in the form of GAN telecommunication network that allows data and voice transmissions within a specific range of interconnected networks. Each mobile device connects to a device which hosts Server which is a part of the network and identifies itself in the routing table. In proposal model allows free calls within the network with a high quality of voice transmission.

Keywords: WiFi-Wireless fidelity, LAN-Local Area Network, GAN- Generic Access Network

I. INTRODUCTION

Now a day's communications are being vast development. Mobile phones have evolved from being small communication devices to a powerful portable computer. The instrument has become so commercial and popular that it's available as a key-item in everyone's hand. The increase of such services has to provide a huge number of customers to access the data in cheaper. Service providers Loop have already earned a name in market and are still expanding their service all over the world. A Wi-Fi uses wireless technology. The Wi-Fi phone has all the same features as a regular phone. With normal cell phones, you can make calls, text message, receive voicemail and with limitations, access the Internet. The Wi-Fi phone has greater data retrieval capabilities and wider Internet access. There is no need for telephone lines to connect to the Internet. Wi-Fi Calling is based on a Smart Wi-Fi Application from Wireless. **Voice over Wireless LAN** is the use of wireless broadband network 802.11 standards for voice conversion. The concept of the WiFi Calling application is based on Generic Access Network. Instead of using a conventional 2G or 3G network, a data network is used to establish a call. The conventional network (i.e. packet switched access network) has some shortcomings due to which calls may not be successfully conducted in some cases. To overcome this and to provide network coverage anywhere, anytime the concept of Voice over LTE was brought forward.

II. LITERATURE SURVEY

The history of communication evolved from ancient age to modern age. Communication ways change from smoke signal to digital signals. Previously for communicating a simple message it required days but now a days it become

possible within a few seconds. Technology is improving so rapidly that now people can talk face to face over 3G/Wi-Fi network using computers. But over this communication also some restrictions are placed such as pc to mobile device can be possible but for such technology we need to pay the money for it.

Today for providing such facility of communication over network we have various application available such as Skype, Tmobile and so on. But all these services are allowed only pc to pc communication on free basis. Take an example of Skype. It only allowed pc to pc calling using VoIP service. It can also support pc to mobile calling and pc to landline calling also but for using such facility we need to deposit credit first in it. Tpad and Tmobile also follows the new technology to communicate but had same problem of paid service. Though technically all this service uses same technology like they need VoIP for transmitting voice over network. They need session protocols to start and maintain session of the system. But still just for generating revenue this all free system are made.

III. PROPOSED SYSTEM

The next generation network VoWLAN can be conducted over internet accessible device, including a laptop or PDA, VoWLAN units which look and function like cellphones. The main advantages to consumers are cheaper local and international calls, free calls to other VoWLAN units and a simplified integrated billing of both phone and Internet Service Providers. Although VoWLAN and 3G have certain feature similarities, VoWLAN is different in the sense that it uses a wireless internet network (typically 802.11) rather than a cellular network. Both VoWLAN and 3G are used on different ways.

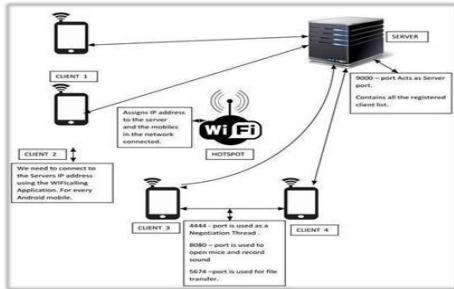


Fig.1. WiFi connectivity through router

1. Architecture

The Architecture consists of four basic modules as:

Registration: Register with server through IMEI (International Mobile Equipment Identity) of phone and validates in database. If User is online the Status is set to “1” otherwise it is set to “0”.

Server: Server is used for authentication and maintaining the database of all users.

Chatting: One user can chat with other online users by fetching the IP of other user through server.

Vedio Chats: Users can make Video calls within the Wi-Fi network with online users for free. They can make Video call without 3G network or Sims Card.

User A will have Video Calling application enabled android phone. User A will start the application and at the same time the Server will check the IMEI (International Mobile Equipment Identity) of User A in the database. If User A is not register then Server will launch the registration page on User A phone and will update the database with Username, IMEI and status. If User is already register or newly updated then server will provide the list of other online user's. The Status of online user is set to “1” and offline user to “0” in database at server-side.

After acquiring the list of online user's from server the User A will select the user for calling. After selecting user, the server will provide the IP of user to whom calling is to be made to requesting user. The other user will get the request and if it agrees for video-calling then, there will be one-to-one audio and video calling or messaging between them. Below figure shows the sample transmission over WLAN. IP enabled cell phones are the mobile units capable of accessing the Wi-Fi network. Wi-Fi Routers have routing tables, which are used to route the calls to the desired IP phone.



Fig.2. User A Dialing

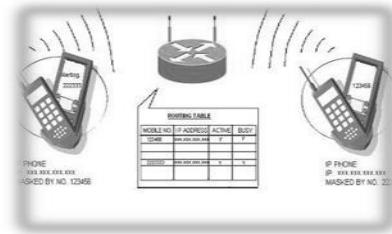
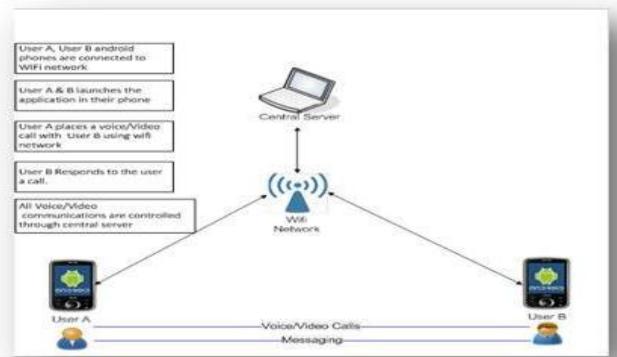


Fig.3. User B Receiving

2. Algorithm

Transmission algorithm is used for calculating frames for VoWAN. Each transmitted frame is marked with a timestamp, which represents the ideal play out time of the frame, according to the following rules:

1. The timestamp of the first video frame represents the time at which the video frame is transmitted. If we denote this time with t , it follows that $TS(1) = t$.



2. A frame I ($I > 1$) is marked with $TS(I) = TS(i-1) + \alpha$, where $\alpha = 1/\delta$ and δ is the number of frame that must be displayed every second.

3. Advantages

- Allows voice calls at zero cost.
- It is highly secured.
- Easy to work and implement.
- Does not need applications to work.
- Does not require any extra hardware or software to be installed in the device.
- Handover is not monitored.

IV. RESULT AND DISCUSSION

Android is a vast growing for upcoming years. This study focuses the voice transmission through WiFi network. Our goal was to create an easy to access the device (mobile), interactive, flexible and extensible system for calling using

free resources and standards. For initial setup will be the cost ,call within the network is free and easy to transmit the network.WiFi calling through android is possible for the upcoming years.

V. CONCLUSION

WiFi helps to make a voice call to IP related android phones.This proposed model is flexible to work. It is possible to configured in our working places(e.g universities, office, public places)with the help of Routers.In future the quality of services.

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