Free Wi-Fi Calling Without SIM and Internet

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***Abstract*: As the modern telephone networks started to take a shape, private companies saw a greater reliance on telephone communication. Many decide to implement their own service. So that they could handle calls internal to the organization. Voice telephony over mobile is supported at a cost using service provider such as GSM, or using IP service provider at cheaper cost. The aim of this research is to design and implement a telephony program that uses WIFI in p2p (Peer-to- Peer) or WLAN (Wireless Local Area Network) as a means of communication between mobile phones at no cost. The asterisk software will use a correlation between current address books available in mobile phones to convert phone numbers into IP addresses. The system will accept user to make voice conversation. The current system will only accept for one call per connection, and no call waiting, or conference calls. Different security services applicable for VoIP are presented and we argue that end-to- end authentication and encryption should be provided by default.**

***Keywords*: GSM,IP, WIFI, p2p, WLAN, asterisk, VoIP.**

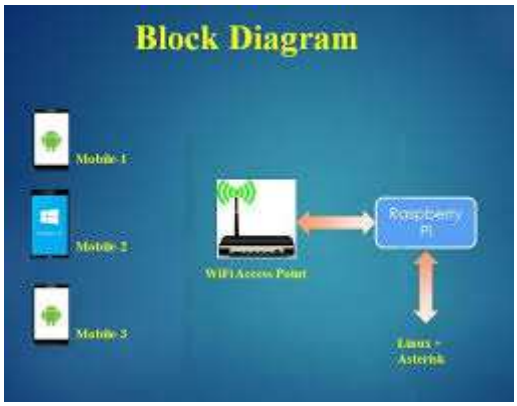
INTRODUCTION

Voice over Internet Protocol (VoIP) is a type of communication that allows you to make phone calls over a broadband internet connection instead of typical analog telephone lines. Basic VoIP access usually grant you to call others who are also receiving calls over the internet. Interconnected VoIP services also grant you to make and receive calls to and from traditional landline numbers, usually for a service fee. Some VoIP services require a computer or a dedicated VoIP phone, while others grant you to use your landline phone to place VoIP calls through a special adapter. The system is based on the operating system called "CentOS for pi" which is Linux based VoIP PBX server operating system for raspberry pi. These operating systems (OS) consist of the telephony package called "Asterisk". This OS with Asterisk is install in Raspberry Pi. The Raspberry Pi is a series of credit card–sized single-board computers developed in the United Kingdom(UK) by the Raspberry Pi Foundation with the aim of supporting the teaching of basic computer science in schools and developing countries. Asterisk supports audio protocols such as SIP that is Session Initiation Protocol used for the audio communication. This package consists of several features such as Voicemail, Call Waiting, Caller ID, Call Transfer etc.

LITERATURE SURVEY

Author Fumikazu Iseki, Yuki Sato, Moo Wan Kim describes VoIP system for the enterprise network based on Asterisk. The features of VoIP system are described that they have developed by using Asterisk in the Intranet environment. Then the author create new scheme to realize high security by using Open VPN is described when developing the large scale enterprise network throughout this paper. Author Ashwini S.Gawarle discuss the benefits of making a free voice call without SIM card and Internet. And also discuss about VoIP technology which is most widely using technologies that support to deal with communication from anywhere in the world. Author Rajeeb Lochan Dash, Mrs. A. Ruhan Bevi discuss about a secure connection, with the help of SSH protocol using PuTTY software, was established between Raspberry Pi and laptop with static Wi-Fi connection. Here all the above are the different methods related with data collection.

METHODOLOGY



WORKING

1] In the server we create users having username and password with a number (say 5000, 5001, 5002…..).
2] When the server is connected to the WI-FI the smart phone app get connected to server via WI-FI.
3]This client and server systems will get the IP address from WI-FI access point.

4]All are now in the network and the service of the asterisk server will start in the system.
5] Now the call can be establish in the WI-FI network.

HARDWARE

1. Router

A router is a networking device that sends data packets between computer networks. Routers execute the traffic control functions on the Internet. A data packet is typically send from one router to another router through the networks that establish the internetwork until it reaches its destination node. A router is connected to more than one data lines from different networks. When a data packet comes in any one of the lines, the router reads the address information in the packet to determine the ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its exploration. This design an overlay internetwork.

Fig. Router

2. Raspberry pi

The Raspberry Pi is a series of credit card– sized single-board computers developed in the United Kingdom (UK) by the Raspberry Pi Foundation with the purpose of promoting the teaching of basic computer science in schools, colleges and developing countries. The Raspberry Pi hardware has evolved through several versions that feature variations in memory capacity, and peripheral device support .The Raspberry Pi 2 has 1 GB of RAM. The Raspberry PI Zero has 512 MB of RAM. The Raspberry Pi may be operated with any generic USB computer keyboard and mouse. The Raspberry Pi does not come with a real-time clock, which means it cannot keep track of the time of day while it is powered off.

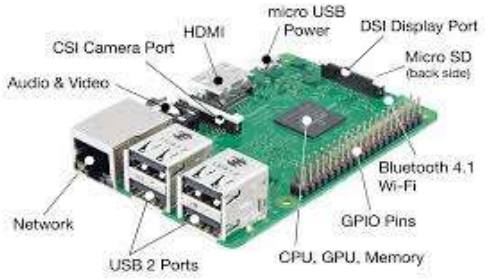


Fig. Raspberry pi

SOFTWARE:

1. Asterisk:

Asterisk is fundamentally a telephony toolkit enabling developers to create numerous types of applications that interface with telephone networks. The most accessible application is that of a PBX. Asterisk can also be used as an IVR (Interactive Voice Response) system, for teleconferences (phone meeting) and as a voicemail system. Asterisk is, however, most frequently used to build hybrid PBX systems that utilize modern PCI cards instead of banks of switches and relays, and software instead of custom hardware. By using comparatively simple PCI cards in a standard x86 computer system running on Linux, the cost to build a working system is greatly reduced as compared to the often expensive and intractable traditional PBX.

2. PuTTY Software:

PuTTY is a terminal emulation program. It is a free and open-source terminal, serial console and network file transfer application. It supports particular network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. It also connect to a serial port. The name "PuTTY" has no definitive meaning. PuTTY was initially written for Microsoft Windows, but it has been ported to various other operating systems. Official ports are applicable for some Unix-like platforms, with work-in-progress ports to Classic Mac OS and Mac OS, and unofficial ports have been contributed to platforms such as Symbian, Windows Mobile and Windows Phone.

3. Zoiper app:

A soft phone is a software program for build telephone calls over the Internet using a general purpose computer, rather than using dedicated hardware. The soft phone can also be installed on a piece of equipment such as a workstation, portable computer, tablet or even a cell phone and allows the user to place and receive calls without requiring an actual telephone set.[1] Often a soft phone is designed to behave like a traditional telephone, sometimes appearing as an image of a phone, with a display panel and buttons with which the user can connect. A soft phone is commonly used with a headset connected to the sound card of the PC, or with a USB phone.

RESULT:

1) Able to make free voice call without SIM and Internet using Raspberry Pi.

2) Call is in process with high voice clarity, there is no interference.

3) Call Waiting feature is also there, you here beep notifications of an incoming call when you are already busy attending another call.

4) Maximum numbers of calls are in process simultaneously.

5) Only limitation is that, we call only in Wi-Fi range, but for increasing range of our network we have to use router with high range or we can use Wi-Fi boosters also.

6) It consumes very less power supply 5 Volt for Raspberry and 12 Volt for Wi-Fi Router.

7) Service provider.

8) Call Monitoring and Call Recording.

CONCLUSION:

VoIP technology is one of the most extensively using technologies which support to deal with communication from anywhere in the world. VoIP engineering is necessarily varying telephony industry, enabling not just less expensive calls but also providing more beneficial and rich features and more flexible services. Increasing number of service provider is one of the reasons of VoIP technology to be reasonable comparatively with others. Even if, challenges stay behind, VoIP technology already plays a key function in businesses communications and is rapidly varying the residential and consumer landscape of domestic and international communication affair. Raspberry Pi is ARM processor CPU where the Linux OS run smoothly and so as per the cost factor the system for Calling on Wi-Fi as a intercom system where there is no need of internet and SIM card.

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