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(54) **Title:** A SYSTEM "CLICK TO VIDEOTALK" FOR ESTABLISHING A VOIP VIDEO AND METHOD THEREOF

(57) **Abstract:** A system "Click to VideoTalk" for establishing a VOIP Video call between an end user with a computer connected to the internet and a call centre agent with a computer, telephone and a hardware connecting the two.

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A SYSTEM "CLICK TO VIDEOTALK" FOR ESTABLISHING A VOIP VIDEO AND METHOD THEREOF

Field of the Invention

This invention relates to the IP telephony, communication and multimedia services.

Description of Related Art

The invention "Click to VideoTalk" is in field of Internet or IP telephony to provide customers access to the VOIP service with the need to have previously loaded a toolbar with preconfigured Internet telephony software on the customer's accessing personal computer. As used herein, IP telephony refers to a process through which audio information corresponding to spoken words is digitized and transmitted / received from a remote location using the Internet for at least a portion of a route to/from that remote location. The remote location may correspond to a computer or a telephone handset. One of the main advantages of Internet Telephony is to make long distance calls very cheap and thus help e-commerce. As used herein, toolbar is a software and a plug-in to the Internet browser that can display dynamic information regarding the merchant or the vendor. Toolbars are attractive to the users as they display information required for them without having to search anywhere in the website. Dynamic toolbars helps in giving up-to-date information.

Toolbars have been present for quite some time but recently, thanks to technical advancement, toolbars have been able to generate advanced features which would otherwise be very complicated.

In the existing "Click to talk" systems, the end user would find a popup that contains the "Click to talk" information. On clicking a button on the popup, a call is established with the merchant call centre. But increasing security concerns have resulted in most of the users installing an anti-spy ware and popup blockers which would disallow the popups to be shown. The very essence of "Click to Talk" has been lost by the concealment of the popup. Also, most of the systems download a small Java program every time that places a call. Since the Java program is downloaded without the user's knowledge, security concerns might arise.

Many of the systems have enabled only PSTN dialing on click to call. If a user places a call, the call centre is typically a PSTN number. This would involve installing PSTN gateways at different locations which makes the system very costly to setup. Since the call centre agent is on a telephone, features that can be possible are limited to the PBX

that could be connected. Also, enhanced features like live video, conferencing, text chat cannot be provided on the PSTN network.

Another main concern in using PSTN based service is that of scalability. The PSTN gateway would generally have very low channels typically in the range of 32, 64 or 128. Even assuming a PBX to be connected, all PBXs have a definite number of channels. If the number of channels needed in the future exceeds this channel number, it would be required to purchase a new PBX. This would increase the cost and also a management and tracking issue as when to buy a new PBX.

Thus, known Internet telephony systems represent an alternative to standard long distance telephone service, but presents a number of constraints to the end user. The above-identified problems are particularly troublesome in the field of e-commerce applications.

OBJECTS OF THE INVENTION

The main object of the present-invention is to address the above limitations through toolbar with preconfigured Internet telephony software on the customer's accessing personal computer with the invention of "Click to VideoTalk".

Another object of the invention to provide a unique interface that is simple to use and preferred by the end user.

Yet another object of the invention provided using toolbars is the dropdown menu for the "Click to VideoTalk" button.

Still another object of the invention is to provide Video capabilities at both the users ends.

Still another object of the invention is to establish n-party audio conference between many call center agents and an end user.

Still another object of the invention to offers a variety of features that enables e-commerce, enhancing business opportunities at a very low establishment cost for the merchant.

Still another object of the present invention is to develop telephony, communication and multimedia services to achieve the aforementioned requirements.

Still another object of the present invention is to develop a method for "Click to VideoTalk".

Still another object of the present invention is to develop software for "Click to VideoTalk".

STATEMENT OF THE INVENTION

The present invention relates to a system for establishing VoIP Video call, said system comprising, toolbar web server to display dynamic contents of a website onto toolbar, call processor for controlling, signaling and to maintain call state, voice processor for establishing voice communication by switching packets between users, and Video capabilities and a method for establishing a VoIP Video call between users, the method comprising steps of: installing toolbar from a website, displaying Click to Video Talk button/dropdown menu and/or website-related dynamic information from installed toolbar, and clicking on the button to establish the video call between the users.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

Figure 1 shows a diagram showing the components and the systems involved in the "Click to VideoTalk" invention.

Figure 2 shows the basic operation and steps involved in the invention.

Figure 3 and 4 show how the hardware telephone adaptor is connected to the computer and the working principle of the adaptor.

Figure 5 shows the layout of the hardware and the circuits/chips involved.

Figure 6 shows describes the operation of the Call Processor server and how it handles routing of calls.

Figure 7 shows describes how the VideoTalk Client establishes the call with a VideoTalk Agent with the help of the Call Processor.

Figure 8 (a) and 8(b) shows Toolbar Examples.

Figure 9 shows Telephone Adaptor.

DETAILED DESCRIPTION OF THE INVENTION

Accordingly, the present invention relates to a system for establishing VoIP Video call, said system comprising,

i. toolbar web server to display dynamic contents of a website onto toolbar,
ii. call processor for controlling, signaling and to maintain call state,
iii. voice processor for establishing voice communication by switching packets between users, and
iv. Video capabilities.

One embodiment of the present invention, wherein the system is a click to video-talk system.

Yet another embodiment of the present invention, wherein the system optionally comprises telephone adaptor connecting computer and telephone.

Still another embodiment of the present invention, wherein the system optionally comprises of video images of end user.

Yet another embodiment of the present invention, wherein the audio call is between two or more users.

Still another embodiment of the present invention, wherein the Video call is between two users.

Yet another embodiment of the present invention, wherein the system establishes call between an end user and call centre agent.

Still another embodiment of the present invention, wherein the system establishes audio conference between multiple call center agents and an end user.

Yet another embodiment of the present invention, wherein the system connects end users video-talk via computer and/or telephone.

Still another embodiment of the present invention, wherein toolbar web server provides dynamic dropdown menu or a button.

Yet another embodiment of the present invention, wherein call processor determine type of connection.

Still another embodiment of the present invention, wherein system has administrative and call loggings located at Call Processor.

Yet another embodiment of the present invention, wherein the call processor behaves as a PBX and hunts for available/free Call agents.

Still another embodiment of the present invention, wherein the dynamic content are selected from a group comprising buttons, menus, rolling text, RSS feeds, images and "Click to VideoTalk" dropdown menu.

Yet another embodiment of the present invention, wherein the toolbar web server maintains the user's dynamic data on a database.

Still another embodiment of the present invention, wherein the toolbar web servers database contains URL's to companies website.

Yet another embodiment of the present invention, wherein the voice server comprises a Network Discovery Protocol (NDP) server.

Still another embodiment of the present invention, wherein the voice server supports Transport control Protocol (TCP) and User Datagram Protocol (UDP) based voice

packets to ensure that users from any network configuration can communicate with each other.

Yet another embodiment of the present invention, wherein the voice servers are scalable.

Still another embodiment of the present invention, wherein the call processor manages stream for the voice servers.

Yet another embodiment of the present invention, wherein the call processors are scalable.

Still another embodiment of the present invention, wherein the user is a merchant or client.

Yet another embodiment of the present invention, wherein the end user can be located anywhere.

One more embodiment of the present invention, a method for establishing a VoIP Video call between users, the method comprising steps of:

i. installing toolbar from a website,
ii. displaying Click to Video Talk button/dropdown menu and/or website-related dynamic information from installed toolbar, and
iii. Clicking on the button to establish the video call between the users.

Still another embodiment of the present invention, wherein the toolbar displays the merchant's dynamic business information.

Yet another embodiment of the present invention, wherein establishing the video call between computer and/or telephone through telephone adaptor.

Still another embodiment of the present invention, wherein the method provides for error information and exit application on unsuccessful call.

Yet another embodiment of the present invention, wherein the click to VideoTalk button/dropdown menu provides call link to individual (s) and/or group(s).

Still another embodiment of the present invention, wherein the call to a group will go through a process of call hunting where in the call processor will check for the free call center agent and if none of them are free then it is put into a Queue.

Yet another embodiment of the present invention, wherein establishing the call using call hunt procedure is on round robin basis.

Still another embodiment of the present invention, wherein establishing the call and the call is put into a Queue it is processed using first come first serve basis.

Yet another embodiment of the present invention, wherein the audio call is between two or more users.

Still another embodiment of the present invention, wherein the Video call is between two users.

Yet another embodiment of the present invention, wherein the toolbar is dynamic.

The invention of "Click to VideoTalk" toolbar has not only solved the above mentioned problems but also presented a unique interface that is simple to use and preferred by the end user. The invention enables a phone call to be placed from a personal computer to another personal computer in a call centre. The call centre agent uses an Internet Telephony software that would have multimedia services like Video conversation, Call Recording and Archiving, generate request ID's, text chat conversations that would enable to send URL's / Request ID's or even files, and a telephone hardware adaptor to plug-in a telephone into the computer through USB. We call the call centre agent Internet Telephony software "VideoTalk Agent" and the Internet telephony software in the end user's computer as "VideoTalk Client". The telephone adaptor is a hardware that connects to the telephone on one side and to VideoTalk Agent running on the PC on the other side through the USB port. On an incoming call, the telephone connected to the VideoTalk Agent rings and the agent can pick up the call and answer. The voice packets received by VideoTalk Agent will be transmitted to the telephone through the hardware. Vice versa, the speech through the telephone is transmitted to VideoTalk Agent which will then packetize and send it to the end user's computer. The protocol used for the invention is a proprietary protocol that enables the system to perform in the best and optimized manner.

Toolbars are plug-ins to the web browser that displays information. The information can be dynamic as well as static. The accomplishment of using only one toolbar but supporting many merchants for "Click to VideoTalk" is a new invention. Once the user visits a web page of a merchant and the merchant is a part of this system, the toolbar fetches the necessary information from a web server and displays information regarding the merchant's business on the toolbar. This change in the toolbar attracts the users and they get up-to-date information about the merchant. The toolbar has a button configured for "Click to VideoTalk".

An interesting invention and feature that is provided using toolbars is the dropdown menu for the "Click to VideoTalk" button. Suppose a merchant has many streams of

support like "Help", "marketing", "sales", and "Technical". The users can select one of the menus depending on the request. This dropdown menu for the "Click to VideoTalk" button can also be dynamic.

Another new invention includes the Video capabilities at both the users ends. There is no system presently available that can display the video image of both the users. This enhances the value of the merchant and helps in making better business.

One main advantage in using IP based call centres and VideoTalk Agent application is that the call centre agents can be located anywhere. They could be connected to the system directly from their home or call centre office or any other location. The system has administrative logging and call logging so that all the events happening in the system can be logged and traced.

In summary, this invention offers a variety of features that enables e-commerce, enhancing business opportunities at a very low establishment cost for the merchant.

Table 1: Different NAT / Firewall's and P2P possibility

VideoTalk Client	VideoTalk Agent	Peer-Peer Possible?	TCP/UDP?
Public (No NAT)	FC/Res./Port Res./Sym	Yes	UDP
Public (No NAT)	UDP Firewalled	Yes	TCP
Full Cone (FC)	FC/Res./Port Res./Sym	Yes	UDP
Full Cone	UDP Firewalled	No	TCP
Restricted (Res.)	FC/Res./Port Res./Sym	Yes	UDP
Restricted	UDP Firewalled	No	TCP
Port Restricted (Port Res.)	FC/Res./Port Res.	Yes	UDP
Port Restricted (Port Res.)	Symmetric	No	UDP
Port Restricted (Port Res.)	UDP Firewalled	No	TCP
Symmetric (Sym)	FC/Res.	Yes	UDP
Symmetric (Sym)	Port Res.	No	UDP
Symmetric (Sym)	UDP Firewalled	No	TCP

Component Description

Referring to Fig 1, the system consists of users who have downloaded a toolbar that contains the "Click to VideoTalk" button. The information and content of the toolbar is retrieved from a web server. The Toolbar web server and the database are maintained by us. Merchants are vendors subscribed to this service. For every merchant subscribed

to the service, a database is maintained to retrieve the content and information. The merchants need to install servers in their premises and manage the call centre. The servers that are to be managed are the Call Processor, Buddy Server and the Voice Server. The call centre agents are connected to the system through the computer with a telephone connected to it optionally.

i. Call Processor: This is the call manager software. All the control signaling happens through the Call Processor that maintains a call state. It also takes care of administration, Authentication and authorization. The call agents do not have permission to register to the service automatically. Only an administrator can register on behalf of a call agent through the call processor software. The Call Processor software does not handle any voice packets. But it enables the end systems to establish a voice connection peer-peer. Peer-to-Peer is the term used in communications when two end systems interact directly without a relay server's help for communication. The advantages of peer-peer are faster delivery of packets, lesser hops between the two end systems and better efficiency of packets being delivered. Typical system requirements are 3.0 GHz processor, 512MB RAM, and 256 kbps internet connections.

ii. Voice Server(s): This server plays a vital role in establishing voice communication between the user and the call agent. In recent times, private IP's are allotted by the ISP's as public IP's are a security threat to the end user computer. Hence peer -to- peer voice communication is not possible. The voice server acts as a relay server, switching packets between the call agents and the end users. The voice servers would only switch but not compress or decompress the voice packets. The amount of traffic that such a server can serve is limited to its processor and switching speed rather than the bandwidth. With gigabit networks available, bandwidth would never be the problem but the time taken for a packet switch would be an important parameter to consider when deploying servers. Repeated test results indicated that smaller the packet arrival interval, smaller is the number of streams that can be served. The packet processing interval is roughly the same for a small size packet and a large size packet. Formula to find out the number of streams:

$N = T_p / t_s$, where, T_p is Packet Length in time

t_s is Time taken to switch a packet in a stream

T_p and t_s are constants and hence N can be found out easily. But to find out the best N, the relation between T_p and t_s is important. The bigger the T_p the better is N because the

value of t_s is almost same for varied T_p. Hence we find that bigger the value of T_p more the number of streams can be served and hence lesser the number of server deployments.

To find out the bandwidth required for such N streams depends on the type of audio codec used for the system. Various codecs work at various bit rates. The bit rate of the codec would generally depict the quality of the voice. The codecs can also be adaptive so as to select a lower bit rate for low bandwidth connection or a high bandwidth codec if the bandwidth is good.

B = N*b where b is the bit rate of the codec, N is the number of streams

Typically b is 20kbps, therefore B = 20*N

The Voice servers are scalable. If the load on the servers is on the rise, setting up another Voice server is simple and the Call Processor manages the streams for the voice servers.

The voice server supports TCP (Transport Control Protocol) and UDP (User Datagram Protocol) based voice packets to ensure that users from any network configuration can communicate with the call agent. The Voice server also has a NDP (Network Discovery Protocol) (RFC 1889 reference X) server. The VideoTalk Client application would query the NDP server for the network parameters of the ISP connection. This information will be used by the Call Processor to allot the Voice server as well as the type of connection to be used for communication. Typical system requirements are 3.0GHz processor, 512MB RAM, and an internet connection that can support calls to all call centre agents simultaneously.

Toolbar Web server and database: The toolbar in the end user's computer connects to the toolbar server to display dynamic content. The toolbar web server maintains all the merchant dynamic data on a database connected. On every visit to a website, the toolbar sends a query to the toolbar web server with the website information. If the website visited by the user is one of the merchants' website, the dynamic content of the toolbar is downloaded on to the web browser and displayed. The dynamic content would generally be buttons, menus, rolling text, RSS feeds, images and "Click to VideoTalk" button/dropdown menu corresponding to the particular website.

IM and Buddy Server: This server maintains the Presence of all VideoTalk Agents connected to the system. Presence is the technical term for online/offline information with respect to a buddy. This server also handles all text based Instant Messaging

sessions, 1-1 IM as well as N-Party conferencing. This server also handles file transfer sessions between any two users connected to the system. Hence an end user, who might want to report a problem that he/she has stored in a file, can easily transfer the file to the agent. At the same time, if the agent has a file / document to be transmitted to the end user as an acknowledgement or a report, it is also possible.

VideoTalk Client: The end user using the toolbar has a component which is the VideoTalk Client. This component is invoked on the press of the "Click to Video Talk" button. The component is basically an application that establishes a 1-1 call between the end user and an agent. This component is responsible to send authorization messages and call setup messages to the Call processor. This component tries to establish a peer – peer voice and video conversation with a VideoTalk Agent. This component also has an IM feature where the end user can initiate a text chat with the agent to whom he/she is talking. It is also possible to support text chat conference with one end user and multiple call centre agents.

VideoTalk Agent: The call centre agent uses the component VideoTalk Agent. A webcam attached to the PC is used by this component for a video session with an end user.

The agent software typically has more functionality like call recording, create a 3 party ad-hoc conference, connect a telephone through the USB adaptor, call forwarding / call transfer options, option of auto saving the text chats with the end user.

Referring to Fig 1, the component description is explained as above. The architecture to host such a service is the following. A toolbar is created that contains a static portion and a dynamic portion. The end user downloads and installs the toolbar. The dynamic portion of the toolbar is retrieved every time the user opens a new web site. Viewing a different page of the same web site does not refresh the toolbar. The toolbar's dynamic portion retrieves the data from a toolbar web server. The toolbar web servers are easily scalable and hence the number of users connecting to the toolbar web server is not an issue. The toolbar refreshes the dynamic portion as soon as a new website is loaded on the internet explorer web browser.

Merchants are companies or individuals who are a part of this setup. Instead of every merchant developing a toolbar that the user downloads, we provide one toolbar but displaying information about the merchant's business in the toolbar once the user visits the website. By this method, the merchant can promote the use of the toolbar and also

display critical business information on the toolbar to attract the users. With the invention of "Click to VideoTalk", the merchants can provide live support and information to the customers and end users to help e-commerce and business better.

Company merchants who are a part of this architecture host the components "Call Processor", "Voice Server", "IM and Buddy Server" and the "VideoTalk Agents". By implementing this architecture, the system is completely scalable. The toolbar downloaded and installed by the end user has the component "VideoTalk Client". The merchant will supply the dynamic data to be displayed on the toolbar. This dynamic data will contain the addresses that an end user can contact to get more help and information regarding the merchant's business. It will also contain the IP addresses of the Call processor the VideoTalk Client should contact. The VideoTalk Client application is invoked when the user clicks on the "Click to VideoTalk" button. The IP Address and the email address are sent as command line arguments when invoking the VideoTalk Client application. The VideoTalk Client application reads the command line arguments and initiates a call to the VideoTalk Agent through Call Processor mentioned in the command line.

Individual merchants who are a part of this system may not have the necessary infrastructure to host the different servers nor can they manage and administer the setup. We setup servers and the infrastructure in the public internet and allow them to use this service. Thus, an individual now can have his/her own toolbar and also have a "Click to VideoTalk" button on the toolbar. Thus, the system does not attend to one community or group but it is open to everyone to have a toolbar and be a part of the Click to VideoTalk system.

The dynamic data are retrieved from a database connected to the Toolbar web server. When a user views a web site, the website address is sent to the toolbar web server. The toolbar web server contacts the database to check if the merchant is a part of the "Click to VideoTalk" system. If the merchant is found, the database also retrieves the dynamic content and sends it to the end user via the toolbar web server. The merchant can change the dynamic data by only providing links in the database and not the complete content. These links will then point to a location on the merchant's web server and the contents are retrieved by the toolbar.

Referring Fig 2, an end user visits a web site of a merchant who is a part of this system. The merchant displays information regarding the toolbar to the users who may not know about the advantages the toolbar provides. The end user, if has not installed the toolbar downloads the toolbar and installs it. The toolbar will now contain static information about the toolbar, how it helps in making business and the working principle so that any other merchant viewing it can also be a part to the system. On visiting a web site of a merchant of the system, the user finds dynamic data with buttons, menus, RSS feeds, other information and a "Click to VideoTalk" button. The "Click to VideoTalk" has a few parameters attached to it. The "Call Processor" IP address of the merchant is one parameter. The address to contact when clicking the button is another parameter. To find out more about the merchant, the user clicks on the "Click to VideoTalk" button. If the "Click to VideoTalk" is a dropdown menu, it will display a list of menus like "help@merchant.com", "sales@merchant.com", etc. The user can choose to have a conversation with an agent of a particular group. On selecting a menu from the dropdown or clicking on the button (if not a dropdown menu), the VideoTalk Client is invoked. The VideoTalk Client retrieves the parameters and connects to the Call Processor of the merchant. VideoTalk Client then requests for a 1-1 call with the address specified.

It is interesting to see that this address may not be a valid VideoTalk Agent address. It may be a Group address or an individual VideoTalk Agent address. All VideoTalk Agents login to the Call Processor with one of the groups addresses ex being "help@merchant.com", "sales@merchant.com", etc. The VideoTalk Agents login to the system with their email address valid to the merchant business ex "bob@merchant.com". But there might be cases where the group address is an alias to the individual address. For example, "webmaster@merchant.com" could be the group address but internally would be mapped to "mike@merchant.com".

It should be further noted that the caller id is displayed on the end user. If the Call Processor selects an agent "name@merchant.com", the end user sees the caller id as "bob@merchant.com" and not "help@merchant.com".

The VideoTalk Agent can have a USB hardware that connects a telephone to the PC. Referring to Fig 2 and 3, during an incoming call, the telephone connected to the PC rings. The agent picks up the phone and starts talking. Referring to Fig 5, the internal circuitry of the USB device consists of a chip that is a USB controller and a slick chip

that performs the ring and DTMF detection. The USB controller connects to the PC as an audio device. The main advantage of using a telephone compared to a headphone is the comfort of use. It is easier to speak for a longer time using a telephone than using the headphone.

Referring to Fig 6, the Call Processor receives the message from a VideoTalk Client to establish a call between an agent of a particular group and the end user. The Call Processor now hunts for an available VideoTalk agent. The hunting is based on a round robin basis and the Call Processor selects an agent for the call with the end user. If there are no agents free (all of them are busy in calls), the call processor would send a busy message and disconnect the call. An option of enabling a queue system is also possible so that the user need not try randomly to make a call. Instead the call will be put on a queue and the end user will be listening to some music. Once an agent is free, the call in the queue will be processed by the Call Processor and a VideoTalk session established. The Call Processor, in the process of sending the established message to the clients, will receive a CONNECTION_TYPE variable that will contain the type of connection used by the clients. The CONNECTION_TYPE will be explained in detail when we refer fig 7. But the Call processor, looking at the CONNECTION_TYPE at both ends will find out what is the best way to establish the call between the two clients.

The termination of the 1-1 VideoTalk happens through the Call Processor. If either of the clients clicks on "release" button on the UI, the Call processor receives the message and informs the other client about the call disconnection.

Referring to Fig 7, it describes all the steps taken by the VideoTalk Client software to establish a VideoTalk session with the VideoTalk Agent. The first step taken by the VideoTalk Client software is to retrieve the addresses from the toolbar as command line arguments. It then connects to the Voice Server, which is also a part of the addresses sent in the command line arguments, and performs a STUN like method to obtain the NAT (Network Address Translators) and firewall information. This information is very critical because a VideoTalk session should be possible under any network condition. Hence if an end user is from a network where UDP packets are disallowed and blocked by a firewall, the Network Discovery Protocol (NDP) that is very similar to STUN protocol, will detect the type of network and firewall and submit

the information to the Call Processor. This information is recorded in the Call Processor and uses it before establishing the call.

NAT's are devices that act as a proxy to the private IP address machines. Without the NAT's, no private IP address machine can establish an IP connection to the rest of the world. The different type of Nat's and Firewalls are a) Symmetric NAT b) Port Restricted Nat c) Restricted NAT d) Full Cone NAT e) UDP Firewall. Peer-Peer communication is possible only between two particular Nat's. Table 1 explains the possibility of peer-to-peer communication between users or agents behind different NAT's. When Call Processor establishes the call between the two clients, it does a table look up and sends the information back to the clients as to whether they must use Peep-to-Peer or not. When the clients cannot use Peer-to-Peer, they use the Voice server to relay the packets between the clients.

With the help of the VideoTalk Agent software, an agent can establish a call with another VideoTalk Agent of the same merchant. In general, we can assume that the agents would be in the same local area network thus making it very simple for call establishment between two VideoTalk Agents. This feature would eliminate the use of a PBX within the merchant's enterprise. With the software solution and hardware interface, expanding the agents is very simple. The computers being an integral part of the merchant's enterprise, all that is needed is the VideoTalk Agent software. At present, a single Call Processor can handle up to 100,000 simultaneous VideoTalk Agents login. From Moore's Law, if the Call Processor needs 1,000 simultaneous VideoTalk Agents logged in then the total number of subscribers that can be supported by the "Click to VideoTalk" system would be approximately 100,000.

While the invention has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not be considered in a limiting sense. Indeed, it should be readily apparent to those skilled in the art in view of the present description that the invention can be modified in numerous ways. The inventor regards the subject matter of the invention to include all combinations and sub combinations of the various elements, components, features and/or properties disclosed herein.

We Claim

1. A system for establishing VoIP Video call, said system comprising,

i. toolbar web server to display dynamic contents of a website onto toolbar,

ii. call processor for controlling, signaling and to maintain call state,

iii. voice processor for establishing voice communication by switching packets between users, and

v. Video capabilities.

2. A system as claimed in claim 1, wherein the system is a click to video-talk system.

3. A system as claimed in claim 1, wherein the system optionally comprises telephone adaptor connecting computer and telephone.

4. A system as claimed in claim 1, wherein the system optionally comprises of video images of end user.

5. A system as claimed in claim 1, wherein the audio call is between two or more users.

6. A system as claimed in claim 1, wherein the Video call is between two users.

7. A system as claimed in claim 1, wherein the system establishes call between an end user and call centre agent.

8. A system as claimed in claim 1, wherein the system establishes audio conference between multiple call center agents and an end user.

9. A system as claimed in claim 1, wherein the system connects end users video-talk via computer and/or telephone.

10. A system as claimed in claim 1, wherein toolbar web server provides dynamic dropdown menu or a button.

11. A system as claimed in claim 1, wherein, call processor determine type of connection.

12. A system as claimed in claim 1, wherein system has administrative and call loggings located at Call Processor.

13. A system as claimed in claim 11, wherein the call processor behaves as a PBX and hunts for available/free Call agents.

14. A system as claimed in claim 1, wherein the dynamic content are selected from a group comprising buttons, menus, rolling text, RSS feeds, images and "Click to VideoTalk" dropdown menu.

15. A system as claimed in claim 1, wherein the toolbar web server maintains the user's dynamic data on a database.

16. A system as claimed in claim 1, wherein the toolbar web servers database contains URL's to companies website.

17. A system as claimed in claim 1, wherein the voice server comprises a Network Discovery Protocol (NDP) server.

18. A system as claimed in claim 1, wherein the voice server supports Transport control Protocol (TCP) and User Datagram Protocol (UDP) based voice packets to ensure that users from any network configuration can communicate with each other.

19. A system as claimed in claim 1, wherein the voice servers are scalable.

20. A system as claimed in claim 1, wherein the call processor manages stream for the voice servers.

21. A system as claimed in claim 1, wherein the call processors are scalable.

22. A system as claimed in claim 5, wherein the user is a merchant or client.

23. A system as claimed in claim 21, wherein the end user can be located anywhere.

24. A method for establishing a VoIP Video call between users, the method comprising steps of:

i. installing toolbar from a website,

ii. displaying Click to Video Talk button/dropdown menu and/or website-related dynamic information from installed toolbar, and

iii. Clicking on the button to establish the video call between the users.

25. A method as claimed in claim 24, wherein the toolbar displays the merchant's dynamic business information.

26. A method as claimed in claim 24, wherein establishing the video call between computer and/or telephone through telephone adaptor.

27. A method as claimed in claim 24, wherein the method provides for error information and exit application on unsuccessful call.

28. A method as claimed in claim 24, wherein the click to VideoTalk button/dropdown menu provides call link to individual (s) and/or group(s).

29. A method as claimed in claim 24, wherein the call to a group will go through a process of call hunting where in the call processor will check for the free call center agent and if none of them are free then it is put into a Queue.

30. A method as claimed in claim 24, wherein establishing the call using call hunt procedure is on round robin basis.

31. A method as claimed in claim 24, wherein establishing the call and the call is put into a Queue it is processed using first come first serve basis.

32. A method as claimed in claim 24, wherein the audio call is between two or more users.

33. A method as claimed in claim 24, the Video call is between two users.

34. A method as claimed in claim 24, wherein the toolbar is dynamic.

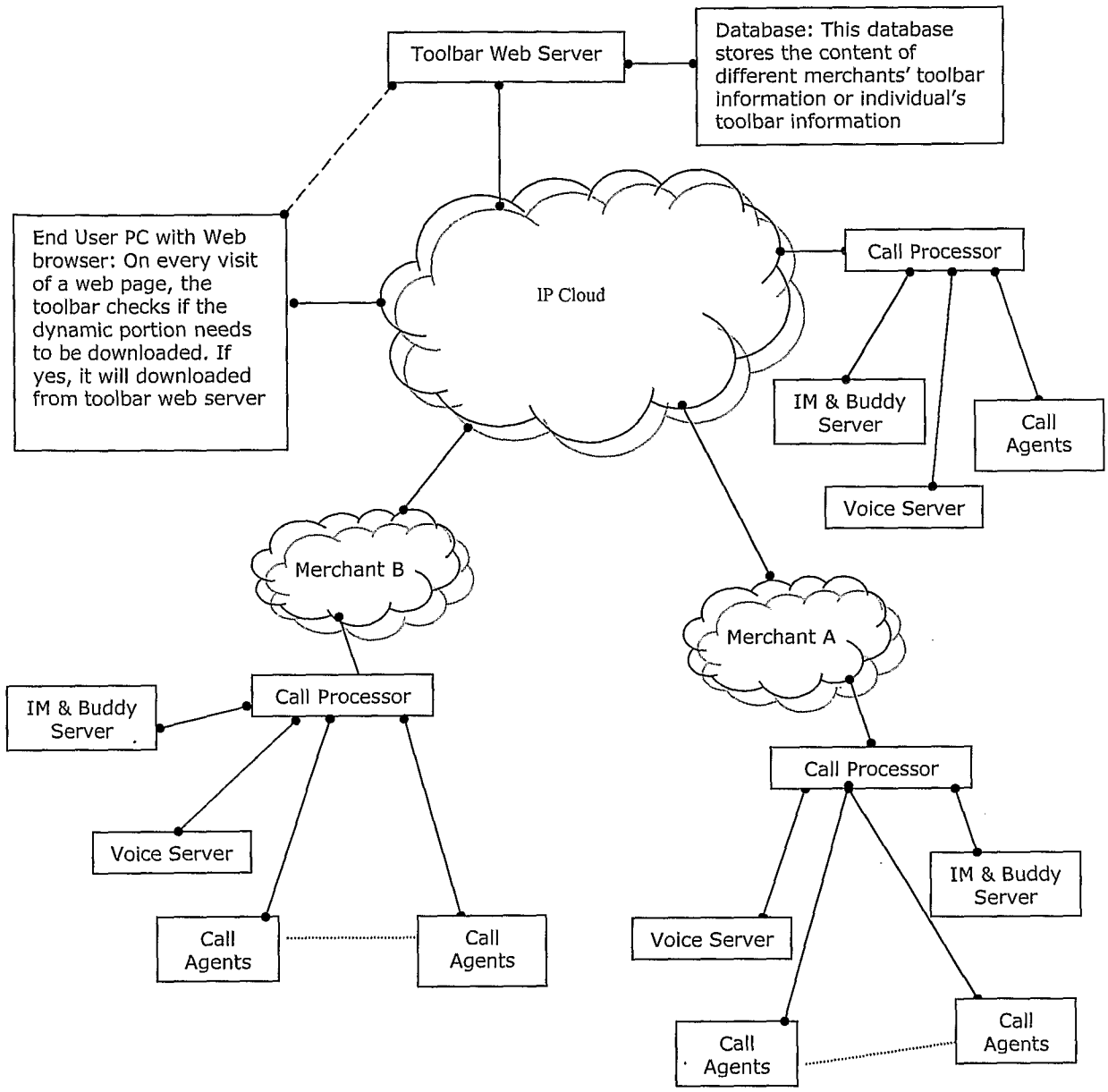

Fig 1: Architecture and components in the "Click to VideoTalk" invention.

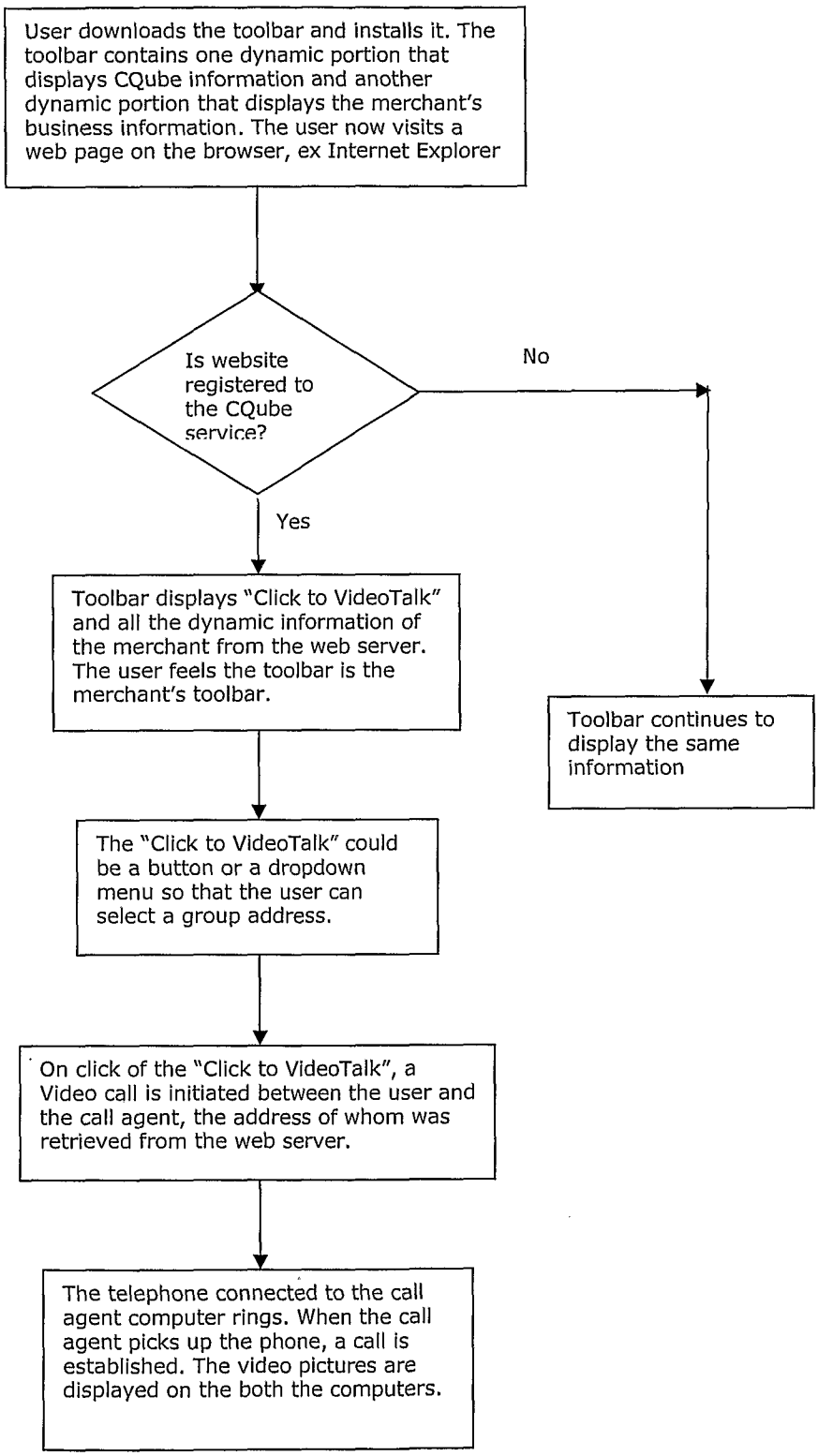

Fig 2: Operation Flow Chart

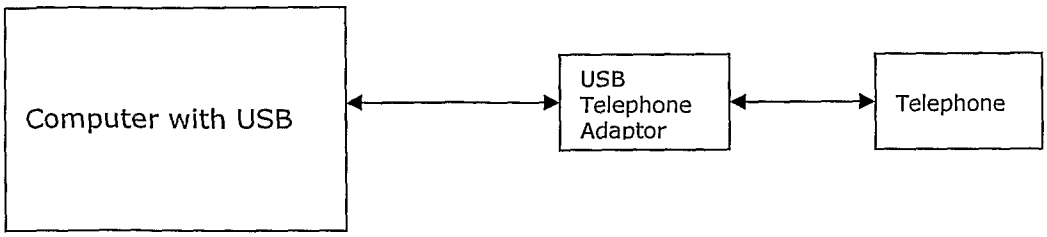

Figure 3: VideoTalk Agent Telephone adaptor description

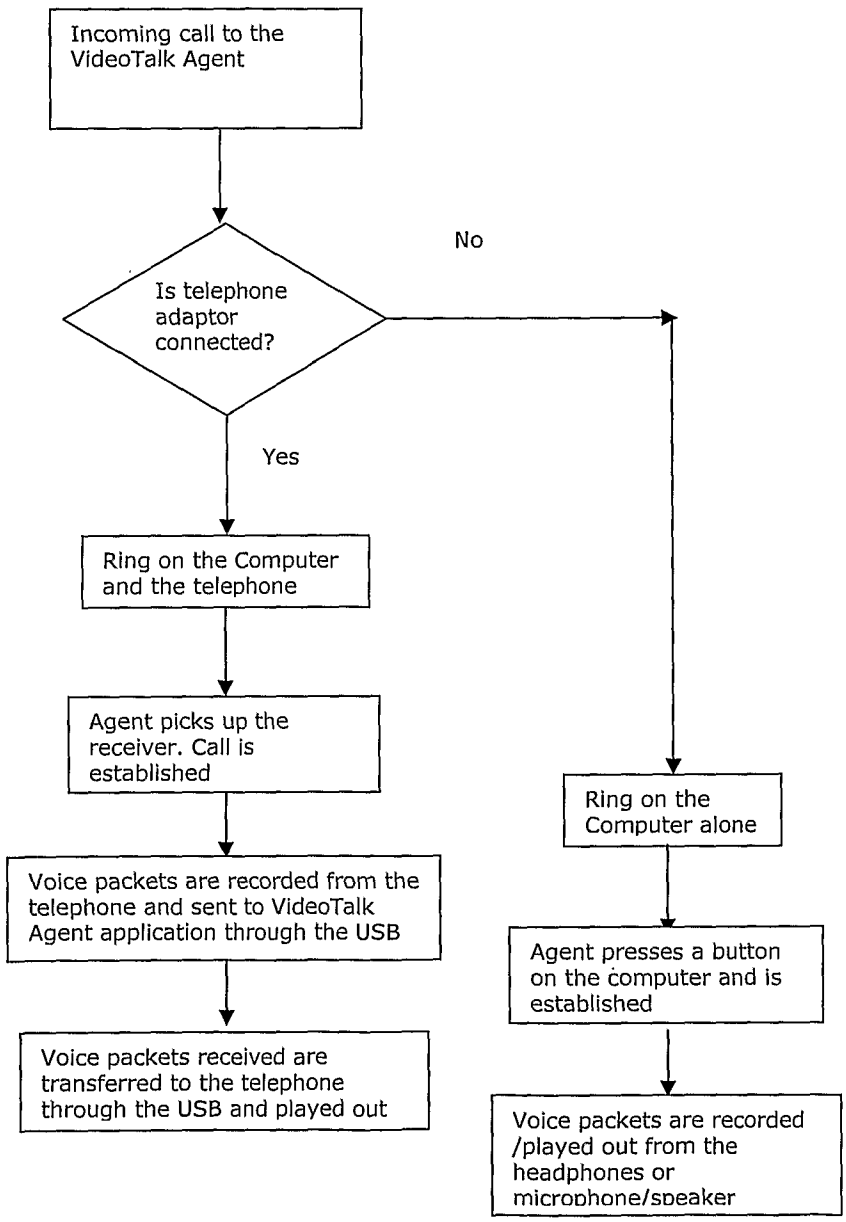

Fig 4: VideoTalk Agent Telephone adaptor: Incoming call description.

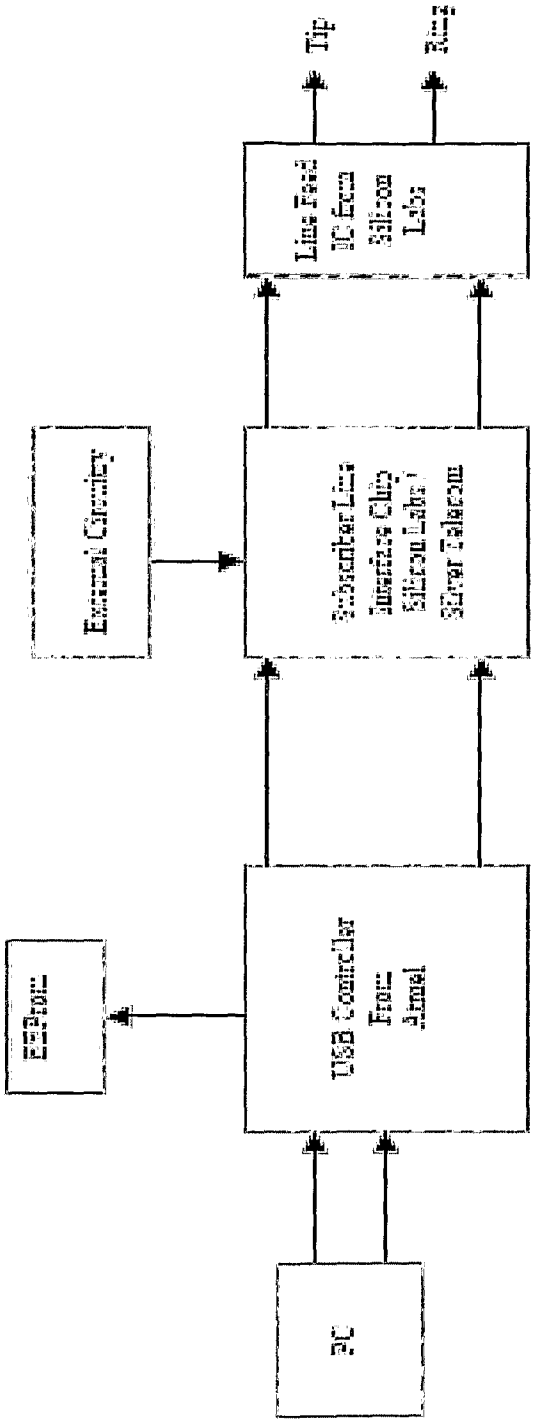

Fig 5: Telephone adaptor Circuit block diagram

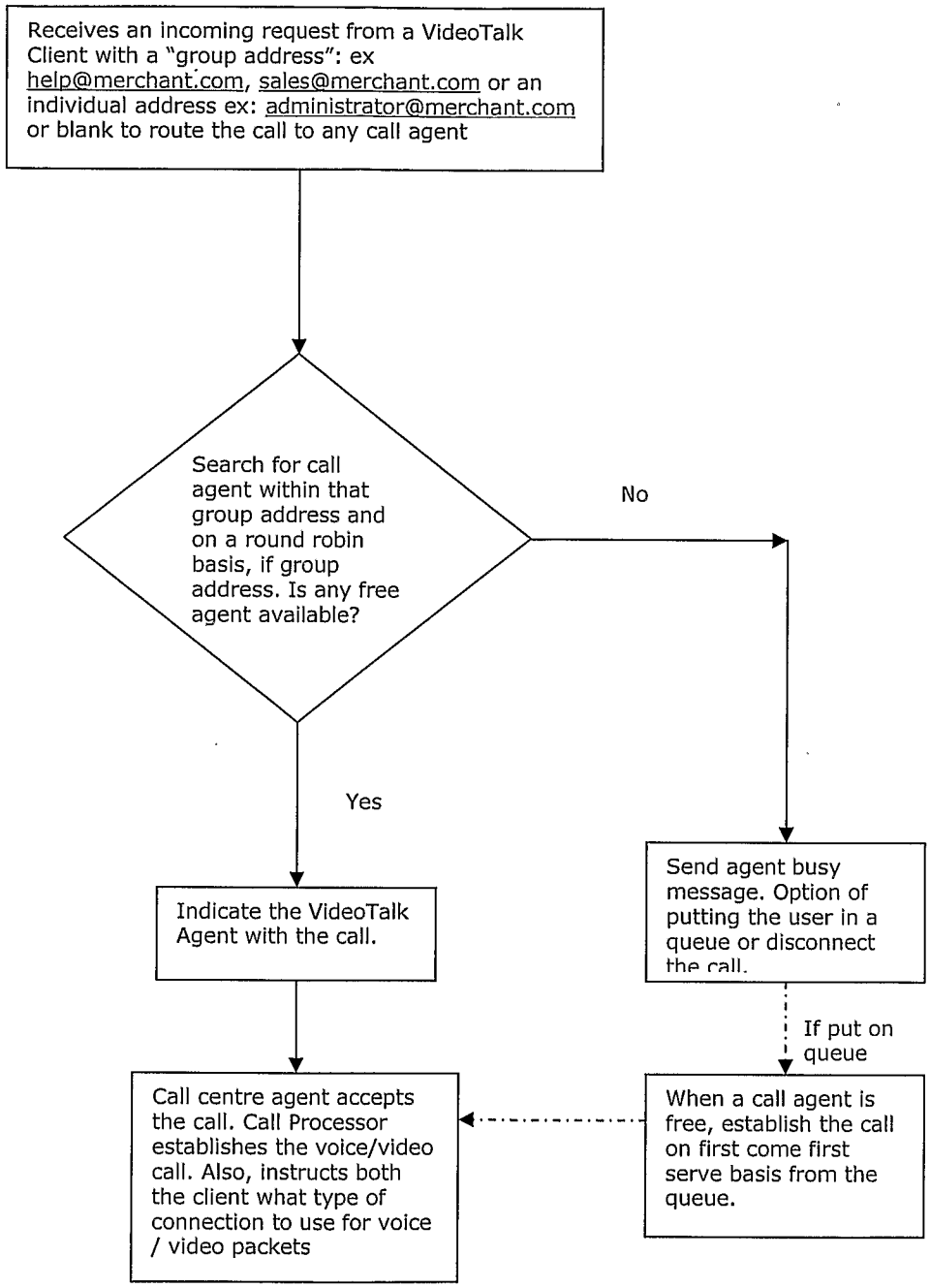

Fig 6: Illustrates how Call processor routes calls to the Call Agent

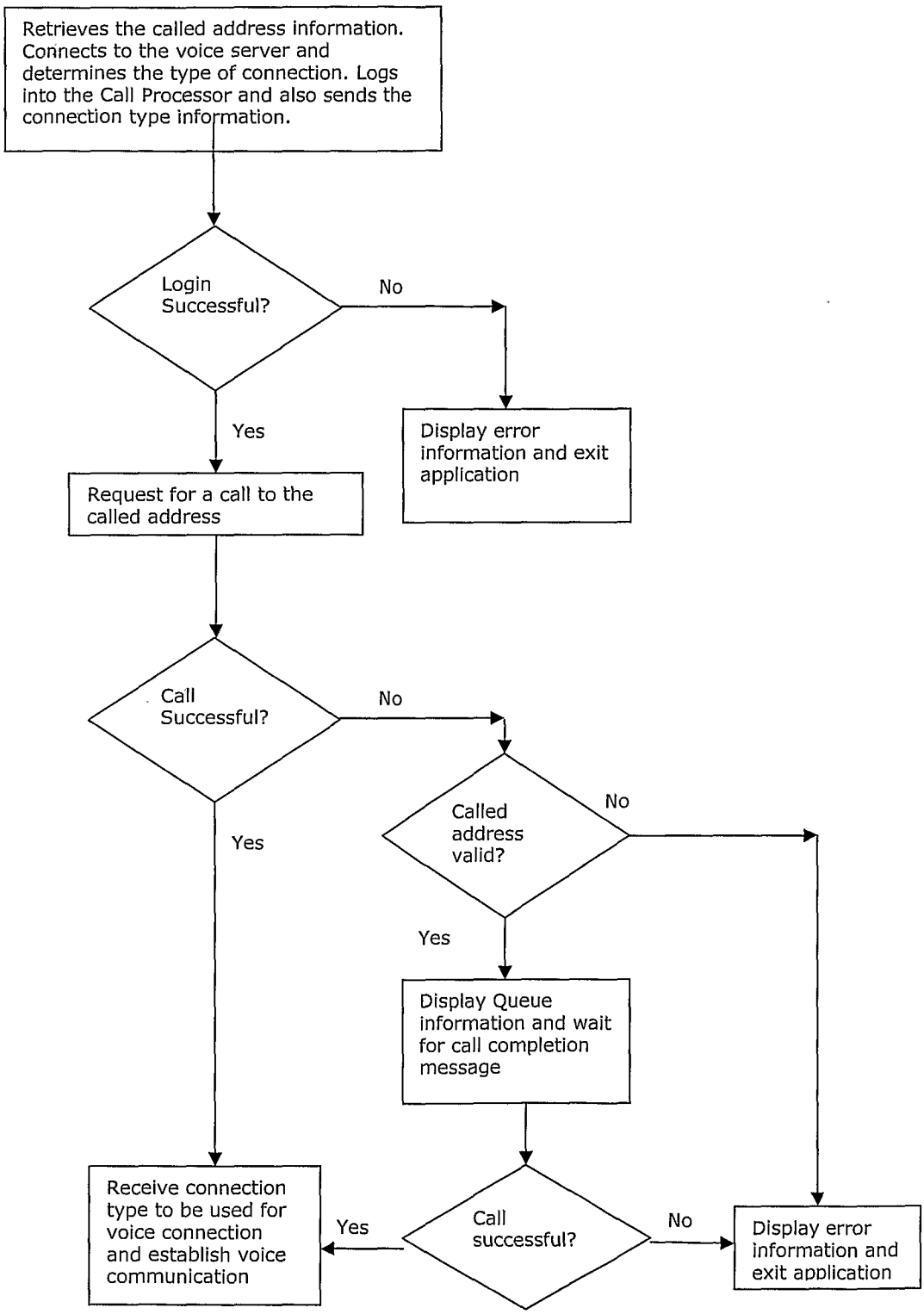

Fig 7: Illustrates the steps taken by the CQube Client

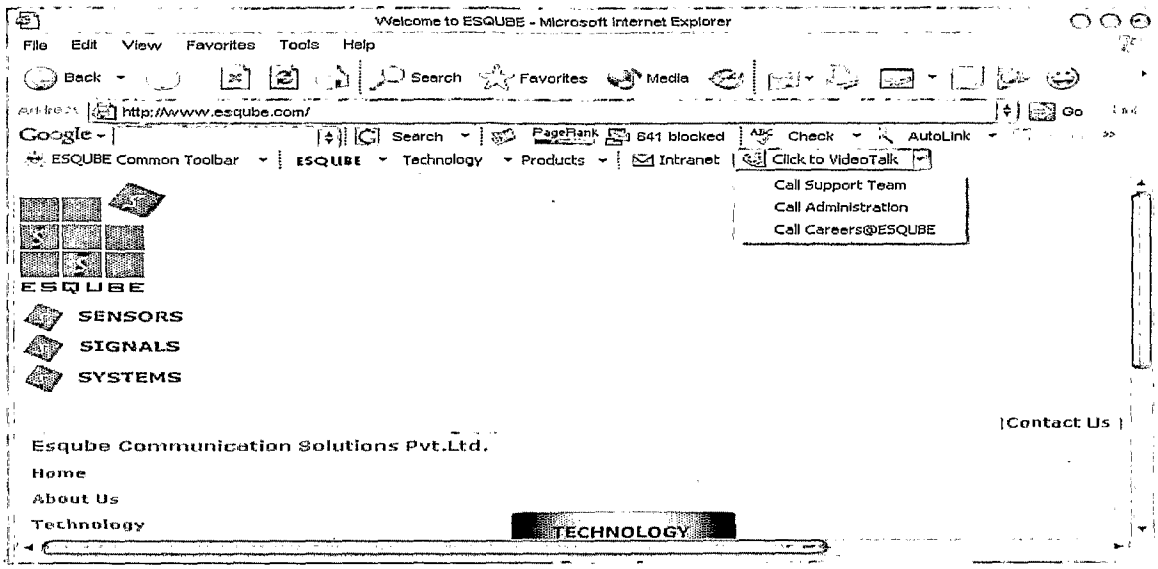

Figure 8(a): Toolbar Example 1.

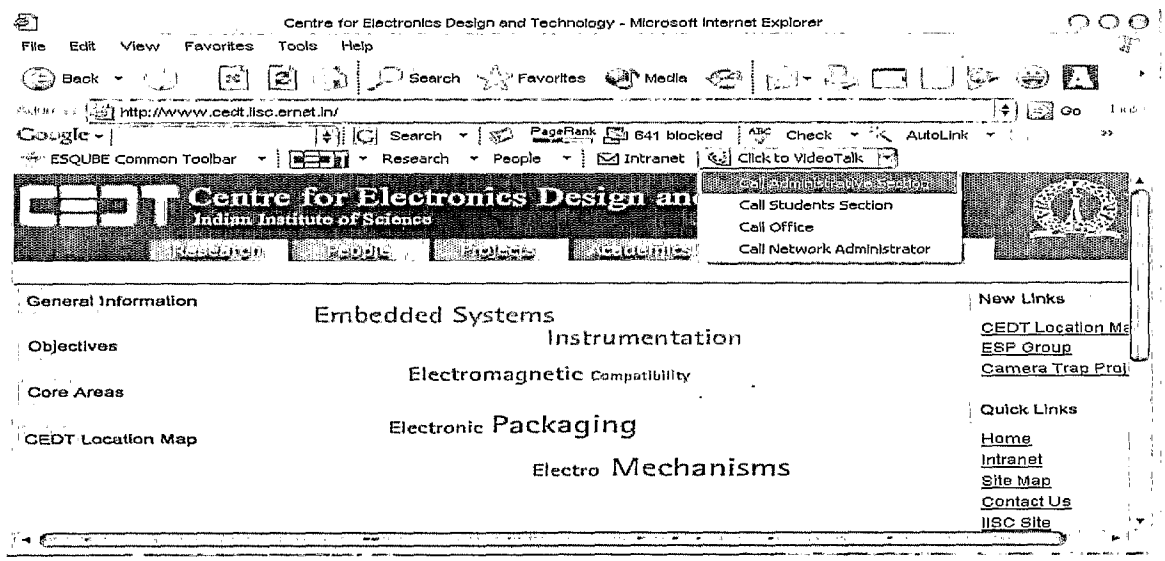

Figure 8(b): Toolbar Example 2.

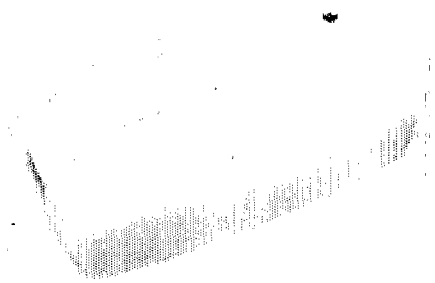

Figure 9: Telephone adaptor.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN 2006/000289

A. CLASSIFICATION OF SUBJECT MATTER

IPC[8]: ***H04L 12/16*** (2006.01); ***G06Q 30/00*** (2006.01); ***G06Q 90/00*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC[8]: H04L, G06Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, Internet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Skype Web Toolbar for Internet Explorer. [Online] Skype Limited, 12 April 2006 (12.04.2006) [retrieved on 2007-06-20]. Retrieved from the Internet: <URL: http://www.skype.com/download/skypewebtoolbar/> *whole document*	1-34

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 June 2007 (20.06.2007)	12 July 2007 (12.07.2007)

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