Title: DEDICATED METHOD FOR CONTROLLING AND MONITORING VOICE, VIDEO, AND DATA COMMUNICATIONS

Abstract: Dedicated method for controlling and monitoring voice, video, and data communications, described as a computer methodology providing a flexible and user-friendly interface that interacts with the methods and events related to voice, video, and data communications associated to telephones and similar apparatus, providing a differentiated way of managing and programming the general uses of the latter, especially mobile phones, and which incorporates a proprietary structure comprising a voice, video, and data communication control and monitoring system (SSCCVT); a set of manual operating devices for individual telephones (DOMATI); a set of automatic operating devices for individual telephones (DOAATI); a set of automatic operating devices for multiple telephones (DOCAMATI); a set of control and monitoring devices for individual telephones (DSCATI); and a set of control and monitoring devices for multiple telephones (DSCMATI).
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"DEDICATED METHOD FOR CONTROLLING AND MONITORING VOICE, VIDEO, AND DATA COMMUNICATIONS"

The present patent relates to computer methods in general, more specifically to a dedicated method for controlling and monitoring voice, video and data communications which, according to the characteristics thereof, possesses as a basic principle to provide the formation of a proprietary and specific computer methodology providing a flexible, efficient and user-friendly interface to directly interact with the methods and events related to voice, video, and data communications associated to telephones and similar apparatus in general, and controlled by mobile phones, in order to provide a fully differentiated way of managing and, especially, programming the general uses of the latter, particularly mobile phones, being based on the formation of a versatile and practical control and monitoring method. With specific design for better access and adaptation for the users, practical handling, and functional characteristics and due to its general characteristics, easily adaptable to the most varied kinds of users, locations and telephones and similar apparatus in general, regardless of the characteristics thereof.

The patent in question is characterized in that it aggregates components and processes in a differentiated concept to meet the several requirements the nature of its use demands, that is, the control and monitoring of voice, video, and data communications. Such concept provides a method with great functional, versatile, efficient, practical, accurate and interactive features due to its excellent technical qualities, thereby providing advantages and improvements in the utilization of telephones and similar apparatus in general; the general characteristics of which differ from the other shapes and models known in the current state of the art.

The present patent consists in the utilization of a modern, versatile, efficient and functional method for controlling and monitoring voice, video, and data communications, formed by a set of properly incorporated telephone and computer solutions comprising a complete and differentiated control and monitoring method based on a proprietary and specific methodology that allows the control and
monitoring of a variety of voice, video, and data communication systems directly in the most diverse types of telephones and similar apparatus in general, regardless of the platforms and equipment included, and which incorporates a proprietary structure comprising a voice, video, and data communication control and monitoring system (SSCCVI); a set of manual operating devices for individual telephones (DOMATI); a set of automatic operating devices for individual telephones (DOAATI); a set of automatic operating devices for multiple telephones (DOAMAT); a set of control and monitoring devices for individual telephones (DSCATI); and a set of control and monitoring devices for multiple telephones (DSCMAT); so as to form a complete and accurate methodology that aggregates the most diverse types of telephones and similar apparatus in general, with great enhancement and versatility in face of its operational capability by users in general.

The general conception of the dedicated method for controlling and monitoring voice, video, and data communications allows the utilization of a set of systematic functions and services, among which: automatic and selective disconnection of undesired calls in the monitored telephones, selective routing of each desired call to a telephone, monitored or not; selective monitoring of desired calls, in monitored telephones, destined for and/or originated from selected users, notifying the supervisor user the caller's name and the call (different from the supervisor user) as well as the called phone number and/or location, thus allowing the supervisor user to send remote commands to operate the called phone; remote operation of monitored telephones using high-level commands (connect me to) via Internet or Cellular Net (mobile data communication network); recording and maintenance of instructions (call routing, disconnection and monitoring criteria) by means of the monitored telephones or a computer equipped with a DOMATI, via Internet or local area network, with automatic synchronization between the database associated to the supervisor user's several monitored telephones; automatic roaming capability for the supervisor user using the several telephones, monitored or not, using an automatic Bluetooth location technology or similar technology, in order to identify the telephone which is closest to the supervisor user and forward the
required calls; monitoring, if authorized, of telephones from other supervisor users, with several levels of monitoring (e.g. busy, free, speaking); capability of a supervisor user to authorize monitoring by other supervisor users, indicating the level of monitoring authorized for each one; capability of more than one supervisor user sharing the same computer or monitored telephone; capability of using a monitored telephone to place a call destined for another supervisor user, due to the physical location where the latter finds himself/herself at the moment, if known by the system; capability of automatically placing simultaneous calls to a same user using the several telephones registered in the system for that user, so as to contact him/her as fast as possible; capability of integration (control and monitoring) with local or external applications, or with external voice devices connected to the system; and marginal utilization as a capability of integration (control and monitoring) with local or external applications, or with other external devices in general.

A supervisor user is a user with monitoring capability over ongoing calls, generally the user himself/herself, although it can be another individual with that power, always associated to a single "user id" (provided with a password) within this system.

The objects, advantages and other important characteristics of the patent in question can be more easily understood when read jointly with the appended drawing, wherein:

Figure 1 is a flow diagram of the dedicated method for controlling and monitoring voice, video, and data communications.

As can be inferred from the appended drawing that illustrates and integrates the present descriptive report of the patent of invention "Dedicated Method for Controlling and Monitoring Voice, Video, and Data Communications", Figure (1) shows a flow diagram of the latter, comprising a complete control and monitoring method based on a proprietary and specific methodology providing a flexible interface to directly interact with the methods and events related to the control and monitoring of a variety of voice, video, and data communications in the
most diverse types of telephones and similar apparatus in general, regardless of the platforms and equipment included, and which incorporates a proprietary structure comprising a voice, video, and data communication control and monitoring system (SSCCVI) arranged as a command and information distribution system among the several DOAATIs connected via Internet, and the connection of the DOMATIs to their supervisor users and those to the associated DOAATIs; a set of manual operating devices for individual telephones (DOMATI) comprised of a computer program installed in any Internet connected computer, and, in modern telephones, connected to a mobile data communication network, and associated to a single supervisor user, identifiable by a code and a password, that allows him/her to identify and be alerted on ongoing calls in the telephones under his/her control, and to interfere on them in real time, so as to operate the telephones (e.g. disconnect, answer or forward the call to another telephone or service) and maintain the instructions (including, excluding and changing) desired by the user, using the associated DOAATIs to operate and monitor the telephones, so that a supervisor user is able to monitor several telephones; a set of automatic operating devices for individual telephones (DOAATI) associated to a single telephone and to one or more DOMATIs, so as to automatically interfere on the calls taking place in the telephone by following the instructions registered by the DOMATIs and their supervisor users, and to alert and receive commands in real time from the DOMATIs associated to the DOAATI, both to notify ongoing calls, modify the instructions and remotely control the telephone, using the DSCATI associated to the telephone to interfere on its features (that is, receiving information and controlling); a set of automatic operating devices for multiple telephones (DOAMAT), which is connected to the DSCMAT and carries out the operations that are equivalent to the several DOAATIs associated to the many telephones in a Private Branch Exchange (PBX), a Mobile Telephone Switching Office (MTSO) or a Wireline Central Office (PSTN), usually known by the acronym CTI (Computer Telephony Integration), so as to execute the instructions defined by the supervisor users for the PBX telephones; a set of control and monitoring devices for individual telephones.
(DSCATI) connected to a single telephone and to a corresponding DOAATI, each DSCATI being associated to a single telephone number in order to identify the telephone operations taking place in that telephone (incoming and outgoing calls, call disconnection, etc.), alert the DOAATI and, under its control, instruct the telephone to answer calls, disconnect calls, forward calls, set up conference calls, dial, among other things, being also comprised of an equipment with telephone operation capability connected to a computer program or intelligent device as, for example, a fax-modem-voice board connected to a computer, a phone line board, a PBX-computer integration program (CTI) among others; and a set of control and monitoring devices for multiple telephones (DSCMAT) connected to a single PBX, MTSO or PSTN and that integrates both the operations of the DOAMAT and the several DOMATIs associated to the several phones thereof, usually known by the acronym CTI, using the DSCATI functions already existing in the telephone exchange itself, normally a program that interacts directly with the PBX or the public telephone exchanges (MTSO, PSTN), so as to be alerted about ongoing calls in the extensions (phone lines) which are monitored and associated to the referred telephone exchange, as well as being able to control the telephone exchange to dial, disconnect, etc, the monitored extensions.

The voice, video, and data communication control and monitoring system (SSCCVI) is a program that resides in an Internet-connected server, accessible through its remote users connected to several customer programs.

The manual operating device for individual telephones (DOMATI) is comprised of a computer program that can run under any personal computer platform known in the market connected to the Internet through a modem; in mobile phones, through data communication protocols used by cell phone carriers, and in PDA type devices through Internet based data communication protocols or the protocols used by cell phone carriers. The computer program is capable of issuing operational commands from telephones to a specific telephone by means of a DOAATI interface device; sending and receiving information from the Internet to specific servers; receiving the user's commands, via keyboard and mouse;
displaying information for the user on the computer screen; and performing the user's login to the SSCCVI.

The automatic operating device for individual telephones (DOAATTI) is comprised of a programmed device equipped with the following functions: maintain the automatic operating instructions for the telephone (include, exclude, modify) based on information received from the DOMATI interface device and using the database associated to the telephone as a file location for these instructions, the database being able to be physically present in the same DOAATTI program computer or in another Internet connected computer with access to this program, in order to keep the supervisor user's instructions using the DOMATI, and this same instruction database will be automatically duplicated and synchronized by all the other DOAATTI devices from the telephones monitored by the same supervisor user; identifying the events taking place (e.g. telephone on-hook or off-hook, receiving a call from an identified telephone number) through information received from the DSCATI interface associated to the telephone in question; determining the actions to be taken due to the events taking place in the telephone and the instructions registered in the telephone database; carrying out the actions determined by the previous stage requiring commands sent to the telephone using the DOMATI interface; carrying out the actions determined by the previous stage requiring information on the events being sent via Internet to other DOAATTI programs from the SSCCVI; receiving commands via DOMATI interfaces and transferring them to the associated DSCATI, as well as showing the state of events in the monitored telephones to the supervisor user using the corresponding DOMATI interface; allowing the same DOAATTI to be connected to several DOMATI interfaces simultaneously.

The automatic operating device for multiple telephones (DOAMAT) is comprised of a programmed device that works in strict connection with a PBX, MTSO or PSTN using the telephone exchange communication protocol, thereby implementing a CTI (computer/telephone integration), and having full conditions of automatically controlling the telephone exchange, as well as receiving information
on the events taking place thereof, CSTA standard protocols being used by modern telephone exchanges (PBX) for that communication. The DOAMAT is provided with the following functions: establish (identification and password) and keep digital contact with the telephone exchange; implement functions of the respective DSCATIs for each telephone connected to the telephone exchange; implement functions of the respective DOAATIs for each telephone connected to the telephone exchange; and keep a database to meet each DOAATI interface’s needs.

The control and monitoring device for multiple telephones (DSCATI) is comprised of two main components: a computer program, which is a peripheral driver program, and an equipment component, for example, a phone board, a fax-modem-voice board among others. The equipment component physically operates the telephone, receiving commands from the computer program. The computer program is in contact with the external DOAATI interface, which is called application, from which it receives commands and to which provides the state of the events taking place in the telephone. The interface computer program and equipment components are specialized in the type and model of telephone they operate on so that each type and model thereof is equipped with a specific equipment component and a computer program working in conjunction with the telephone. This device is required when the telephone operation needs to be carried out individually only. A PBX, MTSO or PSTN is provided with its own DSCMATs in a centralized way, thus operating all telephones in the telephone exchange. The functions of the computer program are as follows: receive and analyze the commands generated by the DOAATI interface to define their correction, accuracy and feasibility before transferring them to the equipment component for execution; report the DOAATI interface on the command’s syntax or execution errors which were received and not executed; and pass information to the DOAATI interface about the events received from the equipment component that are taking place in the telephone. The functions of the equipment component are as follows: receive and execute the commands received from the driver; notify the driver about telephone state changes and events taking place; and notify the driver the results of the
execution of the commands. The commands that go through this device to the telephone, directly dependant on the PBX, MTSO or PSTN connected to the telephone, are the following: take the telephone off-hook, hang up, wait dial tone, dial a number in DTMF; the commands for the DTMF numbers go to the PBX, MTSO or PSTN and are usually telephone numbers, but can also be a transfer code, conference, FLASH, pending lookup, among others.

The control and monitoring device for multiple telephones (DSCMAT) is used when a telephone exchange such a PBX, MTSO or PSTN is part of the system only; in such cases these functions are performed by the telephone exchange itself. Some telephones connected to the telephone exchange cannot be operated in full capacity by the DSCMAT, in this case, a specific DSCATI (to put the telephone on-hook or to take it off-hook) is required.

The basic element of the dedicated method for controlling and monitoring voice, video, and data communications is the supervisor user who is allowed to carry out some functions on his/her intelligent mobile phone, an Internet connected computer, an Internet browser from a local area network program.

Using his/her intelligent cell phone, the supervisor user is provided with the following features:

- monitoring alerts that indicate that one of the monitored telephones is receiving a call from a user to whom the supervisor user wishes to answer, in this case, the caller, the called phone line and the called supervisor user (only if one or more supervisor users are sharing the mobile phone at the moment) is indicated, so that several alerts can be presented at the same time on the mobile phone display;

- remote call forwarding to the base telephone, previously registered in the system by means of a single button press in the mobile phone;

- remote call answering by means of a single button press in the mobile phone;

- call forwarding to another telephone whose number will be notified upon receiving the command;

- remote call forwarding to a voice mail system, that is, routing the
call to the Voice Mail system (installed in any monitored telephone), or call disconnection;

- monitoring of ongoing calls in the telephones selected by the supervisor user;
- merging of ongoing calls in the selected telephones;
- monitoring of telephones from other supervisor users;
- person-to-person direct calls;
- remote dialing using a remote monitored telephone; and
- maintenance of instructions by using the mobile phone to include, exclude or modify the automatic operating instructions in the user database, with the following edition alternatives: monitor the instructions associated to a user, include the automatic disconnection instruction, include the automatic call forwarding instruction from non-registered users and include the automatic call alert instruction for calls from and to registered users.

The types of alert that can be received via mobile phone are a person calling one of our monitored telephones (call not answered yet); a person being called by one of our monitored telephones (call not answered yet); a person in active connection (talking on the phone) in one of our monitored telephones; several types of alert can be simultaneously received by the supervisor telephone.

By means of an Internet connected computer and an Internet browser, the exact same functions can be performed from an Internet browser program logged to the central system (supervisor user's identification and password) and, preferably, close to a telephone that will be used as a base telephone, the telephone location being important to enable it to make calls (the closer the better). As a computer screen holds much more information than a mobile phone display, the system will show the same options in a more practical, ergonomically appropriate way to a desktop computer. Both the telephone operation and instruction maintenance functions can be performed with greater comfort and facility.

By means of a program connected to the local area network, the exact same functions can be performed from a program in the supervisor user's desktop...
computer connected to the local area network with a PBX operating program (DSCMAT), and which preferably, is close to a telephone that will be used as a base telephone. As a computer screen holds much more information than a mobile phone display, the system will show the same options in a more practical, ergonomically appropriate way to the desktop computer. As the local area network connection is very quick, many calls flow to the PBX internally only, and the system will operate with the same control and monitoring features described above, but disconnections, transfers and alerts will be generated just within the local area network, with the option of generating alerts to the supervisor telephones outside the PBX as, for instance, the supervisor user’s mobile phone. This way, a control and monitoring system within the PBX can be operated.

For all of the above, this is a methodology that will be well received by all telephone users in general, especially mobile and cell phones in general, since the present dedicated method for controlling and monitoring voice, video, and data communications presents several advantages, such as: great agility in its application; great performance due to its general conception; great practicity in a variety of control and monitoring operations in general; interactivity with the most varied users in general; versatility provided by its utilization in the most diverse types of telephones and similar apparatus in general; generation of a fully user-friendly and pleasant interface between telephones and their users in general; possibility of application in the most diverse types of telephones and similar apparatus in general, as well as telephone exchanges and similar devices; great flexibility in the utilization of the several types of telephones in general, and the certainty of having a method that fully meets the basic use needs required by the users.

For all of the above, the dedicated method for controlling and monitoring voice, video, and data communications can be classified as a fully versatile, practical and efficient means for the utilization in the most diverse types of telephones and similar apparatus in general by various users and locations in general, regardless of the general characteristics thereof, they are also easy to use, as well as having excellent general characteristics; in face of the present specifications,
however, one skilled in the art will appreciate the fact that alternative combinations of the aspects and features shown in the present invention, be that alone, or combined with one or more elements or steps presented herein, may be used as a modification or alteration of the invention or parts thereof.
CLAIM

1.) "DEDICATED METHOD FOR CONTROLLING AND MONITORING VOICE, VIDEO, AND DATA COMMUNICATIONS", characterized in that it comprises a complete control and monitoring method based on a proprietary and specific methodology that provides a flexible interface that interacts directly with the methods and events related to the control and monitoring of a variety of voice, video, and data communications directly in the most diverse types of telephones and similar apparatus in general, regardless of the platforms and equipment included, and which incorporates a proprietary structure comprising a voice, video, and data communication control and monitoring system (SSCCVI) made up by a program that resides in a server connected to the Internet, as a control and information distribution system among the several DOAATIs connected via the Internet, as well as the DOMATIs connection to their supervisor users and those to the associated DOAATIs; a set of manual operating devices for individual telephones (DOMATI) comprised of a computer program installed in any Internet connected computer, and in modern telephones connected to a mobile data communication network, and associated to a single supervisor user, to whom identifies by code and password, thereby allowing him/her to identify and be alerted about ongoing calls in the telephones under his/her monitoring, as well as interfere on them in real time, using the associated DOAATIs to operate and monitor the telephones, so that a supervisor user can monitor several telephones, a set of automatic operating devices for individual telephones (DOAATI) comprised of a programmed device associated to a single telephone and to one or more DOMATIs, so as to automatically interfere on the phone calls by following the instructions registered by the DOMATIs and their supervisor users, as well as to alert and receive commands in real time from the DOMATIs associated to the DOAATI, both to notify ongoing calls, modify instructions and remotely control the telephone, using the DSCATI associated to the telephone to interfere on the telephone; a set of automatic operating devices for multiple telephones (DOAMAT) comprised of a programmed device working in close connection with the DSCMAT and performing the operations equivalent to the
several DOAATIs associated to the several telephones in the PBX (Private Branch Exchange), MTSO (Mobile Telephone Switching Office) or PSTN (Public Switching Telephone Network), using the communication protocol thereof and thereby implementing a CTI (Computer Telephony Integration), thus executing the instructions defined by the supervisor users for the PBX phones; a set of control and monitoring devices for individual telephones (DSCATI) comprised of a computer program in contact with the external DOAATI interface such as a peripheral driver program and by an equipment component physically operating the telephone as a phone board or the like, being connected to a single telephone and to a DOAATI, each DSCATI associated to a telephone number to identify the telephone operations taking place, alert the DOAATI and operating under its control, also being implemented by a piece of equipment with telephone operation capacity connected to a computer program or to an intelligent device, and a set of control and monitoring devices for multiple telephones (DSCMAT) comprised of a program that interacts directly with a single PBX, MTSO or PSTN and integrates both the DOAMAT operations and the operations of the several DOMATIs associated to telephones thereof, usually known by the acronym CTI, using the existing DSCATI functions in the telephone exchange itself to be alerted about ongoing calls in the monitored and associated extensions and to control the telephone exchange in relation to the monitored extensions.