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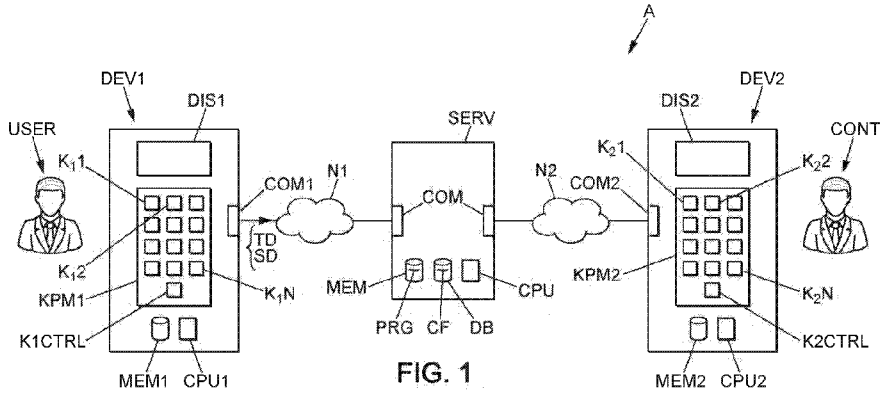


FIG. 1

(57) Abstract: A method of managing a speed dial function of a phone device (DEV1) associating a key (K_11,..., K_1N) of a dialer keypad module (KPM1) of said phone device with a contact (CONT) using a server (SERV) for implementing said speed dial function. The method comprises: -detecting a user input on a first key of the dialer keypad module (KPM1) during an ongoing communication between said phone device (DEV1) and a device (DEV2) of the contact, -associating, in a speed dial database (DB) of the server (SERV), the phone device (DEV1) with said first key and said contact, for subsequent use in establishing a call between the phone device (DEV1) and the device (DEV2) of the contact based on a further user input of the first key.

WO 2017/096571 A1

IMPROVED METHOD OF MANAGING SPEED DIAL FUNCTION

The field of the invention pertains to speed dialing.

In a known manner, speed dialing is a function commonly used through which one may call a contact without having to dial his contact's entire phone number, and therefore shortens the amount of time required to setup a call between two devices, such as two telephones.

Through a speed dial function, a predetermined phone number is associated with a key or a sequence of keys of a keypad module of at least one of the two devices. Upon pressing the key or the appropriate sequence of keys, the user triggers the establishment of a communication between his device and the device corresponding to the predetermined phone number without having to effectively type in the entire phone number of the person he intends to call. Prior to using this speed dial function, the user must therefore program this speed dial function, which is usually done by entering his contact entire phone number and associating a predetermined key with this phone number.

This approach to managing a speed dial function presents drawbacks.

In fact, this approach is very static as one cannot easily modify the number associated with a given key, for instance in case the person associated with the memorized number changes his phone number. Moreover, if the user gets a new device, he will have to program his speed dials again prior to using them with his new device. In addition, having to program the speed dial function through entering his contact entire phone number makes the programming process susceptible to errors.

This invention seeks to improve this situation.

To that end, the invention pertains to a method of managing a speed dial function of a phone device associating a key of a dialer keypad module of said phone device with a contact using a server for implementing said speed dial function, said method being implemented using a server, the method comprising:

- detecting a user input on a first key of the dialer keypad module during an ongoing communication between said phone device and a device of the contact,
- associating, in a speed dial database of the server, the phone device with said first key and said contact, for subsequent use in establishing a call between the phone device and the device of the contact through a call setup request triggered using the first key pad.

According to an aspect of the invention, the speed dial database comprises contact data through which the first key, the contact and the phone device are associated, said contact data being for identifying the contact and contacting the contact.

According to an aspect of the invention, associating the phone device with said first key and said contact comprises generating, in the speed dial database, the contact data along with device data which identify the phone device, and dial key data which identify the first key.

According to an aspect of the invention, the method further comprises:

- retrieving in the speed dial database the contact data associated with the first key, and
- enabling a communication between the phone device and the contact using said contact data.

According to an aspect of the invention, the method further comprises receiving new contact data and updating the contact data based on said new contact data.

According to an aspect of the invention, detecting a user input comprises determining whether the user input on the first key is of a predetermined type, associating the phone device with the first key and the contact being carried out if the user input is determined to be of said predetermined type.

According to an aspect of the invention, the method further comprises detecting a second user input during said ongoing communication, associating the phone device with the first key and the contact being carried out in response to said second user input being detected.

According to an aspect of the invention, the second user input is performed on the device of the contact.

According to an aspect of the invention, the second user input is performed on the phone device.

According to an aspect of the invention, the ongoing communication has been initiated by the phone device.

According to an aspect of the invention, the ongoing communication has been initiated by the device of the contact.

According to an aspect of the invention, the dialer keypad module generates a Dual-Tone Multi-Frequency signal in response to the user input on the first key pad being performed, and detecting the user input comprises identifying the first key pad based on the Dual-Tone Multi-Frequency signal.

According to an aspect of the invention, the dialer keypad module generates a message identifying the first key pad in response to said user input, and detecting the user input comprises identifying the first key pad based on said message.

The invention also pertains to a server for the implementation of the method defined above, wherein the server comprises:

- a speed dial database,
- a communication module adapted for communicating at least with a phone device during an ongoing communication between said phone device and a device of a contact, and
- a processing module configured to:
    - detect a user input on a first key of a dialer keypad module during said ongoing communication, and
    - associate in the speed dial database the phone device with said first key and said contact, for subsequent use in establishing a call between the phone device and the device of the contact through a call setup request triggered by activation of the first key pad.

In addition, the invention relates to a computer program comprising instructions whose execution by a processor causes the implementation of the method as defined above.

The invention will be better understood in view of the following description, given as an example and made in light of the appended figures, in which:

- Figure 1 is an illustration of an apparatus involved in the method according to the invention, and in particular of a server for implementing the method according to the invention; and

- Figure 2 is an illustration speed dial data involved in the method according to the invention;

- Figure 3 is an illustration of a method according to the invention; and

- Figure 4 is an illustration of an alternative embodiment of the apparatus of Figure 1.

Figure 1 illustrates an apparatus A for implementing the method of managing a speed dial function according to the invention.

The method provides a way for a user USER to assign a phone number of a contact CONT to a predetermined key or sequence of keys of a keypad of his phone device, and to further call the contact by pressing the given key or the given sequence of keys, thereby shortening the time required to call his contact.

The apparatus A comprises a device of the user, or first device, DEV1, a device of a contact to be targeted by the speed dial function, or second device DEV2, and a server SERV for implementing the speed dial function.

The first device DEV1, hereinafter device DEV1, is a communication device adapted for remote communications with the second device DEV2.

Advantageously, the device DEV1 is a telephone device, such as a mobile phone or a desk phone.

For instance, the device DEV1 is an electronic device, such as a smartphone, or the like.

The device DEV1 comprises a memory MEM1, a keypad module KPM1, a communication interface COM1, and a processing unit CPU1. Advantageously, it further comprises a display DIS1.

The memory MEM1 is provided for storing computer programs whose execution by the processing unit CPU1 allows the operations of the device DEV1. For instance, the memory MEM1 contains programs for the implementation of an Operating System (OS) of the device DEV1.

The keypad module KPM1 is configured to allow inputs from the user of the device DEV1 so that the user may interact with the device and trigger the performance of given functions of the computer programs run on the device DEV1. In particular, the keypad module KPM1 is adapted for inputs destined to trigger a communication between the device DEV1 and the second user DEV2.

The keypad module KPM1 comprises keys $K_1$1 to K_1N and a keypad controller K1CTRL. N is an integer and defines the number of keys the keypad module comprises.

At least a part of the keys $K_1$1 to K_1N are associated with a one-digit number. For instance, the keypad module comprise keys which are each respectively associated with each number between 0 and 9.

For instance, the key $K_1$1 is associated with the number 1, $K_1$2 is associated with the number 2, up to $K_1$10 which is associated with the number 0.

The keypad controller K1CTRL is configured to detect, or capture, inputs of the user on the keys, and to generate one or more signals representative of the detected inputs. In particular, the signals are representative of the key that has been pressed, and/or of the number associated to the key that has been pressed.

In a first embodiment, the controller K1CTRL is configured to generate a Dual-Tone Multi-Frequency, or DTMF, signal which represents the key which has been pressed by the user.

In a known manner, such a signal comprises a mixture of two tone sounds of predetermined frequencies, each key being associated with a unique mixture of two sounds.

In a second embodiment, the controller K1CTRL is configured to generate a signal indicative of a message which contains data which identifying the key that has been pressed.

By "key associated with a number", it is to be understood that a user input of a given key allows the keypad module KPM1, more specifically by the keypad controller, to determine the corresponding number. The signal(s) generated by the keypad controller in response to a user input on a given key is representative of the associated number.

The keypad module KPM1 is for instance a physical keypad module comprising physical keys. Alternatively, it may be a virtual keypad module generated by the device and displayed on the display DIS1, the latter being sensitive to touch.

The communication interface COM1 is adapted for communications between the device DEV1 and the device DEV2. In particular, it is provided for allowing phone calls between the two devices.

The communication interface COM1 is further adapted for communications between the device DEV1 and the server SERV.

As described below in more details, the device DEV1 and the server SERV are configured to exchange communications for the purpose of the communication between the two devices DEV1 and DEV2 and/or for the implementation of the method of managing the speed dial function according to the invention.

For instance, these communications include data, such as multimedia data containing at least audio data.

The communications are exchanged between the device DEV1 and the server SERV over a first network N1, which may include Internet.

The processing unit CPU1 is configured to run the programs contained in the memory MEM1 for the operations of the components of the device DEV1. For instance, in the known manner, the running of these programs by the processing unit CPU1 results in applications being implemented on the device, these applications being accessible by the user to perform given functions they include.

The processing unit CPU1 for instance comprises a processor.

The display DIS1 is configured for the display of information related to the operations of the device DEV1. For instance, the display DIS1 is configured to display all or part of a human-machine interface which may include the keys of the keypad module KPM1, and through which the user interacts with the device for triggering the functions of the applications.

The second device DEV2, hereinafter device DEV2, is for instance analogous to the device DEV1.

It is a communication device adapted for remote communications with the first device DEV1.

Advantageously, the device DEV2 is a telephone device, such as a mobile phone or a desk phone.

For instance, the device DEV2 is an electronic device, such as a smartphone, or the like.

The device DEV2 comprises a memory MEM2, a keypad module KPM2, a communication interface COM2, and a processing unit CPU2. Advantageously, it further comprises a display DIS2.

The memory MEM2 is provided for storing computer programs whose execution by the processing unit CPU2 allows the operations of the device DEV2. For instance, the memory MEM2 contains programs for the implementation of an Operating System (OS) of the device DEV2.

The keypad module KPM2 is configured to allow inputs from the user of the device DEV2 so that the user may interact with the device and trigger the performance of given functions of the programs run by the processing unit CPU2. In particular, the keypad module KPM2 is adapted for inputs destined to trigger a communication between the device DEV1 and the second user DEV2.

The keypad module KPM2 comprises keys $K_2$1 to K_2N and a keypad controller K2CTRL. N is an integer and defines the number of keys the keypad module comprises.

As for the keypad module KPM1, at least a part of the keys $K_2$1 to K_2N are associated with a one-digit number. For instance, the keypad module comprise keys which are each respectively associated with each number between 0 and 9.

For instance, the key $K_2$1 is associated with the number 1, $K_2$2 is associated with the number 2, up to $K_2$10 which is associated with the number 0.

The keypad controller K2CTRL is configured to detect, or capture, inputs of the user on the keys of the keypad module KPM2, and to generate one or more signals representative of the detected inputs.

In particular, the signals are representative of the key that has been pressed, and/or of the number associated to the key that has been pressed.

The keypad module KPM2 is for instance a physical keypad module comprising physical keys. Alternatively, it may be a virtual keypad module generated by the device and displayed on the display DIS1.

The communication interface COM2 is adapted for communications between the device DEV2 and the device DEV1. In other words, it is provided for allowing phone calls between the two devices.

The communication interface COM2 is further adapted for communications between the device DEV2 and the server SERV.

As described below in more details, the device DEV2 and the server SERV are configured to exchange communications for the purpose of the communication between the two devices DEV1 and DEV2 and/or for the implementation of the method of managing the speed dial function according to the invention.

For instance, these communications include data, such as multimedia data containing at least audio data.

The communications are exchanged between the device DEV2 and the server SERV over a second network N2, which may include Internet.

In some embodiments, the networks N1 and N2 may be identical.

The processing unit CPU2 is configured to run the programs contained in the memory MEM2 for the operations of the components of the device DEV2. For instance, in the known manner, the running of these programs by the processing unit CPU2 results in applications being implemented on the device, these applications being accessible by the user to perform given functions they include.

The processing unit CPU2 for instance comprises a processor.

The display DIS2 is configured for the display of information related to the operations of the device DEV2. For instance, the display DIS2 is configured to display all or part of a human-machine interface which may include the keys of the keypad module KPM2, and through which the user interacts with the device for triggering the functions of the applications.

The server SERV is configured to communicate at least with the device DEV1. Advantageously, it is also configured to communicate with the device DEV2.

Moreover, the server SERV is configured to implement the speed dial function mentioned above.

This function is defined as a function through which the user may setup a communication between his device DEV1 and the device DEV2 by pressing a key of the keypad module KPM1 or a sequence of such keys instead of having to dial the entire phone number associated with the second device DEV2.

To that end, the server SERV is configured to store speed dial data SDD, and to set up a communication between the two devices DEV1, DEV2 as a function of the speed dial data SDD. As will be described in more details below, the communication is also set up as a function of at least a user input on the keypad module KPM1.

The server SERV comprises a memory MEM, a processing unit CPU, and a speed dial database DB. In addition, it comprises components which allow the establishment of the communication between

the two devices DEV1, DEV2 through the server SERV. These components are known and do not form the heart of the present invention. Therefore, they will not described in detail.

The memory MEM is provided for storing computer programs whose execution by the processing unit CPU allows the operations of the server SERV. For instance, the memory MEM contains programs for the implementation of an Operating System (OS) of the server SERV.

The speed dial database, or database DB, is adapted for storing the speed dial data SDD. These data are adapted for associating together the device DEV1 of the user USER, a key of the keypad module KPM1 and the contact CONT to define the speed dial function. This association is adapted for triggering a communication between the devices DEV1 and DEV2 through the speed dial function, whereby the communication is triggered by an input of the user on the key of this association.

The speed dial database DB comprises one or more computer files CF in which the speed dial data SDD are stored.

In reference to Figure 2, for the user USER, the speed dial data SDD comprise device data DEV1D which are adapted to identify the device DEV1 of the user USER. For instance, these device data DEV1 comprises the phone number assigned to the device DEV1 (shown as 06XXXXXXXX on Figure 2).

Moreover, for the user, the speed dial data SDD comprise contact data CONTD which are adapted to identify the contact CONT and to contact him. For instance, these data CONTD comprise the phone number assigned to the device DEV2, which belongs to the contact (shown as 06YYYYYYY on Figure 2).

In addition, for the user, the speed dial data SDD comprise dial key data DIALKEYD which identify a key $K_1 1$, ..., $K_1 N$ of the keypad module of the device DEV1. For instance, the data DIALKEYD comprise the number associated with the corresponding key.

It should be noted that the dial key data DIALKEYD identify a key of the keypad module of any device as long as it includes a key which is associated with the number comprised in the dial key data DIALKEYD.

Together, the device data DEV1D, the contact data CONTD and the dial key data DIALKEYD define the association mentioned above.

As will be described below, the user USER may then trigger the establishment of a communication between his device and the device of the contact through pressing the key represented by the dial key data.

It should be noted that for a given user such as the user USER, the speed dial data may comprise a plurality of such associations, two associations differing in that their respective contact data and/or dial key data are different. For instance, a first association associates the device DEV1 with a first contact and a first key, a second association associating the device DEV1 with a second contact and/ a second key. In this case, the second contact may be identical to the first contact or may be different, but the associated key will be different.

In Figure 1, the speed dial database DB has been depicted as a stand-alone component. However, the speed dial database DB may be located in the memory MEM.

The processing unit CPU is configured to manage the different components of the server SERV for the normal operations of the server SERV through the running of computer programs contained in the memory MEM.

Moreover, the processing unit CPU is configured to implement at least some of the steps of the method according to the invention, as described below.

In particular, the processing unit CPU is configured handle the speed dial data SDD in the speed dial database DB. More specifically, it is configured to generate and update the speed dial data SDD.

These generation and update are carried out as a function of a detection by the processing unit CPU of at least a user input captured by the keypad module KPM1.This detection is for instance carried out on the basis of the signal(s) which is generated by the controller K1CTRL or K2CTRL in response to a user input being performed on one or more keys of the keypad modules KPM1, KPM2.

For instance, the processing unit CPU comprises one or more processors.

The server SERV further comprises one or more communication interface COM for communicating at least with the device DEV1. Advantageously, the interface COM is configured for communications with both the devices DEV1, DEV2.

The method of managing the speed dial function according to the invention will now be described in details in view of Figure 3.

At an initial step S1, a communication between the devices DEV1 and DEV2 is triggered.

This communication is initiated by the device DEV1. Alternatively, it is initiated by the device DEV2.

For instance, the communication is triggered without using any form of speed dial.

To the end of establishing the communication, the user of the device that triggers the communication, i.e the user USER if the device DEV1 triggers the communication, the contact CONT if the device DEV2 triggers it, dials the phone number assigned to the other device.

To that end, the user activates the sequence keys of the corresponding keypad module that make up the phone number of the target device. The activated keys are detected by the associated keypad controller, which generates in return signals representative of the activation of these keys.

If the keys are configured to trigger a DTMF signal, the keypad module then generates these DMTF signals.

If the keys are configured to trigger a message identifying them, the corresponding messages are generated by the keypad controller.

The messages or the signals generated by the keypad module KPM1, KPM2 form target data TD which identify the target device DEV1 or DEV2.

The target data are sent to the server SERV via the communication interface of the corresponding device and the communication interface COM of the server SERV, along with source data SD which identify the source device, i.e. the device DEV1 or DEV2 used to initiate the communication.

For instance, the source data SD comprise the phone number assigned to the device used to initiate the communication.

Upon reception of the source data SD and of the target data TD, the processing unit CPU stores them in the memory MEM, processes them and triggers the establishment of the communication between the two devices DEV1 and DEV2 based on the target data TD and the source data SD.

Any known action may be carried out to that end.

At the end of step S1, the communication between the two devices is established, and is therefore an ongoing communication.

During a step S2, the server SERV associates the device DEV1 with the contact CONT and a first key of the keypad module KPM1 as a function of a user input carried out by the user USER on the keypad module KPM1 of the device DEV1.

More precisely, during the step S2, the user USER pushes a first key $K_1 1$, ..., $K_1 N$ of the keypad module KPM1 which is associated with a number.

The keypad controller K1CTRL captures this input, and generates a signal representative of the number associated with the key the user USER has pressed.

This signal is sent to the server SERV. In response to receiving this signal while the communication between the devices DEV1 and DEV2 is ongoing, the server SERV, and more precisely the processing unit CPU, detects that the user has pressed the first key. This detection is carried out on the basis of the signal generated by the controller K1CTRL in response to his capturing the user input.

This detection for instance comprises identifying the key that has been pressed by the user based on the DTMF signal(s) received, or on the message(s) sent which identify this key.

Once this detection has been carried out, the processing unit CPU generates the speed dial data SDD which associate the device DEV1 with the contact CONT and the key which has been pressed by the user at the beginning of this step.

In other words, in the computer file CF of the database DB, the processing unit generates the device data DEV1D, the contact data CONTD, and the dial key data DIALKEYD.

The device data DEV1D are generated based on the source data SD previously sent to the server.

The contact data CONT are generated based on the target data TD previously sent to the server.

The dial key data DIALKEYD are generated based on the signal sent by the device DEV1 in response to the user carrying out a user input on the keypad module while the communication was established.

In the example of Figure 3, the processing unit CPU thereby creates an entry for each of these data in the computer file. The device data DEV1D generated for instance comprise the phone number 06XXXXXXXX assigned to the device DEV1. The contact data CONT for instance comprise the phone number 06YYYYYYYY assigned to the device DEV2. The dial key data DIALKEYD for instance comprise the number associated to the key pressed by the user USER during this step S2.

In embodiments in which, at the beginning of step S2, the computer file CF already comprises speed dial data which associate to the device DEV1 to the contact CONTD and to a given key, the newly generated speed dial data SDD may replace these previous speed dial data SDD. In other words, the processing unit updates the previous data, in particular the previous dial key data DIALKEYD.

To that end, either prior to generating the speed dial data SSD or after, the processing unit CPU proceeds to delete the previous speed dial data SSD, either completely or in part.

Alternatively, the processing unit CPU does not delete these data, the speed dial data SDD being generated in entries which are separate from the entries of the preexisting speed dial data, thereby allowing the user USER to define a plurality of speed dial keys for the contact CONT.

Moreover, in some embodiments, the generation of the speed dial data SDD is further submitted to the verification of at a least one condition.

In a first embodiment, this generation is carried out only if the user input captured by the keypad module KPM1 is of a first predetermined type.

For instance, this predetermined type is defined at least by a condition according to which the pushing of the key carried out by the user USER during step S2 is longer than a predetermined duration.

For instance, this predetermined duration is equal or greater than 300 milliseconds.

In this embodiment, the signal generated by the keypad module in response to the user input of step S2 further includes data indicative that the input is of the predetermined type. During its detection of the user input, the processing module CPU of the server SERV also determines that the input is of the predetermined type based on these data.

In some embodiments, the generation of the speed dial data SDD is carried out in response to a further user input being carried out.

For example, it is carried out in response to a further user input being carried by the contact CONT on the keypad module KPM2 of the device DEV2.

For instance, this further using input is detected as having occurred if a predetermined key of the keypad module KPM2 is pushed by the contact CONT.

In the context of this embodiment, in response to receiving the signal representative of the key that has been pushed by the user USER at the beginning of step S2, the processing unit CPU generates a signal representative of an invitation for the contact CONT to confirm the association of the device DEV1 to the contact CONT and the key pressed by the user USER.

This signal is then sent to the device DEV2, and upon reception of it, the processing module CPU2 invites the contact CONT to confirm this association through pressing the predetermined key. For instance, this invitation takes the form of an audio message made audible by a speaker of the device DEV2 (not shown) or through a message displayed on the display DIS2.

If the contact CONT presses the predetermined key, this pressing is captured by the keypad module KPM2 and a corresponding signal is sent to the server SERV. Upon reception of this signal, the processing module CPU proceeds to generate the speed dial data SDD.

If not, or if the contact CONT does not do so within a predetermined time lapse, the server SERV does not generate the speed dial data SDD.

In another embodiment, this confirmation mechanics is implemented for the user USER rather than for the contact CONT.

In other words, the operations above are destined for the user USER through the device DEV1, and not for the contact CONT, the speed dial data only being generated if the user USER confirms the association as described above.

In some embodiments, this confirmation mechanics is employed for both the user USER and the contact CONT, the speed dial data only being generated if both confirm the association.

It should be noted that all or part of the further conditions above may be used in conjunction in some embodiments.

At the end of step S2, the speed dial database DB contains the necessary data for allowing a speed dial of the contact using the key of the keypad module that has thus been assigned to the contact CONT, for further use in establishing a communication between the user USER and the contact CONT.

The key (or the number associated to the key) represented by the dial key data DIALKEYD forms the speed dial key through which the user can call the contact CONT without having to dial the entire phone number of the contact CONT.

In an optional step S3, the server SERV generates a confirmation message indicative of the fact that the speed dial data SDD have been generated.

This message is for instance sent to the user via the device DEV1, its reception triggering a confirmation message indicating that the association of the device DEV1, the contact CONT and the key has been made.

For instance, this message is an audio message made audible by a speaker of the device DEV1, or a visual message displayed on the display DIS1.

During a step S4, the communication between the devices DEV1 and DEV2 is ended.

This step may include any known operation.

During a step S5, a new communication between the devices DEV1 and DEV2 is enabled through the speed dial function based on the speed dial data SDD generated in the previous steps. This communication is enabled by the server SERV based on a user input performed by the user USER on the keypad module KPM1 and the speed dial data SDD contained in the speed dial database DB.

More precisely, this new communication is established in response to a user input on the key $K_1$1, …, K_1N of the association between the device DEV1, the contact CONT and the key which is stored in the database in the form of the speed dial data SDD.

In effect, during this step, in response to a user input by the user on a key of the keypad module, the device DEV1 sends the signal representative of the key that has been pressed by the user to the server SERV.

Upon reception of this signal, the processing unit CPU retrieves the dial speed data SDD, and determines if the key referred to in the signal corresponds to the key stored in the speed dial data SDD.

If it does, the server enables the communication between the two devices DEV1, DEV2 based on the contact data CONT. In effect, it establishes a phone call between the device DEV1, DEV2 through the use of the phone number of the device DEV2.

If it does not, the server SERV does not enable this communication.

In the embodiments described above, the server SERV is responsible both for managing the speed dial function, and for establishing the communication between the two devices DEV1, DEV2.

In an alternative embodiment, in view of Figure 4, the server SERV does not proceed to establish the communication between these devices.

In this embodiment, the apparatus A comprises, in addition to the server SERV, a communication server COMSERV configured to establish the communication between the two devices DEV1, DEV2.

The server SERV is configured to communicate with the communication server for the needs of the method according to the invention.

In the context of this embodiment, the steps above only change in that the communication server COMSERV establishes the communication between the devices DEV1, DEV2 in the server's stead.

More precisely, for instance, in step S1, the source data and target data are sent to both servers SERV, COMSERV, the communication server being responsible for actually establishing the communication between the two devices DEV1, DEV2. Steps S2 and S3 are unchanged. S4 is performed by the communication server COMSERV. As for step S5, the action of establishing the communication between the two devices DEV1, DEV2 is carried out on the basis of data sent to the communication server COMSERV by the server SERV. These data are for instance indicative of the respective phone number of the devices DEV1, DEV2, and are sent after the server SERV has determined that the user activated the key which is stored as the speed dial key in the speed dial data associated to the device DEV1 and the contact CONT.

In the embodiments above, step S1 has been described as being based on the entire phone number of the target device being inputted by the corresponding user.

However, alternatively, the communication may be established through a speed dial key to which associated speed dial data preexist in the database DB. The communication may then be established as described in step S5.

The invention presents several advantages.

In particular, it allows the definition of speed dial keys with improved ease. In particular, it does not require that the phone number to be associated with the desired speed dial key be specifically and entirely inputted for the programming of the speed dial function.

In view of Figure 1, the invention also pertains to a computer program PRG comprising instructions, whose execution by a processor translates into the method above being carried out.

For instance, this computer program is stored in the memory MEM of the server SERV.

It should be noted that in the above description, the server SERV has been described as a single server. However, in alternative embodiments, the server SERV is a server entity which may comprise a plurality of servers which communicate to perform the method as described above.

CLAIMS

1. A method of managing a speed dial function of a phone device (DEV1) associating a key ($K_1$1,..., K_1N) of a dialer keypad module (KPM1) of said phone device with a contact (CONT), said method being implemented using a server (SERV), the method comprising:
   - detecting a user input on a first key of the dialer keypad module (KPM1) during an ongoing communication between said phone device (DEV1) and a device (DEV2) of the contact,
   - associating, in a speed dial database (DB) of the server (SERV), the phone device (DEV1) with said first key and said contact, for subsequent use in establishing a call between the phone device (DEV1) and the device (DEV2) of the contact based on a further user input of the first key.

2. The method according to claim 1, wherein the speed dial database (DB) comprises contact data (CONTD) through which the first key, the contact and the phone device are associated, said contact data being for identifying the contact and contacting the contact.

3. The method according to claim 2, wherein associating the phone device (DEV1) with said first key and said contact comprises generating, in the speed dial database, the contact data (CONTD) along with device data (DEV1D) which identify the phone device (DEV1), and dial key data (DIALKEYD) which identify the first key.

4. The method according to claim 2 or 3, wherein the method further comprises:
   - retrieving in the speed dial database the contact data (CONTD) associated with the first key, and
   - enabling a communication between the phone device and the contact using said contact data.

5. The method according to any one of claims 2 to 4, wherein the method further comprises receiving new contact data and updating the contact data based on said new contact data.

6. The method according to any one of the preceding claims, wherein detecting a user input comprises determining whether the user input on the first key is of a predetermined type, associating the phone device with the first key and the contact being carried out if the user input is determined to be of said predetermined type.

7. The method according to any one of the preceding claims, wherein the method further comprises detecting a second user input during said ongoing communication, associating the phone device with the first key and the contact being carried out in response to said second user input being detected.

8. The method according to claim 7, wherein the second user input is performed on the device (DEV2) of the contact.

9. The method according to claim 7, wherein the second user input is performed on the phone device (DEV1).

10. The method according to any one of the preceding claims, wherein the ongoing communication has been initiated by the phone device (DEV1).

11. The method according to any one of claims 1 to 9, wherein the ongoing communication has been initiated by the device (DEV2) of the contact.

12. The method according to any one of the preceding claims, wherein the dialer keypad module (KPM1) generates a Dual-Tone Multi-Frequency signal when the user input on the first key pad is performed, and wherein detecting the user input comprises identifying the first key pad based on the Dual-Tone Multi-Frequency signal.

13. The method according to claim 1 to 11, wherein the dialer keypad module (KPM1) generates a message identifying the first key pad in response to said user input, and wherein detecting the user input comprises identifying the first key pad based on said message.

14. A server for the implementation of the method according to any one of the preceding claims, wherein the server comprises:

- a speed dial database (DB),
- a communication module (COM) adapted for communicating at least with a phone device (DEV1) during an ongoing communication between said phone device (DEV1) and a device (DEV2) of a contact, and
- a processing module (CPU) configured to:
    - detect a user input on a first key of a dialer keypad module during said ongoing communication, and

- associate in the speed dial database the phone device with said first key and said contact, for subsequent use in establishing a call between the phone device and the device of the contact through a call setup request triggered by activation of the first key pad.

15. A computer program comprising instructions whose execution by a processor causes the implementation of the method according to any one of claims 1 to 13.

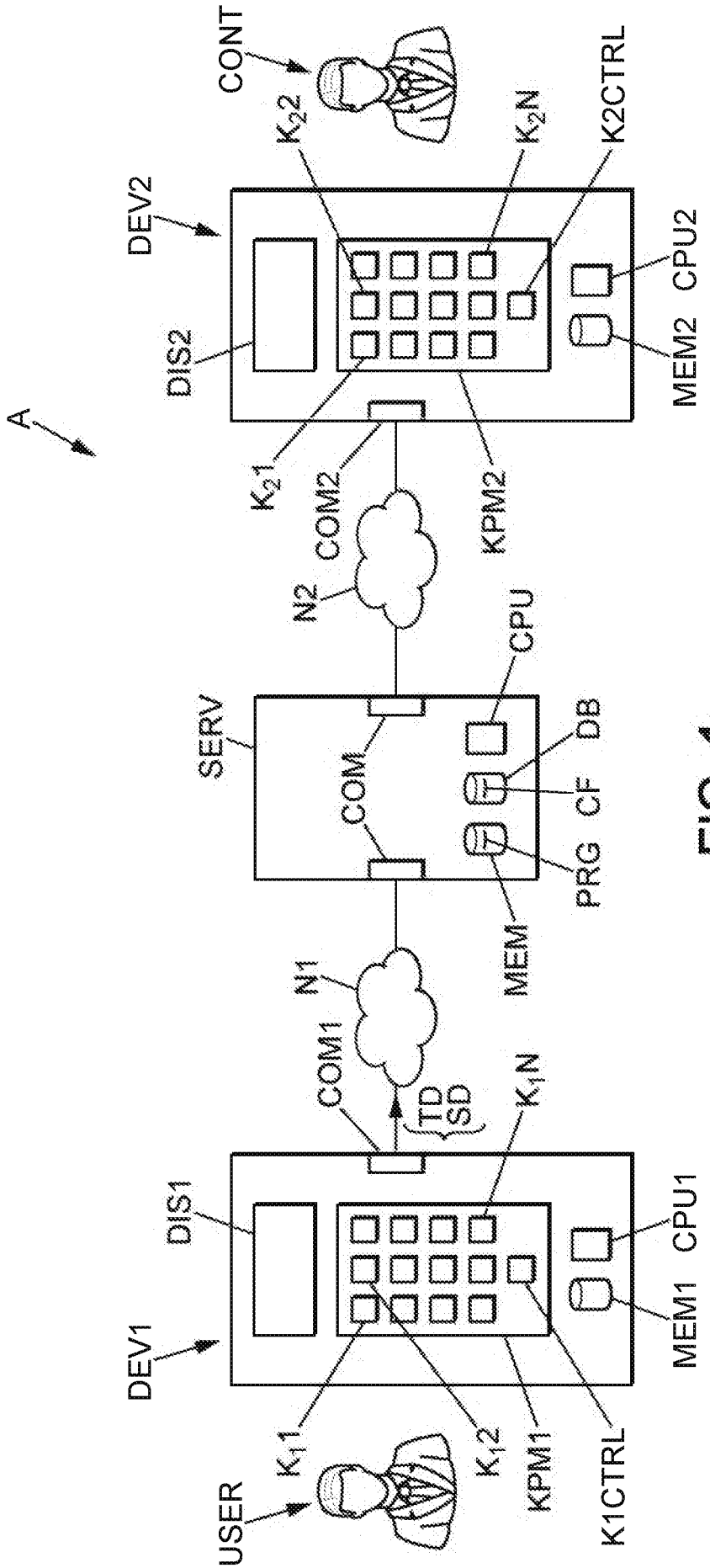

A
CONT
K_22
K_2N
K2CTRL
DEV2
DIS2
CPU2
MEM2
K_21
COM2
KPM2
N2
CPU
SERV
COM
DB
CF
PRG
MEM
N1
COM1
TD
SD
K_1N
DIS1
DEV1
CPU1
MEM1
USER
K_11
K_12
KPM1
K1CTRL

FIG. 1

SDD

DEV1D	CONTD	DIALKEYD
06XXXXXXXX	06YYYYYYYY	"1"
06XXXXXXXX	06ZZZZZZZZ	"2"

CF

FIG. 2

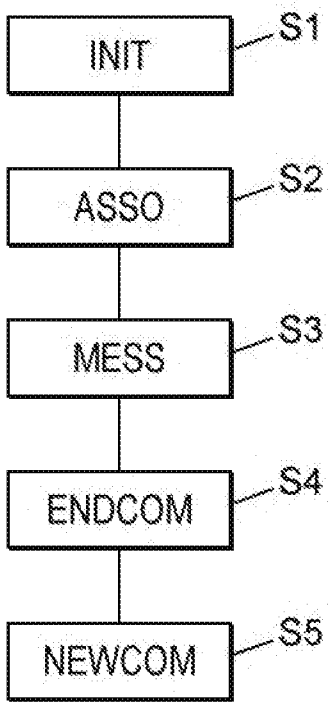


FIG. 3

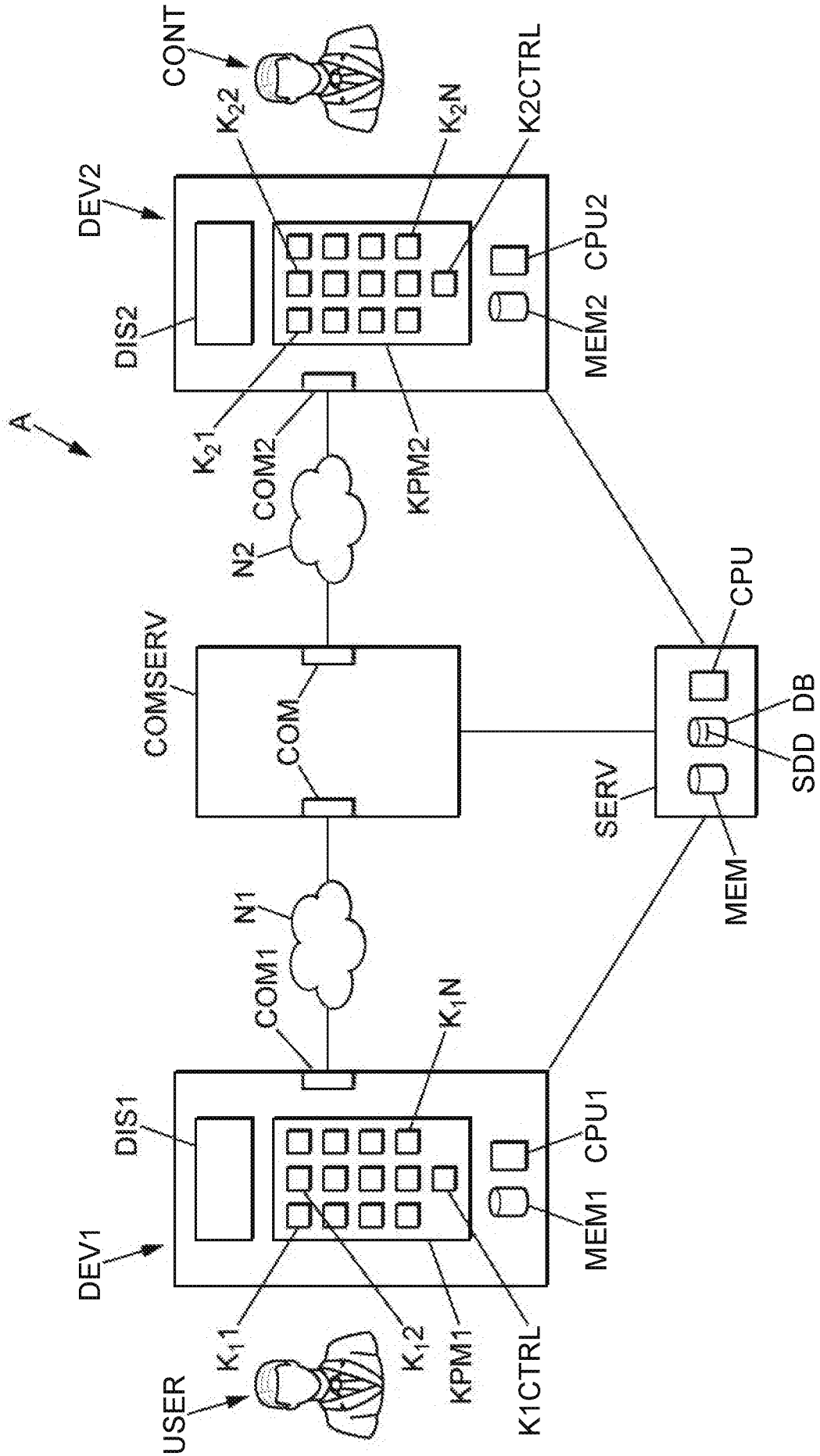

CONT
K22
K2N
K2CTRL
DEV2
DIS2
CPU2
MEM2
A
K21
COM2
KPM2
N2
COMSERV
COM
CPU
SDD DB
SERV
MEM
N1
COM1
K1N
DIS1
DEV1
CPU1
MEM1
K11
K12
KPM1
K1CTRL
USER

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2015/096923

A. CLASSIFICATION OF SUBJECT MATTER

H04M 3/44(2006.01)i

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)

H04M H04L H04W

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)

CNPAT,WPI,EPODOC,CNKI:speed dial, one-key dial, key, contact,call+, ongoing communication,updat+,DTMF,dialer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 101977257 A (WUXI ZHONGXING MICROELECTRONIC CO., LTD.) 16 February 2011 (2011-02-16) description, paragraphs [0008]-[0018], [0029]-[0043]	1-15
A	CN 103841005 A (HONGFUJIN PRECISION INDUSTRY SHENZHEN CO., LTD. ET AL.) 04 June 2014 (2014-06-04) the whole document	1-15
A	US 2008119233 A1 (LIM, YOEN LAE) 22 May 2008 (2008-05-22) the whole document	1-15
A	US 2008020741 A1 (SAMSUNG ELECTRONICS CO., LTD.) 24 January 2008 (2008-01-24) the whole document	1-15

☐ 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
25 July 2016	**22 August 2016**

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2015/096923

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	101977257	A	16 February 2011	None			
CN	103841005	A	04 June 2014	TW	201421961	A	01 June 2014
US	2008119233	A1	22 May 2008	CN	101267618	A	17 September 2008
				KR	20080039641	A	07 May 2008
				EP	1919173	A1	07 May 2008
US	2008020741	A1	24 January 2008	KR	100731810	B1	18 June 2007
				CN	101111027	A	23 January 2008
				JP	2006289498	A	26 October 2006