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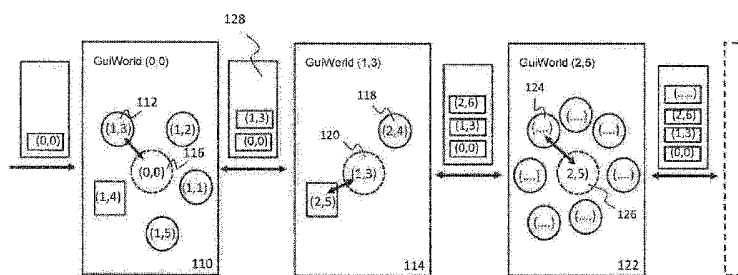
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Graphical user interface for mobile touchscreen-based navigation.

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A method for rendering GUIs on a mobile user device is described comprising: rendering a first GUI (110), comprising a first activation area (116) and a first GUI element (112) pointing to a second GUI (114), on the basis of first GUI data; rendering said second GUI (114) on the basis of second GUI data if a user selects said first GUI element (112) by sliding said first GUI element (112) over said first activation area (116), said second GUI (114) comprising a second activation area (120) and a second GUI element pointing to a third GUI (122); rendering said first GUI on the basis of said first GUI data if a user selects said first GUI element in said second activation area by sliding said first GUI element outside said second activation area.



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Graphical user interface for mobile touchscreen-based navigation

Field of the invention

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The invention relates to a graphical user interface for mobile navigation and, in particular, though not exclusively, to a method and user device for rendering GUIs on a mobile user device and a computer program product for using
10 such method.

Background of the invention

Nowadays mobile handhelds like a smart phone provide
15 a very effective way of accessing and/or submitting information associated with an online service, e.g. a user account of mobile telecommunication or an online shopping service. Access to the information and navigation through the information however is still based for a large part on the
20 basis of conventional navigation techniques such as scrolling, buttons and/or pull-down menus that are used when browsing for information on the web using a large-screen desktop.

Improved user experience may be provided by using application that can be downloaded from a website and
25 installed on mobile device wherein the app renders a touch-screen based GUI that is especially adapted for mobile devices. When the amount of accessible information however becomes large, it becomes more difficult for the user to properly navigate through the information in a simple and
30 intuitive way.

Further, the rendered GUIs are usually part of the software that is unpacked during installation of the application that runs on the user device. The application may have functionality that allows a user to personalize certain
35 items of the GUI. Such scheme however only allows for limited personalization and does not a flexible scheme wherein a GUI can be dynamically modified in a simple way. For example, in certain situations it would be desirable to render a modified

GUI, e.g. GUI adding one or more buttons and/or activation areas, on the basis of certain information of contextual information, e.g. information in the user account and/or information

5 Hence, from the above, it follows that there is a need in the art for improved methods and systems for rendering GUIs on a mobile user device. In particular there is a need for methods and systems that allow simple generation of GUIs that can be modified and/or personalized on the basis of .

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Summary of the invention

As will be appreciated by one skilled in the art, aspects of the present invention may be embodied as a system, 15 method or computer program product. Accordingly, aspects of the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment (including firmware, resident software, micro-code, etc.) or an embodiment combining software and hardware aspects that may all generally be referred to herein as a "circuit," "module" 20 or "system." Functions described in this disclosure may be implemented as an algorithm executed by a microprocessor of a computer. Furthermore, aspects of the present invention may take the form of a computer program product embodied in one or 25 more computer readable medium(s) having computer readable program code embodied, e.g., stored, thereon.

Any combination of one or more computer readable medium(s) may be utilized. The computer readable medium may be a computer readable signal medium or a computer readable 30 storage medium. A computer readable storage medium may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. More specific examples (a non- exhaustive list) of the computer 35 readable storage medium would include the following: an electrical connection having one or more wires, a portable computer diskette, a hard disk, a random access memory (RAM),

a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination
5 of the foregoing. In the context of this document, a computer readable storage medium may be any tangible medium that can contain, or store a program for use by or in connection with an instruction execution system, apparatus, or device.

A computer readable signal medium may include a
10 propagated data signal with computer readable program code embodied therein, for example, in baseband or as part of a carrier wave. Such a propagated signal may take any of a variety of forms, including, but not limited to, electro-magnetic, optical, or any suitable combination thereof. A
15 computer readable signal medium may be any computer readable medium that is not a computer readable storage medium and that can communicate, propagate, or transport a program for use by or in connection with an instruction execution system, apparatus, or device.

20 Program code embodied on a computer readable medium may be transmitted using any appropriate medium, including but not limited to wireless, wireline, optical fiber, cable, RF, etc., or any suitable combination of the foregoing. Computer program code for carrying out operations for aspects of the
25 present invention may be written in any combination of one or more programming languages, including an object oriented programming language such as Java(TM), Smalltalk, C++ or the like and conventional procedural programming languages, such as the "C" programming language or similar programming
30 languages. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer, or entirely on the remote computer or server. In the latter scenario, the remote computer may be
35 connected to the user's computer through any type of network, including a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer

(for example, through the Internet using an Internet Service Provider).

Aspects of the present invention are described below with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems), and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor, in particular a microprocessor or central processing unit (CPU), of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer, other programmable data processing apparatus, or other devices create means for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

These computer program instructions may also be stored in a computer readable medium that can direct a computer, other programmable data processing apparatus, or other devices to function in a particular manner, such that the instructions stored in the computer readable medium produce an article of manufacture including instructions which implement the function/act specified in the flowchart and/or block diagram block or blocks.

The computer program instructions may also be loaded onto a computer, other programmable data processing apparatus, or other devices to cause a series of operational steps to be performed on the computer, other programmable apparatus or other devices to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide processes for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

The flowchart and block diagrams in the figures illustrate the architecture, functionality, and operation of possible implementations of systems, methods and computer program products according to various embodiments of the present invention. In this regard, each block in the flowchart or block diagrams may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). It should also be noted that, in some alternative implementations, the functions noted in the blocks may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. It will also be noted that each block of the block diagrams and/or flowchart illustrations, and combinations of blocks in the block diagrams and/or flowchart illustrations, can be implemented by special purpose hardware-based systems that perform the specified functions or acts, or combinations of special purpose hardware and computer instructions.

It is an objective of the invention to reduce or eliminate at least one of the drawbacks known in the prior art. In an aspect the invention may relate to a method for rendering GUIs on a mobile user device, wherein said user device may comprise a GUI client for communicating with a GUI server which is configured for delivering GUI data to said GUI client.

In an embodiment, said method may comprise at least one processor, preferably at least one microprocessor, in said user device executing computer readable program code for: rendering a first GUI on the basis of first GUI data, said first GUI comprising a first activation area and at least a first GUI element pointing to a second GUI; rendering said second GUI on the basis of second GUI data if a user selects said first GUI element by touching said first GUI element and sliding said first GUI element over said first activation area while keeping contact with said first GUI element, said second

GUI comprising at least a second activation area and at least a second GUI element pointing to a third GUI, wherein said first GUI element is displayed in said second activation area; and, rendering said first GUI on the basis of said first GUI data if a user selects said first GUI element in said second activation area by touching said first GUI element and sliding said first GUI element outside said second activation area; or, rendering said third GUI on the basis of third GUI data by touching said second GUI element and sliding said second GUI element over said second activation area and said first GUI element, while keeping contact with said second GUI element.

Hence, the method allows a simple and intuitive way of rendering GUIs and navigating through a set of GUIs by sliding GUI elements in or out said activation area.

Positioning an GUI element in the activation area may trigger the GUI client to request GUI data from a GUI server, wherein the GUI data enables the GUI client to render an activation area and one or more GUI elements.

In an embodiment said GUI data may comprise a GUI identifier, GUI parameters for defining at least an activation area and/or for defining one or more selectable GUI elements; and, optionally, at least one GUI pointer for linking a GUI element to a further GUI. Hence, wherein retrieving GUI data GUI elements may be rendered that point to a further GUIs, so that when a user selects a GUI element, the GUI client is able to request the GUI data for the selected GUI element.

In an embodiment said method may further comprise: sending a first request message, preferably an HTTP request message, for requesting said GUI server the delivery of said first GUI data, said request message comprising a first GUI identifier for identifying said first GUI; receiving a first response message comprising said first GUI data. Hence, the communication between the GUI server and the GUI client may be based on the HTTP protocol that is transparent for firewalls.

In an embodiment said method may comprise if said user selects said first GUI element, sending a request message, preferably a HTTP request message, to said GUI server

for requesting the delivery of said second GUI data to said GUI client, preferably said request message comprising a GUI identifier for identifying said second GUI; and, receiving a response message, preferably an HTTP response message,
5 comprising said second GUI data.

In an embodiment said request message may be sent to said GUI server when the user releases the contact of said GUI element while said first GUI element is positioned over said first activation area. Hence, when contact is released the GUI
10 client is triggered to request the GUI data associated with the selected GUI.

In an embodiment, said GUI client may be configured to track the GUI rendering by said user on the basis of a GUI stack of GUI identifiers, wherein the GUI identifier of the
15 top of the GUI stack represents the currently active GUI. Hence, when the user selects further GUIs by sliding GUI elements into the activation area, GUI identifiers are added to the stack so that the client is able to track the navigation history of the user.

In an embodiment said method may comprise: adding the GUI identifier of the second GUI to a GUI stack if the user selects said first GUI element by touching said first GUI element and sliding slides said first GUI element over said first activation area; and, removing the GUI identifier of the
20 second GUI from the GUI stack if the user selects said first GUI element in said second activation area by touching said first GUI element and sliding said first GUI element outside said second activation area.

In an embodiment said GUI parameters may determine
30 the shape, color, coordinates and/or content of said at least one activation element and/or said one or more GUI elements.

In an embodiment said GUI server may comprise a GUI AIP that is configured to collect GUI data requested by said GUI client from a GUI database, content provider and/or
35 service provider.

In an embodiment said GUI AIP may be configured for modifying at least part of said collected GUI data before

sending the collected GUI data to said GUI client. In another embodiment, said GUI AIP may modify at least part of said collected GUI data on the basis of user information and/or one or more conditions associated with said user information. In yet another embodiment, GUI AIP may modify at least part of said collected GUI data such that the shape, color, coordinates and/or content of said activation area and/or GUI elements is modified if one or more conditions associated with said user information are met. Hence, the GUI API in the GUI server may be configured to modify the GUI data on the basis of certain conditions (e.g. subscription is almost expired or calling credit is decreased below a certain value) so that the GUI may be personalized in a dynamic way without re-installing the application.

In an embodiment said GUIs may be hierarchically structured on the basis of a decision tree comprising a root and a plurality of branch nodes, said root and said branch nodes being associated with one of said GUIs and wherein sliding GUI elements in or out of said activation area enables the user to navigate through GUIs located on a path in said decision tree.

In a further aspect, the invention may relate to a mobile user device comprising a GUI client for rendering GUIs, wherein said GUI client is configured for communicating with a GUI server which is configured for delivering GUI data to said GUI client; wherein said user device may comprise a microprocessor coupled to a touch-sensitive display, a communication module, and a computer-readable first memory having computer readable program code embodied therewith, wherein responsive to executing the computer readable program code, the microprocessor is configured to perform executable operations for: rendering a first GUI on the basis of first GUI data, said first GUI comprising a first activation area and at least a first GUI element pointing to a second GUI; rendering said second GUI on the basis of second GUI data if a user selects said first GUI element by touching said first GUI element and sliding said first GUI element over said first

activation area while keeping contact with said first GUI element, said second GUI comprising at least a second activation area and at least a second GUI element pointing to a third GUI, wherein said first GUI element is displayed in
5 said second activation area; rendering said first GUI on the basis of said first GUI data if a user selects said first GUI element in said second activation area by touching said first GUI element and sliding said first GUI element outside said second activation area; and, rendering said third GUI on the
10 basis of third GUI data by touching said second GUI element and sliding said second GUI element over said second activation area and said first GUI element, while keeping contact with said second GUI element.

In an embodiment said microprocessor in said user
15 device may further configured to perform executable operations for: if said user selects said first GUI element, sending a request message, preferably a HTTP request message, to said GUI server for requesting the delivery of said second GUI data to said GUI client, preferably said request message comprising
20 a GUI identifier for identifying said second GUI; and, receiving a response message, preferably an HTTP response message, comprising said second GUI data.

In an embodiment said request message may be sent to said GUI server when the user releases the contact of said GUI
25 element while said first GUI element is positioned over said first activation area.

In an embodiment said GUI client may be further configured to track the GUI rendering by said user on the basis of a GUI stack of GUI identifiers, wherein the GUI
30 identifier of the top of the GUI stack represents the currently active GUI.

In a further embodiment, the microprocessor in said user device may be further configured to perform executable operations for: adding the GUI identifier of the second GUI to
35 a GUI stack if the user selects said first GUI element by touching said first GUI element and sliding slides said first GUI element over said first activation area; and, removing the

GUI identifier of the second GUI from the GUI stack if the user selects said first GUI element in said second activation area by touching said first GUI element and sliding said first GUI element outside said second activation area.

5 The invention may further relate to a computer program product comprising software code portions configured for, when run in the memory of a computer, executing the method steps as described above.

10 The invention will be further illustrated with reference to the attached drawings, which schematically will show embodiments according to the invention. It will be understood that the invention is not in any way restricted to these specific embodiments.

15 Brief description of the drawings

Fig. 1A and 1B schematically depict a process for rendering GUIs on a mobile user device according to an embodiment of the invention.

20 **Fig. 2A-2C** schematically depict a system for rendering GUIs on a mobile user device according to an embodiment of the invention.

Fig. 3 depicts a user device comprising a GUI client according an embodiment of the invention.

25 **Fig. 4** schematically depicts a flow diagram of a process for rendering GUIs on a mobile user device according an embodiment of the invention.

Fig. 5A-5C schematically user-interaction on the basis of a GUI according to an embodiment of the invention.

30 **Fig. 6A-6C** schematically user-interaction on the basis of a GUI according to an embodiment of the invention.

Fig. 7A-7C schematically user-interaction on the basis of a GUI according to an embodiment of the invention.

35 **Fig. 8A-8C** schematically user-interaction on the basis of a GUI according to an embodiment of the invention.

Fig. 9 schematically the navigation through a structured set of GUIs according to an embodiment of the invention.

Fig. 10 depicts a schematic of a client or server system for use in a system according to the invention.

Detailed description

Fig. 1A and **1B** depict a process for rendering GUIs on a mobile user device according to an embodiment of the invention. In particular, **Fig. 1A** and **1B** depict user-interaction and navigation through a structured set of GUIs. In this embodiment, a plurality of GUIs for (a touch screen based display of) a mobile device may be structured according to a decision tree scheme **100** as depicted in **Fig. 1A**. The decision tree comprises a root **102**, branch nodes **104** and end-leaves **106**, wherein the root and branch nodes may be labelled with an index (L,N) wherein L indicates the level of the node and N indicates the Nth node at level L.

As shown in **Fig. 1B**, the root (the level 0 node) may be associated with a first "home" GUI **110** comprising selectable GUI elements **112**, e.g. in this particular example five GUI elements, which refer to GUIs that are associated with branch nodes at on level lower (in this case level 1) in the decision tree. Hence, when selecting a particular GUI element in the first GUI(0,0), e.g. GUI element (1,3), the rendering of the associated second GUI(1,3) **114** may be triggered.

As will be described hereunder in more detail, a GUI element may be configured as a slidable graphical element that is uniquely identifiable by the user on the basis of visual information (e.g. color, icon, shape, symbol, picture, etc.). In particular, each GUI element may comprise visual information informing the user on the type or class of information that can be accessed in the GUI can be selected on the basis of the GUI element.

The GUI elements may be arranged at positions relative to (in this case around) an activation area **116**. A GUI element may become freely movable by maintaining contact with the element while sliding the element in a certain direction. In this way, the second GUI(1,3) may be rendered by sliding a first GUI element (1,3) into the activation area **116** of the first GUI(0,0) and releasing the GUI element.

Similar to the first GUI(0,0), the second GUI(1,3) may comprise selectable GUI elements **118** and an activation area **120**, wherein the activation area of GUI(1,3) displays GUI element (1,3). The user may again select a certain GUI element (e.g. GUI element (2,5)) and drag the element in the activation area of the second GUI(1,3) over the GUI element (1,2) in order to select the (next) third GUI(2,5) **122** comprising GUI elements **124** and an activation area **126**, comprising GUI element (2,5). The activation area comprises visual information informing the user on the type or class of information that can be accessed in the active GUI.

One or more of GUI elements in a GUI, e.g. GUI (1,3) or GUI(2,5), may point to information in the form of text, video and/or audio that the user can access by navigation through the GUIs as described above. Hence, these GUI elements do not point to branch nodes of yet a lower level but to end-leaves of the decision tree (see e.g. end-leave **106** in **Fig. 1A**). Hence, by selecting a GUI element and sliding GUI elements in the activation area, a user can navigate through the different GUIs in a very simple and intuitive way in order to access certain information.

The GUI navigation path **110** (schematically depicted in **Fig. 1A**) may be stored by the mobile device in the form of a GUI stack **128**, e.g. a dedicated memory, comprising the sequence of GUI elements that were selected by the user when navigating from the root to a particular GUI in the decision tree. The GUI stack thus represents the sequence of GUI elements that are slided (dragged) by the user into the

activation area wherein the GUI element on top of the stack represents the GUI that is currently active.

5 A user may navigate back to GUIs of higher levels along the navigation path by simply touching the activation area of the GUI and maintaining contact while sliding the GUI element of the active GUI out of the activation area. This user interaction will trigger the user device to remove the last GUI element from the stack and to render the GUI associated with the next GUI element that is positioned at the
10 top of the GUI stack.

The process of user-interaction and navigation through the structured GUIs as described with reference to **Fig. 1A** and **1B** will be executed on a mobile device comprising a client which is connected to a back-end as illustrated in
15 **Fig. 2A-2C**. In particular, **Fig. 2A** depicts a dynamic GUI generation system comprising a user device **202** and a GUI server wherein the GUI server may be connected to one or more storage media **206**, one or more content servers **208** and/or one or more service providers **209**. The communication between the
20 user device and the server may be realized on the basis of the HTTP protocol thereby avoiding problems with firewalls.

The user device may comprise an HTTP client **212** for transmitting HTTP request to the GUI server and receiving HTTP responses from the GUI sever. The user device may comprise a
25 touch-sensitive display **218** for displaying GUIs to the user. The GUI may be rendered on the display by a GUI renderer **216**. A GUI may be rendered on the basis of data that are transmitted upon request to the client. In particular, when activating an application that uses a GUI interaction and
30 navigation process as depicted in **Fig. 1A** and **1B**, the application may instruct the HTTP client to request GUI data associated with the first GUI(0,0). The HTTP request may be received by an HTTP server **213** and trigger a GUI API **215** in the GUI server to collect GUI data associated with the
35 requested GUI from the storage medium and, optionally, a content provider and/or a service provider, and send the GUI data back to the user device. In an embodiment, before it is

sent to the client the GUI API may modify certain parts of the GUI data if certain conditions are met. Depending on the circumstances, the conditions may relate to the user data, e.g. subscription period, location data, etc., or other data such as the occurrence of a certain event (e.g. a temporarily sales offer, etc.). The GUI API may use these data to partly modify the GUI data before they are sent to the GUI client. This way the requested GUIs may be personalized in a dynamic way without re-installing the GUI application on the user device.

The GUI data sent to the user device may have a predetermined data structure as depicted in more detail in **Fig. 2B** and **2C**. The GUI renderer will parse the structured GUI data and render a GUI on the basis of the GUI data. The GUI renderer may store the GUI data for further use and update the GUI stack in order to administer that GUI(0,0) is the active GUI. As shown in **Fig. 2B**, the GUI data may have a predetermined format, comprising a unique GUI identifier **224**, e.g. the name of the requested GUI in terms of the location of the GUI within the decision tree (e.g. in terms of an index such as the (L,N) index as mentioned above) or any other suitable identifiers.

Further, the GUI data may comprise a reference to one or more GUI activation areas **226** and/or GUI elements **228**. Both the activation area and the GUI elements may be associated with GUI parameters that define the shape, colour, coordinates, content, animation, text labels, etc. of the activation and/or the GUI elements. Further, for at least part of GUI elements the GUI data may comprise a GUI pointer (e.g. in the form of a GUI identifier or an URL) **230** that can be used by the GUI API to retrieve GUI data for GUIs that may be selected by a user when interacting with the active GUI(0,0). For example, in the GUI data example of **Fig. 2B**, each GUI element (e.g. GuiEl_1) points to a further GUI at level 1 (GuiWorld(1,1)). Alternatively, a GUI element of a GUI may point an end-label, e.g. a piece of information in the form of

text, video and/or audio. Hence, in case a user selects such GUI element, the information may be presented to the user.

Fig. 2C depicts another embodiment of format of the GUI data. In this particular embodiment, the GUI data may
 5 comprise a GUI identifier, GUI activation area and/or GUI elements similar to those described with reference to **Fig. 2B**. In addition, the GUI elements may point to GUIs at a lower level (e.g. level1) that may be selected by a user when interacting with the GUI(0,0). In contrast with the embodiment
 10 of **Fig. 2b**, at least part of the GUI data **240,242** of these lower-level GUIs (in this example GUI(1,1) and GUI(1,2)) are already included in the GUI data of the requested GUI (in this case GUI(0,0)). These GUI data may be stored in the memory **220** of the user device for later use. This way the user device may
 15 increase the response time as it is not necessary to update the GUI data by sending a request to the GUI server.

Hence, as will be described in more detail hereunder, when the GUI renderer has parsed the GUI data and built the GUI on the basis of the information therein, a user may start
 20 interacting with the GUI by selecting one of the GUI elements. In that case, a GUI interaction module may determine that the user has activated the activation area by sliding a particular GUI element (1,2) over it. In response, an HTTP request comprising the identifier of the requested GUI may be sent to
 25 the GUI server in order to send the GUI data to the user device.

Alternatively, if the GUI data of the requested GUI is already incorporated in the GUI data of the currently active GUI (e.g. as shown in **Fig. 2C**), the GUI data of the
 30 requested GUI may be retrieved directly from the GUI data in the memory.

Fig. 3 schematically depicts a user device **300** comprising a GUI client according to an embodiment of information. In particular, **Fig. 3** depicts a user device, e.g.
 35 a smart phone or an electronic table or the like, comprising an GUI client **308**, a memory module **308**, a (touch-sensitive) display module **316** and an HTTP client connected via a data bus

318 to a microprocessor 306. The microprocessor may run software that is stored in the memory module for controlling the processes that are executed by and between the different modules and that enable the rendering of GUIs that are
 5 structured in a decision tree as described in detail with reference to **Fig. 1A** and **1B**. As shown in **Fig. 3**, the GUI data may be retrieved from a GUI server, wherein the GUI data comprise GUI activation area and/or GUI elements and their attributes defining shape, color, coordinates, etc. of the
 10 areas and elements. These data may be parsed by the GUI parser 312 and used by the GUI renderer 314 to configure the display 316 such that the activation area and the GUI elements are rendered in the display in accordance with the attribute values in the GUI data.

15 **Fig. 4** depicts a flow diagram of a process for user-interaction and navigation through a structured set of GUIs according to an embodiment of the invention. The process may start with the user starting an application that requires the rendering of a first GUI(0,0) (the root) so that the GUI
 20 client sends a request for GUI data associated with the first GUI(0,0) (step 402). The request may have the form of an HTTP GET request comprising a request URL with a query string comprising additional one or more GUI parameters that may be used by an GUI API at the GUI server that is configured to
 25 collect the GUI data associated with GUI(0,0). The one or more GUI parameters may include a unique user identifier for identifying the client or the user and a GUI identifier for identifying the requested GUI.

The data collection may include requesting a GUI
 30 storage medium, e.g. database or the like, to deliver the GUI data of the requested GUI(0,0) (step 404). These GUI data may include information as described with reference to **Fig. 2B** and **2C**. In certain embodiments the GUI data of one GUI may also include (parts of) GUI data of further GUIs, in particular
 35 GUIs that can be accessed by the user on the basis GUI(0,0) (in this example GUIs(1,1)(1,2)(1,3)). These GUI data may be returned to the GUI API in the GUI sever (step 406). Further,

the GUI API may request a content provider for certain content that is needed to render the requested GUI. Alternatively and/or in addition the GUI API may request a service provider, e.g. a telecommunications provider or an energy delivery
5 company, to provide user data or other data that are needed for rendering the GUI (steps **408** and **410**).

In an embodiment the GUI API may modify certain parts of the GUI data if certain conditions are met. For example, in an embodiment, in case the user data relate to a subscription,
10 the appearance (e.g. color and/or shape) of certain GUI elements may be changed is a condition is met (e.g. the end of the subscription is approaching). In another embodiment, the GUI API may add an additional GUI element if a certain condition is met. For example, an additional GUI element
15 linked to a targeted advertisement or a personal offer may be added to the GUI.

Thereafter, the HTTP server may send the data in an HTTP response message back to the GUI client (step **412**). The GUI client may then store the returned data in the memory
20 (step **414**) and add a reference to GUI(0,0), e.g. its identifiers, to the GUI stack, thereby indicating that GUI(0,0) is the active GUI. An the GUI render may use the GUI data for rendering the requested GUI(0,0) (step **416** and **418**).

Thereafter, the user may slide GUI element (1,3) into
25 the activation area of GUI(0,0) in order to access GUI(1,3) (step **420**). Before sending an request to the GUI server for retrieving the GUI data for GUI(1,3) (in a similar way as described with reference to steps **402-412**), the GUI client may first check the memory for the GUI data. As the GUI data of
30 GUI(1,3) were sent along with the GUI data of GUI(0,0), the GUI client may check the memory and directly retrieve the data from the memory (step **422**). The GUI client may add a reference to GUI(1,3) to the GUI stack (in order to make GUI(1,3) the active GUI) (step **424**) and display the GUI to the user (steps
35 **426** and **428**).

In case the user decides to return to the previous GUI (in this case GUI(0,0)) by sliding GUI element (1,3) out

of the activation area of GUI(1,3) (step **430**), the GUI client may remove the reference to GUI(1,3) from the GUI stack (step **432**) so that earlier GUI(0,0) becomes the active GUI. The GUI client may then use the stored GUI data of GUI(0,0) to display the GUI(0,0) to the user (step **434** and **436**).

Examples of interactions of a user with the GUIs rendered by the GUI client on the display of a mobile device are described in more detail with reference to **Fig. 5,6,7** and **8**. In this particular example, the GUI application may be configured for allowing a user to access his subscription data for a mobile subscription. **Fig. 5A** depicts a first GUI comprising a first activation area **502** and one or more first GUI elements **504**. A GUI element is selectable by contacting the GUI element. Upon contact, a first GUI element may be slid towards the first activation area as depicted in **Fig. 5A-5C**, wherein the user maintains contact with the first GUI element. During the sliding process, a message **506** associated with the first GUI element may be displayed for indicating the information (in this case the calling credit of the user) that is presented in or that can be accessed via the second GUI which will be rendered on the display of the mobile device once the first GUI element is moved into the first activation area.

In **Fig. 6A** the first GUI element **602** enters the first activation area **604** and once the user releases the contact **608** with the first GUI element, the GUI client is triggered to render the second GUI. In order to provide a smooth transition from the first GUI to the second GUI, the other first GUI elements may slowly decrease in size as shown in **Fig. 6B**. In **Fig. 6C** the second GUI is rendered, wherein the a second activation area **610** and one or more second GUI elements are displayed. Here, the second activation area displays the first GUI element so that the user knows the type or class of information that can be accessed via the one or more second GUI elements **612** of the second GUI.

As shown in **Fig. 7A**, if the user decides to leave the second and to return to the first GUI, the user may select the

first GUI element **702** in the second activation area of the second GUI and drag the first GUI element out of the second activation area while maintaining contact with said first GUI element. When the first GUI element is dragged out of the second activation area, a small first activation area **704** of the first GUI may already be displayed in order to provide a smooth transition from the second GUI to the first GUI. This process is shown in **Fig. 7B** and **7C**.

In **Fig. 8A** the first GUI element **802** is dragged completely out of the second activation area, while the user is maintaining contact with the first GUI element. Thereafter, once the user released contact **807** with the first GUI element **802** (as shown in **Fig. 8B**) the GUI client will be triggered to render the first GUI comprising the first activation area and the all the GUI first elements **806** as shown in **Fig. 8C** (which is identical to **Fig. 5A**).

Hence, from **Fig. 5-8** it follows that the invention allows simple rendering of GUIs in which the information for navigation through the GUIs and/or accessing certain information presented in a very clear and intuitive way to the user. The GUIs may be rendered on the basis of GUI data (including parameters that determine the shape and presentation of the activation area and/or GUI elements) that can be retrieved from a GUI server. Further, a GUI API in the GUI server may be configured to modify the GUI data on the basis of certain conditions (e.g. subscription is almost expired or calling credit is decreased below a certain value) so that the GUI may be personalized in a dynamic way without re-installing the application.

Fig. 9 depicts a further example the rendering and navigation through a structured set of GUIs that is structured on the basis of a decision tree as explained with reference to **Fig. 1A** and **1B**. In this particular example, a first "root" GUI **902** may be rendered comprising an activation area and GUI elements that point to further GUIs **904-912** at a lower level in the decision tree can be selected by moving a GUI element into the activation area. Certain GUIs may display certain

user information **914** (in this case the calling credit of the user) to the user. A user may return to the previous GUI (on step higher in the decision tree) by moving the GUI element that is presented in the activation area out the activation area. This way a user may navigate through the different GUIs.

Fig. 10 is a block diagram illustrating an exemplary data processing system that may be used in as described in this disclosure. Data processing system **1000** may include at least one processor **1002** coupled to memory elements **1004** through a system bus **806**. As such, the data processing system may store program code within memory elements **1004**. Further, processor **1002** may execute the program code accessed from memory elements **1004** via system bus **1006**. In one aspect, data processing system may be implemented as a computer that is suitable for storing and/or executing program code. It should be appreciated, however, that data processing system **1000** may be implemented in the form of any system including a processor and memory that is capable of performing the functions described within this specification.

Memory elements **1004** may include one or more physical memory devices such as, for example, local memory **1008** and one or more bulk storage devices **1010**. Local memory may refer to random access memory or other non-persistent memory device(s) generally used during actual execution of the program code. A bulk storage device may be implemented as a hard drive or other persistent data storage device. The processing system **1000** may also include one or more cache memories (not shown) that provide temporary storage of at least some program code in order to reduce the number of times program code must be retrieved from bulk storage device **1010** during execution.

Input/output (I/O) devices depicted as input device **1012** and output device **1014** optionally can be coupled to the data processing system. Examples of input device may include, but are not limited to, for example, a keyboard, a pointing device such as a mouse, or the like. Examples of output device may include, but are not limited to, for example, a monitor or display, speakers, or the like. Input device and/or output

device may be coupled to data processing system either directly or through intervening I/O controllers. A network adapter **1016** may also be coupled to data processing system to enable it to become coupled to other systems, computer
5 systems, remote network devices, and/or remote storage devices through intervening private or public networks. The network adapter may comprise a data receiver for receiving data that is transmitted by said systems, devices and/or networks to said data and a data transmitter for transmitting data to said
10 systems, devices and/or networks. Modems, cable modems, and Ethernet cards are examples of different types of network adapter that may be used with data processing system.

As pictured in **FIG. 10**, memory elements **1004** may store an application **1018**. It should be appreciated that data
15 processing system **1000** may further execute an operating system (not shown) that can facilitate execution of the application. Application, being implemented in the form of executable program code, can be executed by data processing system **1000**, e.g., by processor **1002**. Responsive to executing application,
20 data processing system may be configured to perform one or more operations to be described herein in further detail.

In one aspect, for example, data processing system **1000** may represent a client data processing system. In that case, application **1018** may represent a client application
25 that, when executed, configures data processing system **1000** to perform the various functions described herein with reference to a "client". Examples of a client can include, but are not limited to, a personal computer, a portable computer, a mobile phone, or the like.

30 In another aspect, data processing system may represent a server. For example, data processing system may represent an (HTTP) server in which case application **1018**, when executed, may configure data processing system to perform (HTTP) server operations. In another aspect, data processing
35 system may represent a module, unit or function as referred to in this specification.

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention. The embodiment was chosen and described in order to best explain the principles of the invention and the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

CONCLUSIES

1. Werkwijze voor het weergeven van grafische gebruikersinterfaces (GUIs) op een mobiel gebruikersapparaat, het mobiele gebruikersapparaat omvattende een GUI client voor
5 het communiceren met een GUI server, die geconfigureerd is voor het leveren van GUI data aan de GUI client, waarbij de methode het uitvoeren van computer-leesbare softwarecode omvat door ten minste één processor, bij voorkeur ten minste één microprocessor, in het mobiele gebruikersapparaat voor:
10 het weergeven van een eerste GUI op basis van eerste GUI data, waarbij de eerste GUI een eerste activatiegebied en een eerste GUI element omvat dat naar een tweede GUI wijst;
 het weergeven van de tweede GUI op basis van tweede
15 GUI data als een gebruiker van het eerste GUI element selecteert door het aanraken van het eerste GUI element en door het verschuiven van het eerste GUI element over het eerste activatiegebied, waarbij contact wordt gehouden met het eerste GUI element, de tweede GUI ten minste omvattende een
20 tweede activatiegebied en ten minste een tweede GUI element dat naar een derde GUI wijst, waarbij het eerste GUI element wordt weergegeven in het tweede activatiegebied;
 het weergeven van de eerste GUI op basis van de eerste GUI data als een gebruiker het eerste GUI element in
25 het tweede activatiegebied selecteert door het aanraken van het eerste GUI element en het verschuiven van het eerste GUI element buiten het tweede activatiegebied; en, het weergeven van de derde GUI op basis van derde GUI data door het aanraken van het tweede GUI element en het verschuiven van het
30 tweede GUI element over het tweede activatiegebied en het eerste GUI element, terwijl contact wordt gehouden met het tweede GUI element.

2. Werkwijze volgens conclusie 1, waarbij de GUI
35 data een GUI identifier, GUI parameters voor het definiëren

van ten minste één activatiegebied en/of voor het definiëren van één of meerdere selecteerbare GUI elementen omvat; en, optioneel, ten minste één GUI pointer voor het verbinden van een GUI element met een verdere GUI.

5

3. Werkwijze volgens conclusie 1 of 2 omvattende:
het verzenden een eerste verzoekbericht, bij voorkeur een http verzoekbericht, om de GUI server te verzoeken de eerste GUI data te leveren, waarbij het verzoekbericht een
10 eerste GUI identifier omvat voor het identificeren van de eerste GUI;

het ontvangen van een eerste antwoordbericht die de eerste GUI data omvat.

15 4. Werkwijze volgens één van de conclusies 1-3 omvattende:

het verzenden van een verzoekbericht, bij voorkeur een http verzoekbericht, naar de GUI server voor het verzoeken van de levering van de tweede GUI data naar de GUI
20 client, als de gebruiker het eerste GUI element selecteert, het verzoekbericht bij voorkeur omvattende een GUI identifier voor het identificeren van de tweede GUI; en,

het ontvangen van een antwoordbericht, bij voorkeur een http antwoordbericht, die de tweede GUI data omvat.

25

5. Werkwijze volgens conclusie 4 waarbij het verzoekbericht naar de GUI server wordt verzonden als de gebruiker het contact met het GUI element verbreekt terwijl het eerste GUI element is gepositioneerd over het eerste activatiegebied.
30

6. Werkwijze volgens één van de conclusies 1-5 waarbij de GUI client is geconfigureerd om de GUI weergave door de gebruiker te volgen op basis van een GUI stapelgeheugen met GUI identifiers, waarbij de GUI identifier op de top
35

van het GUI stapelgeheugen de thans actieve GUI representeert.

7. Werkwijze volgens claim 6 omvattende:

5 het toevoegen van de GUI identifier van de tweede GUI aan een GUI stapelgeheugen als de gebruiker het eerste GUI element selecteert door het aanraken van het eerste GUI element en het verschuiven van het eerste GUI element over het eerste activatiegebied; en,

10 het verwijderen van de GUI identifier van de tweede GUI van het GUI stapelgeheugen als de gebruiker het eerste GUI element selecteert en het eerste GUI element buiten het tweede activatiegebied verschuift.

15 8. Werkwijze volgens één van de conclusies 1-7 waarbij de GUI parameters de vorm, kleur, coördinaten en/of de inhoud van het ten minste één activatiegebied en/of de één of meerdere GUI elementen.

20 9. Werkwijze volgens één van de conclusies 1-8 waarbij de GUI server een GUI AIP omvat die geconfigureerd is om GUI data te verzamelen die opgevraagd zijn door de GUI client bij een GUI database, een content provider en/of service provider.

25 10. Werkwijze volgens één van de conclusies 1-9 waarbij de GUI AIP is geconfigureerd om ten minste een deel van de verzamelde GUI data te wijzigen voordat de verzamelde GUI data worden verzonden naar de GUI client, waarbij bij
30 voorkeur de GUI API ten minste een deel van de gebruikersinformatie en/of één of meerdere condities met betrekking tot de gebruikersinformatie wijzigt; waarbij meer bij voorkeur de GUI API ten minst een deel van de verzamelde GUI data wijzigt zodanig dat het activatiegebied en/of GUI elementen

wordt/worden gewijzigd als aan één of meerdere condities met betrekking tot de gebruikersinformatie is voldaan.

11. Werkwijze volgens één van de conclusies 1-10
 5 waarbij de GUIs hiërarchisch gestructureerd zijn op basis van een beslissingsboom omvattende een wortel en een hoeveelheid takknoop punten, waarbij de wortel en de takknoop punten geassocieerd zijn met GUIs en waarbij het verschuiven van GUI elementen in of uit het activatiegebied het de gebruiker mo-
 10 gelijk maakt om door de GUIs te navigeren die zich bevinden op een pad van de beslissingsboom.

12. Mobiel gebruikersapparaat omvattende een GUI client voor het weergeven van GUIs, waarbij de GUI client is
 15 geconfigureerd om te communiceren met een GUI server die geconfigureerd is voor het leveren van GUI data aan de GUI client, waarbij bij voorkeur de GUI data een GUI identifier, GUI parameters voor het definiëren van ten minste één activa-
 tiegebied en/of voor het definiëren van één of meerdere
 20 selecteerbare GUI elementen; en, optioneel, ten minste een GUI pointer voor het verbinden van een GUI element met een verdere GUI;

het gebruikersapparaat omvattende een microproces-
 sor die gekoppeld is aan een aanrakingsgevoelige display, een
 25 communicatiemodule, en een computer-leesbaar eerste geheugen met daarop computer-leesbare programmacode, waarbij in reac-
 tie op het uitvoeren van de computer-leesbare programmacode, de microprocessor geconfigureerd is om executeerbare opera-
 ties uit te voeren voor:

30 het weergeven van een eerste GUI op basis van eer-
 ste GUI data, waarbij de eerste GUI een eerste
 activatiegebied en een eerste GUI element omvat dat naar een
 tweede GUI wijst;

het weergeven van de tweede GUI op basis van tweede GUI data als een gebruiker van het eerste GUI element selecteert door het aanraken van het eerste GUI element en door het verschuiven van het eerste GUI element over het eerste activatiegebied, waarbij contact wordt gehouden met het eerste GUI element, de tweede GUI ten minste omvattende een tweede activatiegebied en ten minste een tweede GUI element dat naar een derde GUI wijst, waarbij het eerste GUI element wordt weergegeven in het tweede activatiegebied;

het weergeven van de eerste GUI op basis van de eerste GUI data als een gebruiker het eerste GUI element in het tweede activatiegebied selecteert door het aanraken van het eerste GUI element en het verschuiven van het eerste GUI element buiten het tweede activatiegebied; en, het weergeven van de derde GUI op basis van derde GUI data door het aanraken van het tweede GUI element en het verschuiven van het tweede GUI element over het tweede activatiegebied en het eerste GUI element, terwijl contact wordt gehouden met het tweede GUI element.

13. Gebruikersapparaat volgens claim 12 waarbij de microprocessor verder geconfigureerd is om executeerbare operaties uit te voeren voor:

het verzenden van een verzoekbericht, bij voorkeur een http verzoekbericht, naar de GUI server voor het verzoeken van de levering van de tweede GUI data naar de GUI client, als de gebruiker het eerste GUI element selecteert, het verzoekbericht bij voorkeur omvattende een GUI identifier voor het identificeren van de tweede GUI; en,

het ontvangen van een antwoordbericht, bij voorkeur een http antwoordbericht, die de tweede GUI data omvat.

14. Gebruikersapparaat volgens claim 13 waarbij het verzoekbericht wordt verzonden naar de GUI server als de gebruiker het contact met het GUI element verbreekt terwijl het

eerst GUI element gepositioneerd is over het eerst activatiegebied.

15 15. Gebruikersapparaat volgens één van de claims
12-14 waarbij de GUI client is geconfigureerd om de GUI weergave door de gebruiker te volgen op basis van een GUI stapelgeheugen met GUI identificers, waarbij de GUI identifier aan de top van het GUI stapelgeheugen de thans actieve GUI representeert.

10

16. Gebruikersapparaat volgens conclusie 15 waarbij de microprocessor verder is geconfigureerd om executeerbare operaties uit te voeren voor:

15 het toevoegen van de GUI identifier van de tweede GUI aan een GUI stapelgeheugen als de gebruiker het eerste GUI element selecteert door het aanraken van het eerste GUI element en het verschuiven van het eerste GUI element over het eerste activatiegebied; en,

20 het verwijderen van de GUI identifier van de tweede GUI van het GUI stapelgeheugen als de gebruiker het eerste GUI element selecteert en het eerste GUI element buiten het tweede activatiegebied verschuift.

25 17. Computerprogrammaproduct omvattende delen van softwarecode die, wanneer die in het geheugen van een computer uitgevoerd worden, geconfigureerd zijn voor het uitvoeren van de werkwijzestappen volgens één van de conclusies 1-11.

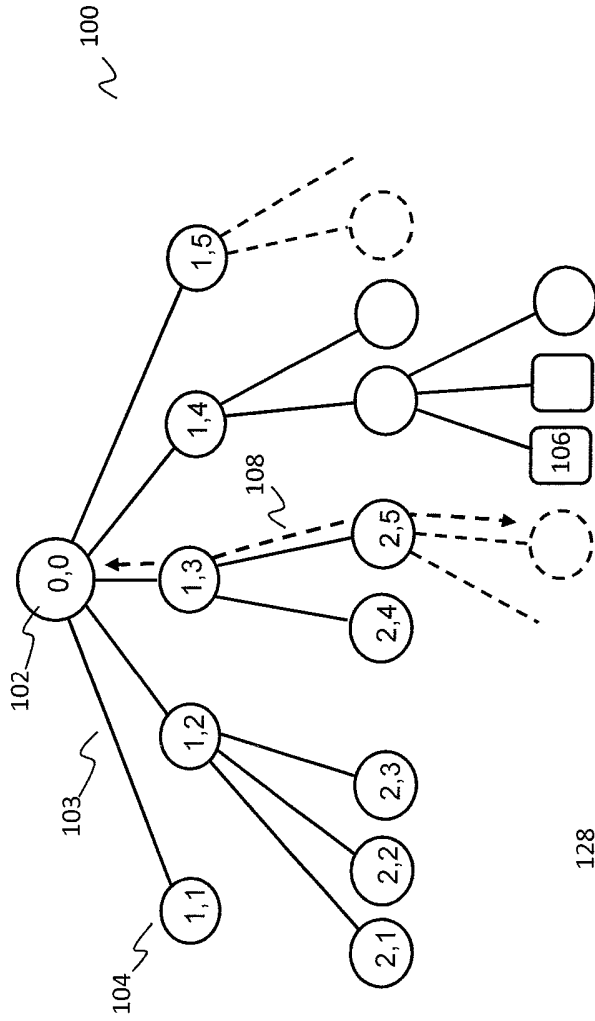


FIG. 1A

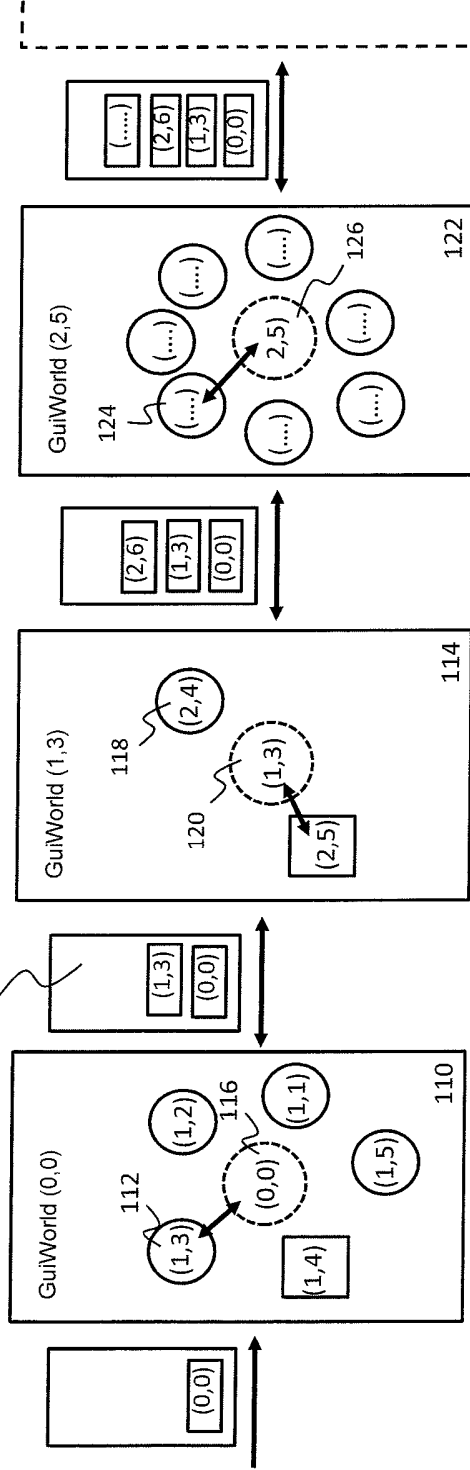


FIG. 1B

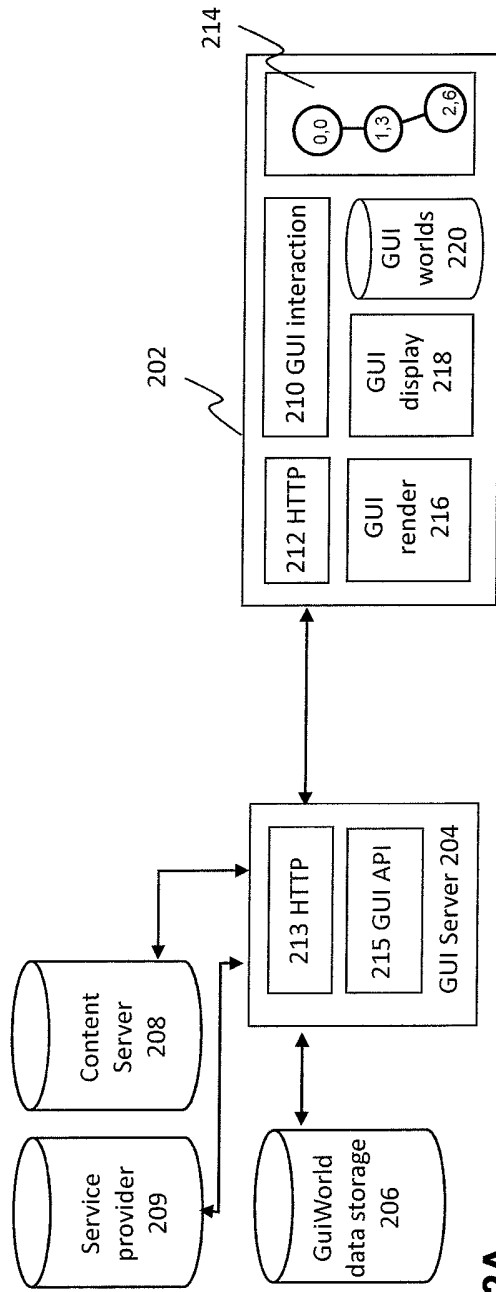


FIG. 2A

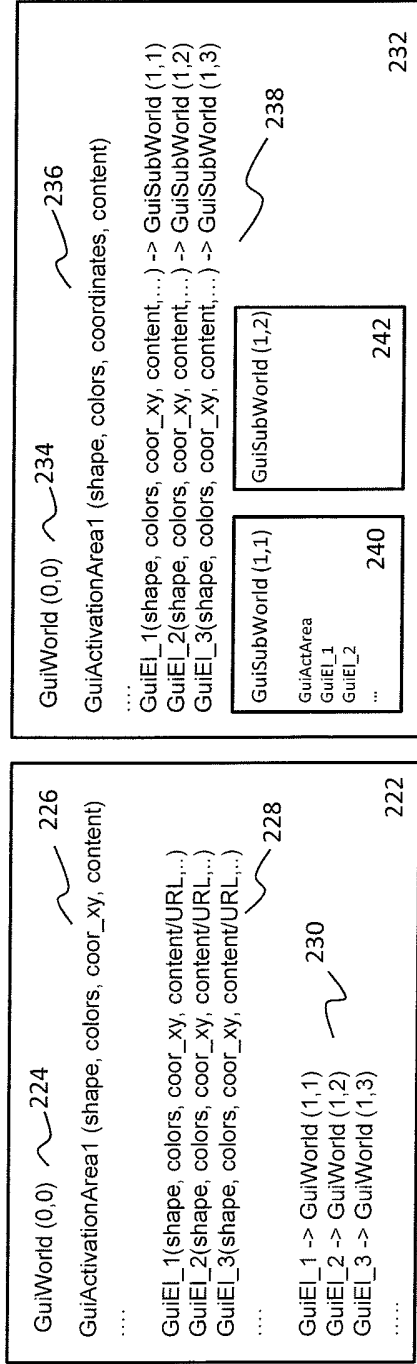


FIG. 2B

FIG. 2C

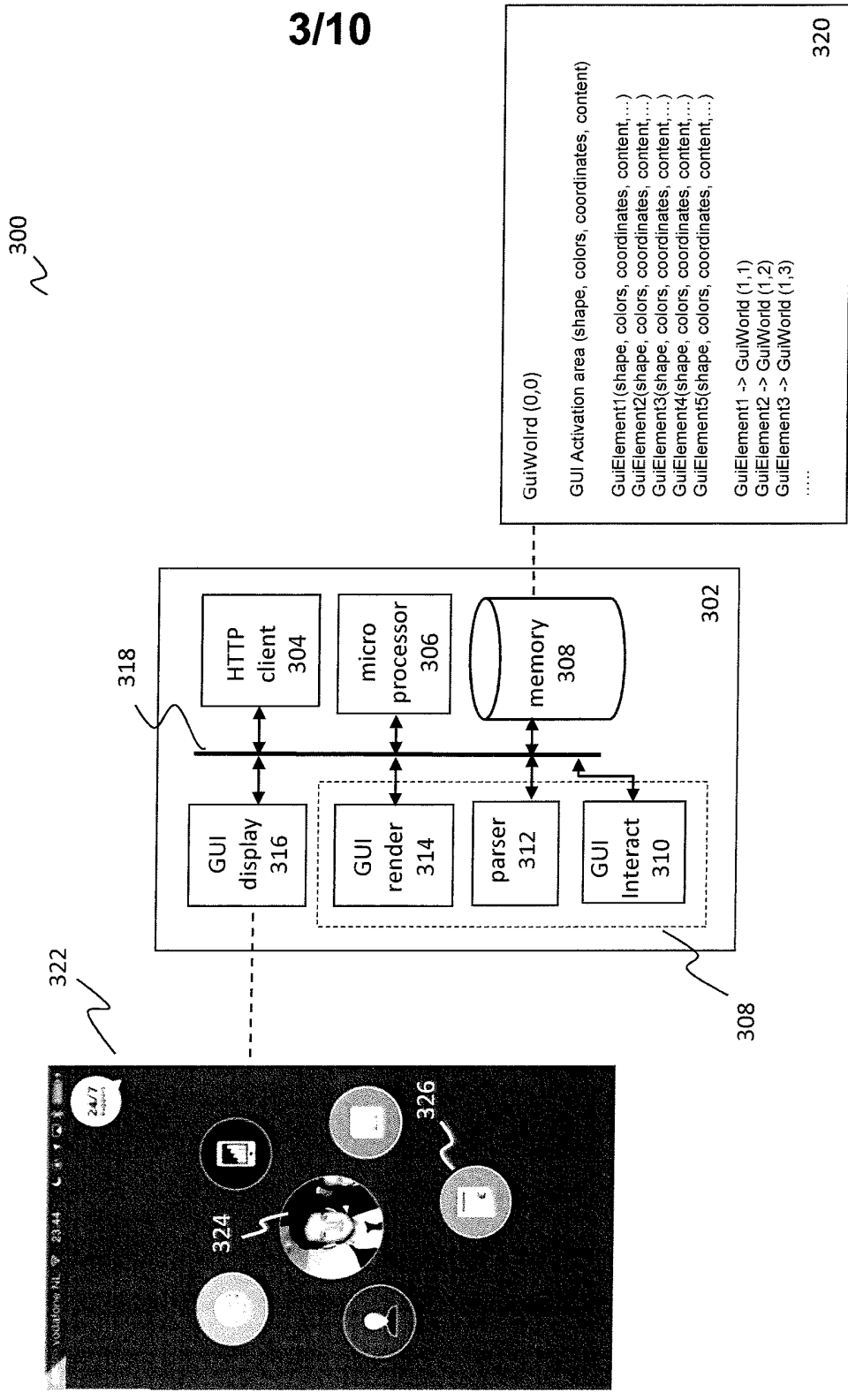


FIG. 3

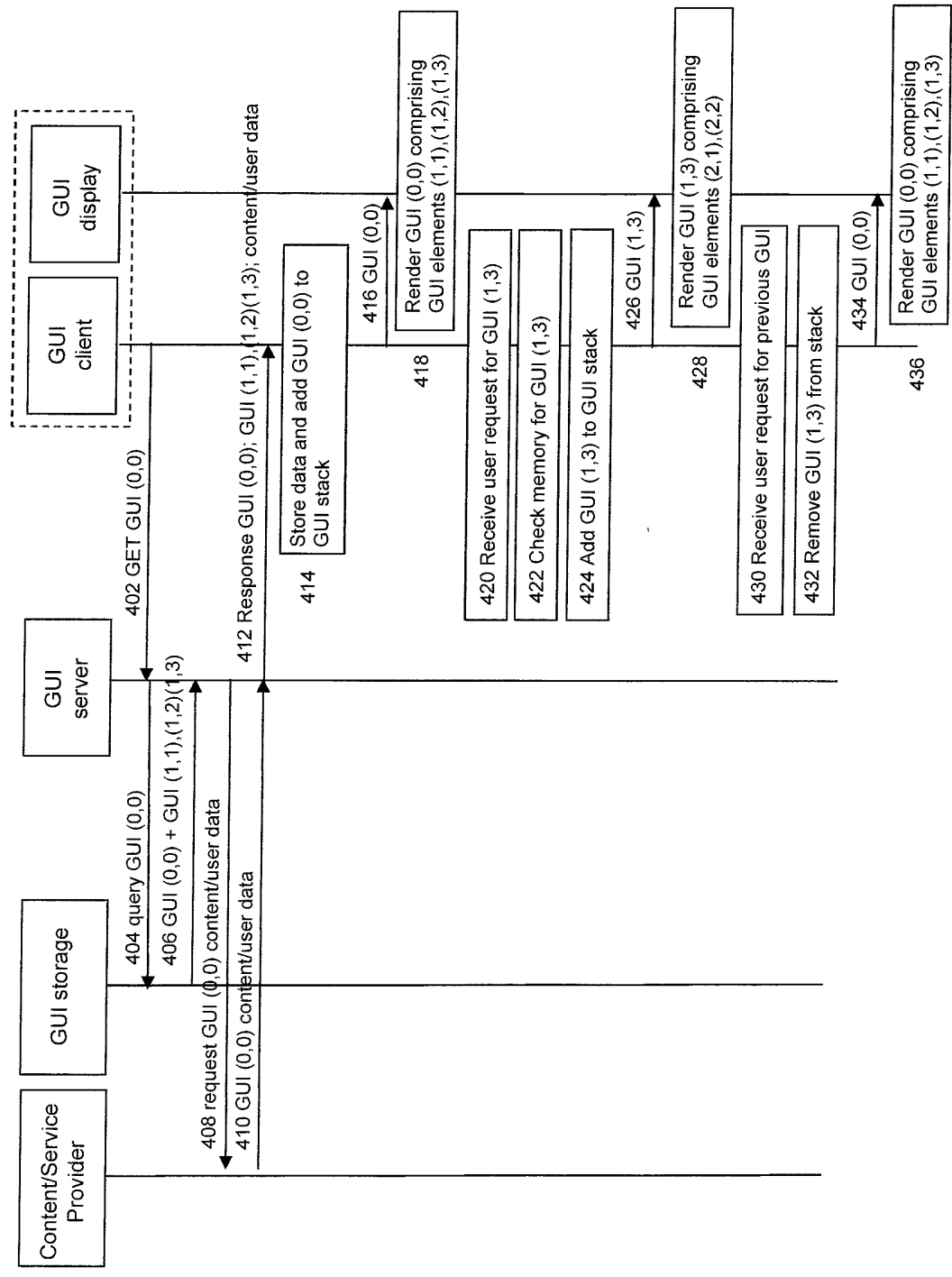
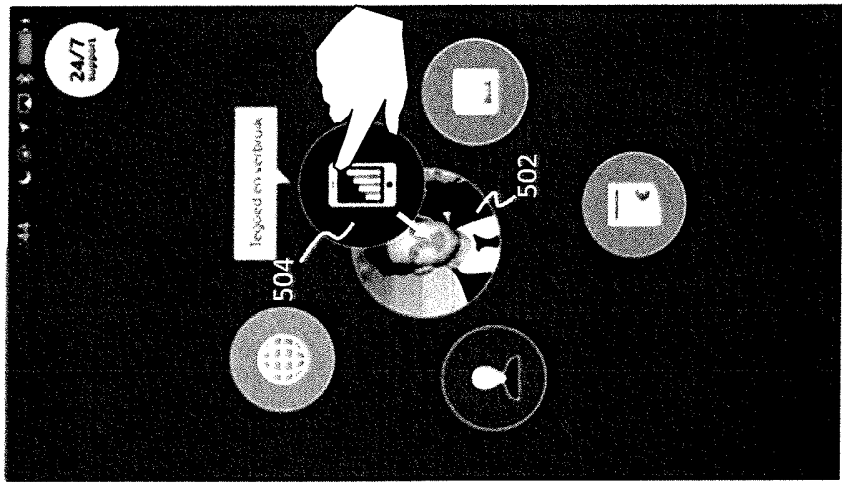
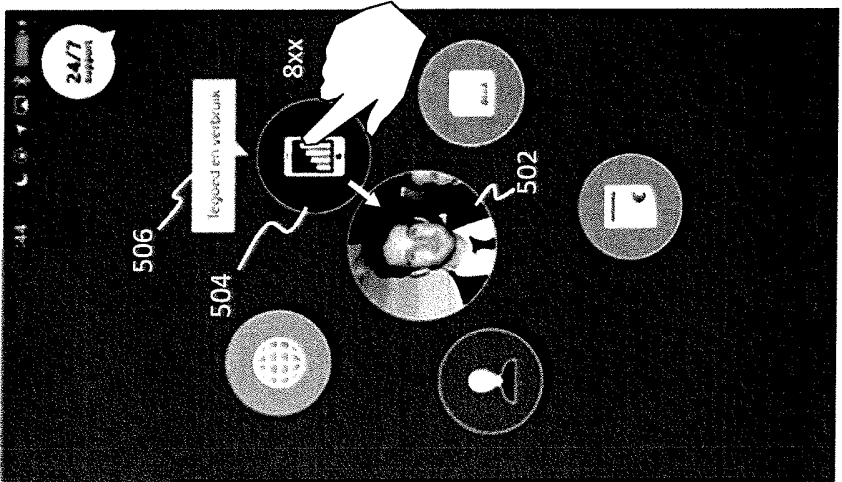


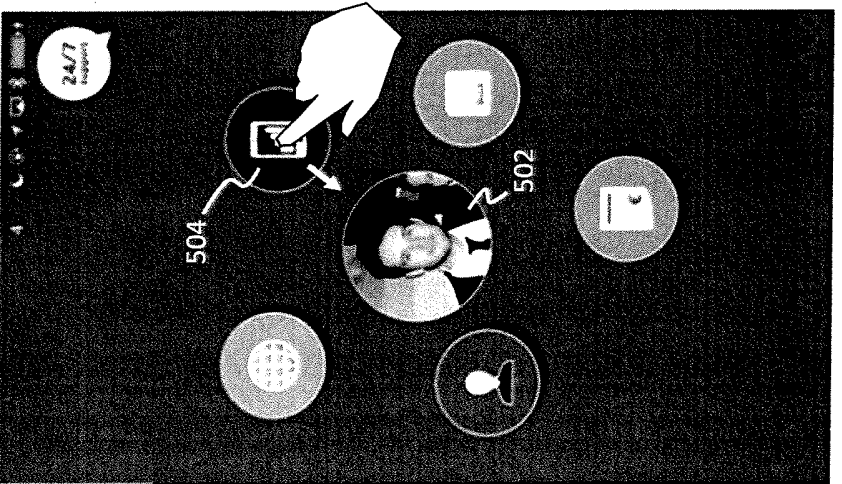
FIG. 4



(A)



(B)



(C)

FIG. 5

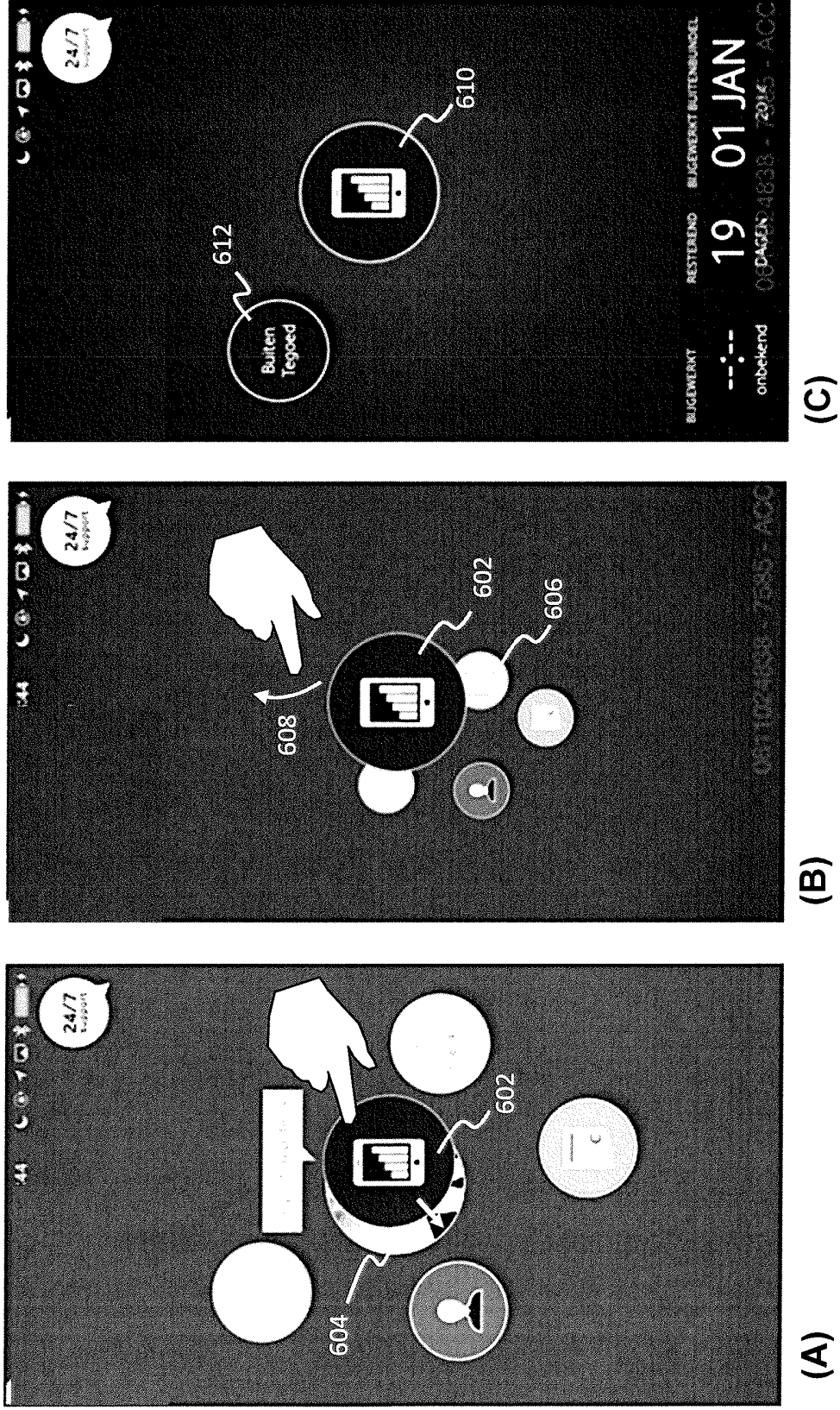


FIG. 6

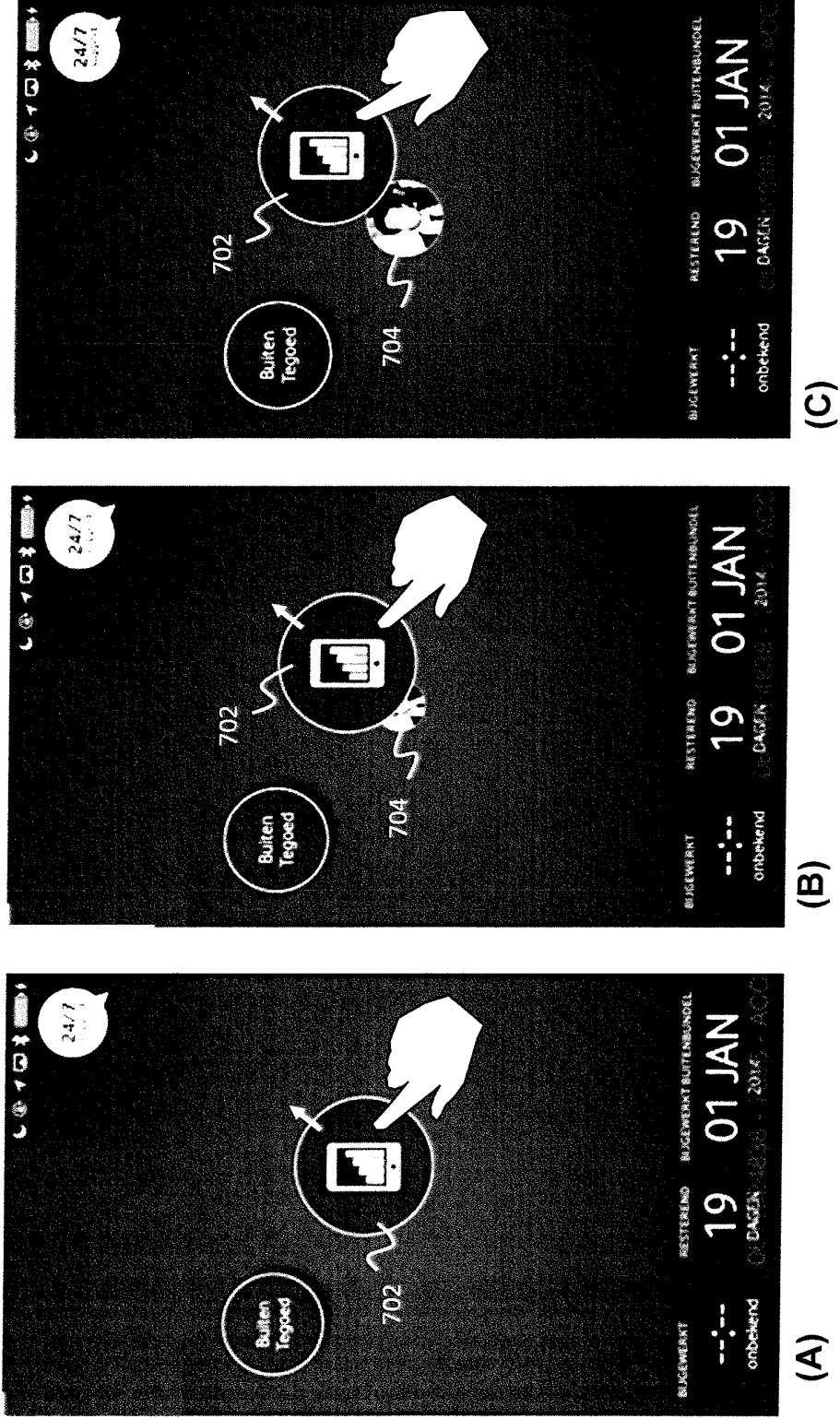


FIG. 7

8/10

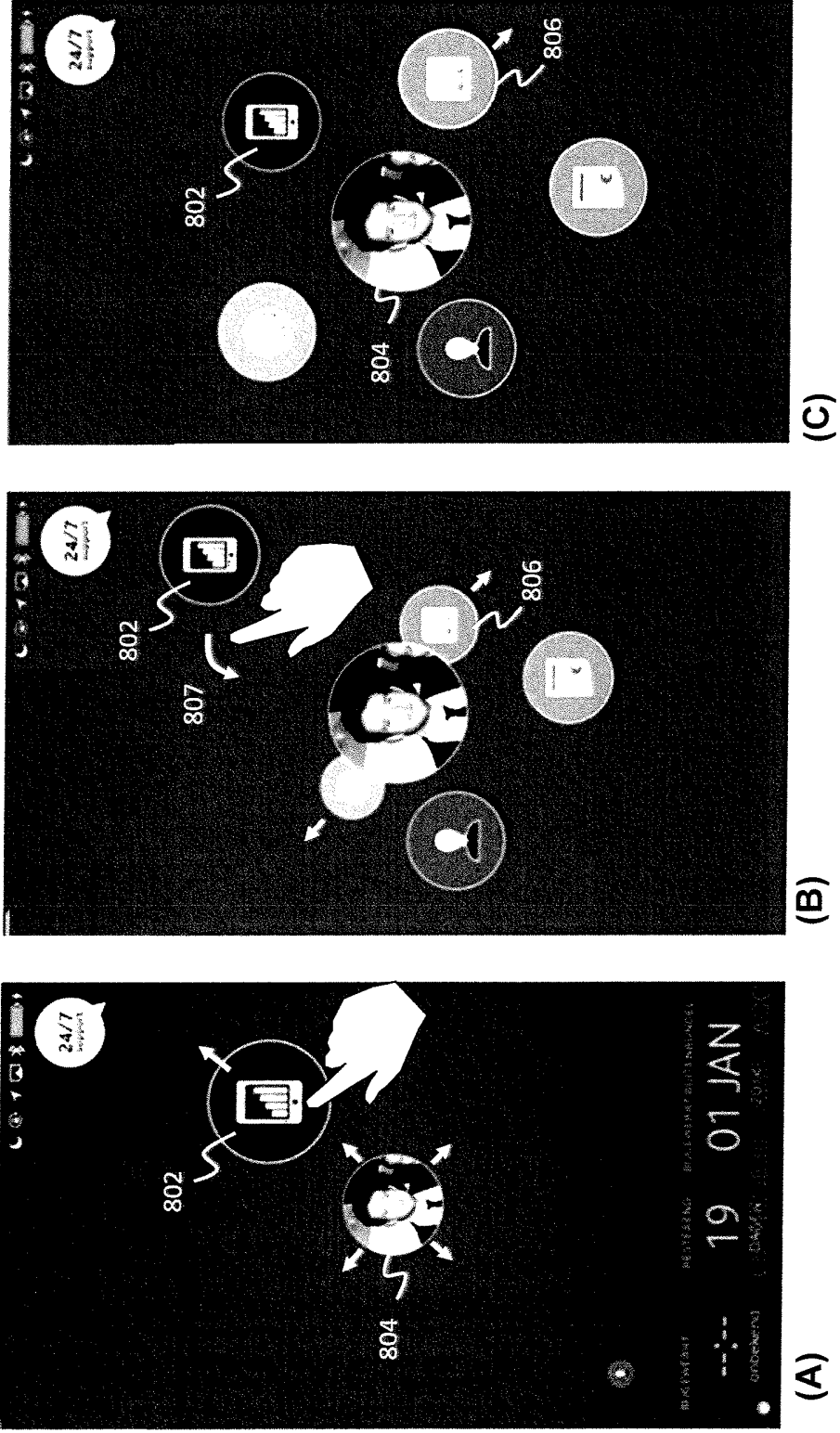


FIG. 8

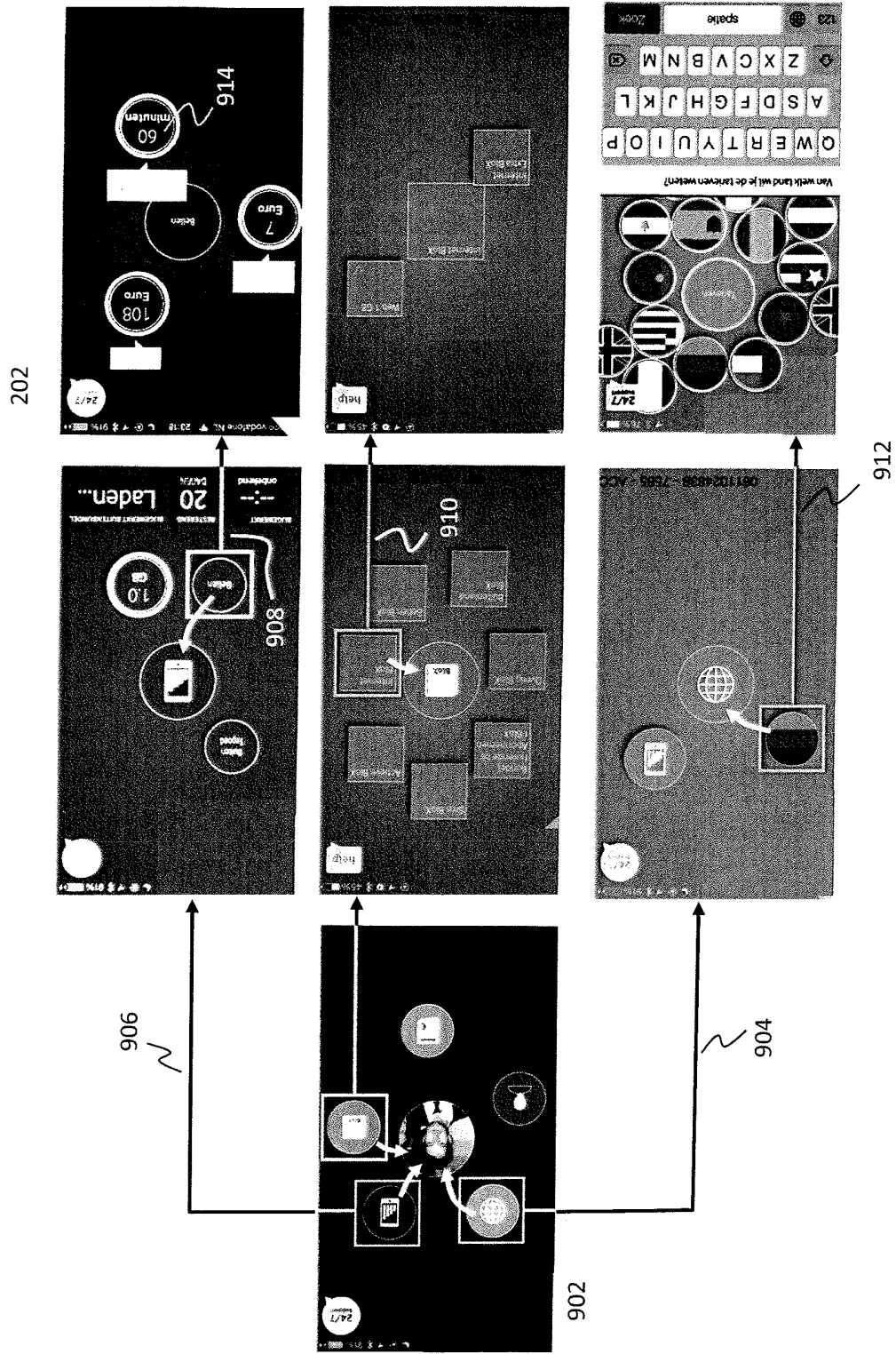


FIG. 9

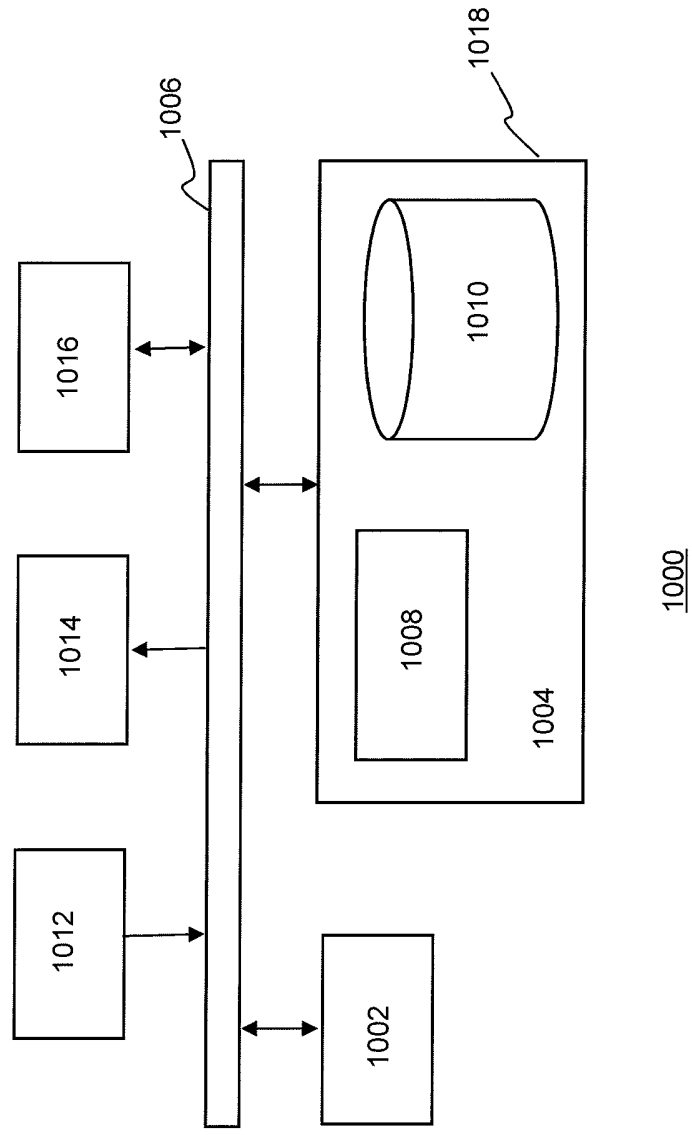


FIG. 10

SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

IDENTIFICATIE VAN DE NATIONALE AANVRAGE	KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE
	NL 20588-VI/vw
Nederlands aanvraag nr.	Indieningsdatum
2012236	10-02-2014
	Ingeroepen voorrangsdatum
Aanvrager (Naam)	
Triple IT B.V.	
Datum van het verzoek voor een onderzoek van internationaal type	Door de Instantie voor Internationaal Onderzoek aan het verzoek voor een onderzoek van internationaal type toegekend nr.
24-05-2014	SN 62087
I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven)	
Volgens de internationale classificatie (IPC)	
G06F3/0482 G06F3/0481 G06F3/0486	
II. ONDERZOCHETE GEBIEDEN VAN DE TECHNIEK	
Onderzochte minimumdocumentatie	
Classificatiesysteem	Classificatiesymbolen
IPC	G06F
Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen	
III.	☐ GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)
IV.	☐ GEBREK AAN EENHEID VAN UITVINDING (opmerkingen op aanvullingsblad)

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2012236

A. CLASSIFICATIE VAN HET ONDERWERP

INV. G06F3/0482 G06F3/0481 G06F3/0486
ADD.

Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.

B. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK

Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen)
G06F

Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden)

EPO-Internal, IBM-TDB

C. VAN BELANG GEACHTE DOCUMENTEN

Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
X	EP 2 088 500 A1 (IDEAN ENTPR OY [FI]) 12 augustus 2009 (2009-08-12) * alinea [0023] - alinea [0028]; figuren 1,2 *	1-17
X	----- US 2007/273663 A1 (PARK HO JOO [KR] ET AL) 29 november 2007 (2007-11-29) * samenvatting * * alinea [0042] - alinea [0050]; figuren 5, 6A-6D *	1-17
A	----- US 2009/122018 A1 (VYMENETS LEONID [CA] ET AL) 14 mei 2009 (2009-05-14) * alinea [0028]; figuur 1 * * alinea [0031] - alinea [0034]; figuren 2,3 * * alinea [0045]; figuur 11 * ----- -/--	1-17

☒ Verdere documenten worden vermeld in het vervolg van vak C.

☒ Leden van dezelfde octrooifamilie zijn vermeld in een bijlage

° Speciale categorieën van aangehaalde documenten

"A" niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft

"D" in de octrooiaanvraag vermeld

"E" eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven

"L" om andere redenen vermelde literatuur

"O" niet-schriftelijke stand van de techniek

"P" tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur

"T" na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding

"X" de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur

"Y" de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht

"&" lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie

Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid

21 oktober 2014

Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type

Naam en adres van de instantie

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

De bevoegde ambtenaar

Schröter, Marcel

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek

NL 2012236

C.(Vervolg). VAN BELANG GEACHTE DOCUMENTEN		
Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
A	CA 2 251 442 A1 (NORTHERN TELECOM LTD [CA]) 22 april 2000 (2000-04-22) * het gehele document * -----	2-5,9, 10,13,14

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Informatie over leden van dezelfde octrooifamilie

Nummer van het verzoek om een onderzoek naar
de stand van de techniek

NL 2012236

In het rapport genoemd octrooigescrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
EP 2088500	A1	12-08-2009	EP 2088500 A1 12-08-2009
			EP 2088501 A1 12-08-2009
			EP 2469399 A1 27-06-2012
			US 2009204928 A1 13-08-2009

US 2007273663	A1	29-11-2007	EP 1860535 A2 28-11-2007
			KR 20070113018 A 28-11-2007
			TW 200805122 A 16-01-2008
			US 2007273663 A1 29-11-2007
			US 2007273669 A1 29-11-2007

US 2009122018	A1	14-05-2009	GEEN

CA 2251442	A1	22-04-2000	GEEN

WRITTEN OPINION

File No. SN62087	Filing date (day/month/year) 10.02.2014	Priority date (day/month/year)	Application No. NL2012236
International Patent Classification (IPC) INV. G06F3/0482 G06F3/0481 G06F3/0486			
Applicant Triple IT B.V.			

This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the application
- ☒ Box No. VIII Certain observations on the application

	Examiner Schröter, Marcel
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WRITTEN OPINION

Application number
NL2012236

Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the application as filed.
 - ☐ filed together with the application in electronic form.
 - ☐ furnished subsequently for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes: Claims	1-17
	No: Claims	
Inventive step	Yes: Claims	
	No: Claims	1-17
Industrial applicability	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

see separate sheet

WRITTEN OPINION

Application number
NL2012236

Box No. VIII Certain observations on the application

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following documents:
 - D1 EP 2 088 500 A1 (IDEAN ENTPR OY [FI]) 12 augustus 2009 (2009-08-12)
 - D2 US 2007/273663 A1 (PARK HO JOO [KR] ET AL) 29 november 2007 (2007-11-29)
 - D3 US 2009/122018 A1 (VYMENETS LEONID [CA] ET AL) 14 mei 2009 (2009-05-14)
 - D4 CA 2 251 442 A1 (NORTHERN TELECOM LTD [CA]) 22 april 2000 (2000-04-22)
- 2 The present application does not meet the criteria of patentability, because the subject-matter of claim 1 does not involve an inventive step.
 - 2.1 D1 may be regarded as being the prior art closest to the subject-matter of claim 1, and discloses: Werkwijze voor het weergeven van grafische gebruikersinterfaces ('using a layer-based user interface', §23 and fig. 1) op een mobiel gebruikersapparaat ('smartphone', §28), waarbij de methode het uitvoeren van computer-leesbare softwarecode omvat door ten minste één processor ('processor ... configured to execute the computing tasks for implementing the layer-based user interface', §28), in het mobiele gebruikersapparaat voor:
het weergeven van een eerste GUI (fig. 1, upper-left GUI) op basis van eerste GUI data, waarbij de eerste GUI een eerste activatiegebied ('middle of the right bound of the screen, where an activation area is located', §24) en een eerste GUI element omvat dat naar een tweede GUI wijst ('When M6 reaches the activation area ... the user can ... use the menu comprising elements S1-S6', §25 and fig. 1, middle-left GUI);
het weergeven van de tweede GUI op basis van tweede GUI data als een gebruiker ~~van~~ het eerste GUI element selecteert door het aanraken van het eerste GUI element en door het verschuiven van het eerste GUI element over het eerste activatiegebied ('When M6 reaches the activation area ... the user can ... use the menu comprising elements S1-S6', §25 and fig. 1, middle-left GUI), waarbij contact wordt gehouden met het eerste GUI element ('icon M6 is dragged', §25), de tweede GUI ten minste omvattende een tweede

activatiegebied ('Icon S4 could be chosen similarly as M6 by dragging it to a determined activation area', §25) en ten minste een tweede GUI element dat naar een derde GUI wijst ('a third layer 12 is then presented when icon S4 has been activated. Layer 12 has further features S8-S10', §26 and fig. 1, lower-left GUI), waarbij het eerste GUI element wordt weergegeven in het tweede activatiegebied (fig. 1, middle-left GUI); het weergeven van de derde GUI op basis van derde GUI data door het aanraken van het tweede GUI element en het verschuiven van het tweede GUI element over het tweede activatiegebied en het eerste GUI element, terwijl contact wordt gehouden met het tweede GUI element ('Icon S4 could be chosen similarly as M6 by dragging it to a determined activation area', §25).

- 2.2 The subject-matter of claim 1 therefore differs from this known method in that
- i) het mobiele gebruikersapparaat omvattende een GUI client voor het communiceren met een GUI server, die geconfigureerd is voor het leveren van GUI data aan de GUI client;
 - ii) het weergeven van de eerste GUI op basis van de eerste GUI data als een gebruiker het eerste GUI element in het tweede activatiegebied selecteert door het aanraken van het eerste GUI element en het verschuiven van het eerste GUI element buiten het tweede activatiegebied.
- 2.3 Providing GUI data from a GUI server to a GUI client is notoriously known in the field of GUIs, see e.g. D4. Distinguishing feature (i) therefore merely relates to an implementation detail of the GUI that would be contemplated by the person skilled in the art without recourse to inventive skill. The problem to be solved by the present invention may therefore be regarded as how to allow for moving up in the menu hierarchy.
- 2.4 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step for the following reasons. D1 discloses that a menu option providing a shortcut to the main menu may be present in lower level menus (§27). However, this does not allow to move up one layer at a time in the menu hierarchy. Several alternative solutions would be contemplated by the person skilled in the art. In order to provide a consistent interface for the user, however, the skilled person would implement the distinguishing feature (ii) as the most straightforward solution to the problem.

- 3 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 12 and 17, which therefore are also considered not inventive.

- 4 Dependent claims 2-11, 13-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of inventive step, see

Claim(s)	Document/passage
2-5, 8-10, 13, 14	These claims refer to implementation details of the GUI data that would be contemplated by the skilled person without recourse to inventive skill, see e.g. D4.
6, 7, 15, 16	Implementing the different levels of a hierarchical menu (or GUI) as a stack is well-known in the art and e.g. implicitly present in D1.
11	The menu in D1 is a hierarchical one. The subject-matter of claim 11 therefore does not involve an inventive step.

5 **Re Item VIII**

Certain observations on the application

The term 'AIP' in claims 9 and 10 has been understood as 'API' in view of the remainder of claim 10.