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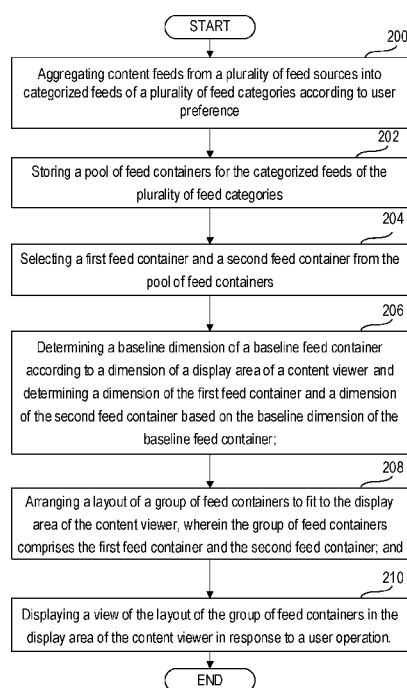


FIG. 3

(57) Abstract: A wireless device executes a content viewer processing method. Content feeds from a plurality of feed sources are aggregated into categorized feeds of a plurality of feed categories according to user preference. A pool of feed containers for the categorized feeds of the plurality of feed categories; are stored in a memory. A baseline dimension of a baseline feed container is determined according to a dimension of a display area of a content viewer. A layout of a group of feed containers is arranged to fit the display area of the content viewer, wherein the group of feed containers comprises feed containers for presentation of categorized feeds of a various feed category. A view of the layout of the group of feed containers is displayed in the display area of the content viewer in response to a user operation.

CONTENT VIEWER PROCESSING METHOD AND WIRELESS DEVICE

Technical Field

[0001] The present disclosure relates to the field of computer technology, and more particularly, to a content viewer processing method and wireless device.

Background Art

[0002] Smartphones have more powerful computing power, abundant software ecosystems, and flexible capabilities than a conventional feature phone. A user may easily extend capabilities or functions of his smartphone by simply downloading and installing an application to the smartphone. An application for smartphones is also known as APP. The number of APPs in a smartphone may be restricted by storage capacity of the smartphone.

Technical Problem

[0003] Smartphone markets depending on hardware requirements have been developing into high-end and mid-end smartphone sectors. A mid-end smartphone is typically not equipped with a large-capacity mass storage device. Without large memory capacity, consumers of such mid-end smartphones usually access a web service or internet content through a web browser rather than APPs that need download and installation.

[0004] Many users turn to the Internet as a source of news, video, music, business promotion, and a variety of tools. However, searching through the Internet for frequently accessed websites is time-consuming.

Technical Solution

[0005] An object of the present disclosure is to propose a content viewer processing method and wireless device.

[0006] In a first aspect, an embodiment of the invention provides a content viewer processing method executable in a wireless device, comprising:

aggregating content feeds from a plurality of feed sources into categorized feeds of a plurality of feed categories according to user preference;

storing a pool of feed containers for the categorized feeds of the plurality of feed categories;

selecting a first feed container and a second feed container from the pool of feed containers, wherein the first feed container is for presentation of categorized feeds of a first feed category among the plurality of feed categories, and the second feed container is for presentation of categorized feeds of a second feed category among the plurality of feed categories;

determining a baseline dimension of a baseline feed container according to a dimension of a display area of a content viewer and determining a dimension of the first feed container and a dimension of the second feed container based on the baseline dimension of the baseline feed container;

arranging a layout of a group of feed containers to fit the display area of the content viewer, wherein the group of feed containers comprises the first feed container and the second feed container; and

displaying a view of the layout of the group of feed containers in the display area of the content viewer in response to a user operation.

[0007] In a second aspect, an embodiment of the invention provides a wireless device comprising:

a memory storing a pool of feed containers and a content viewer;

a processor connected to the memory, configured to execute the following steps:

aggregating content feeds from a plurality of feed sources into categorized feeds of a plurality of feed categories according to user preference;

selecting a first feed container and a second feed container from the pool of feed containers, wherein the first feed

container is for presentation of categorized feeds of a first feed category among the plurality of feed categories, and the second feed container is for presentation of categorized feeds of a second feed category among the plurality of feed categories;

determining a baseline dimension of a baseline feed container according to a dimension of a display area of the content viewer and determining a dimension of the first feed container and a dimension of the second feed container based on the baseline dimension of the baseline feed container;

arranging a layout of a group of feed containers to fit the display area of the content viewer, wherein the group of feed containers comprises the first feed container and the second feed container; and

displaying a view of the layout of the group of feed containers in the display area of the content viewer in response to a user operation.

[0008] In a third aspect, an embodiment of the invention provides a chip comprising a processor. The processor is configured to direct a device in which the processor is installed to execute the disclosed method.

[0009] The disclosed method may be programmed as computer-executable instructions stored in a non-transitory computer-readable medium. The non-transitory computer-readable medium, when loaded to a computer, directs a processor of the computer to execute the disclosed method.

[0010] The non-transitory computer-readable medium may comprise at least one from a group consisting of: a hard disk, a CD-ROM, an optical storage device, a magnetic storage device, a Read-Only Memory, a Programmable Read-Only Memory, an Erasable Programmable Read-Only Memory, EPROM, an Electrically Erasable Programmable Read-Only Memory and a Flash memory.

[0011] The disclosed method may be programmed as a computer program product, which causes a computer to execute the disclosed method.

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Advantageous Effects

[0013] The disclosure provides content viewer processing method and wireless device to facilitate web services on a content viewer. Various content can be pushed to the content viewer according to users' browsing habits. Users can directly open a customized webpage and use feed containers on the webpage to access content on their frequently-accessed websites for work, study, and entertainment through this webpage, instead of searching on the websites, which reduces operation time and APP installation burdens.

Description of Drawings

[0014] In order to more clearly illustrate the embodiments of the present disclosure or related art, the following figures will be described in the embodiments are briefly introduced. It is obvious that the drawings are merely some embodiments of the present disclosure, a person having ordinary skill in this field may obtain other figures according to these figures without paying the premise.

[0015] FIG. 1 illustrates a schematic view of a telecommunication system.

[0016] FIG. 2 illustrates a schematic view showing components in a wireless device for the disclosed content viewer processing method.

[0017] FIG. 3 illustrates a schematic view showing a content viewer processing method according to an embodiment of the invention.

[0018] FIG. 4 illustrates a schematic view showing examples of feed container templates.

[0019] FIG. 5 illustrates a schematic view showing an example of a display area of a feed container and baseline feed containers.

[0020] FIG. 6 illustrates a schematic view showing an example of a layout of a list of feed containers.

[0021] FIG. 7 illustrates a schematic view showing a tugging operation for a feed container.

[0022] FIG. 8 illustrates a schematic view showing another example of a layout of a list of feed containers.

[0023] FIG. 9 illustrates a schematic view showing another example of a layout of a list of feed containers.

[0024] FIG. 10 illustrates a schematic view showing examples of groups of feed containers.

[0025] FIG. 11 illustrates a schematic view showing a system for wireless communication according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF EMBODIMENTS

[0026] Embodiments of the disclosure are described in detail with the technical matters, structural features, achieved objects, and effects with reference to the accompanying drawings as follows. Specifically, the terminologies in the embodiments of the present disclosure are merely for describing the purpose of the certain embodiment, but not to limit the disclosure.

[0027] With reference to FIG. 1, a telecommunication system including a wireless device 10a, a wireless device 10b, a base station (BS) 20a, and a network entity device 30 executes the disclosed method according to an embodiment of the present disclosure. FIG. 1 is shown for illustrative not limiting, and the system may comprise more mobile devices, BSs, and CN entities. Connections between devices and connections between device components are shown as lines and arrows in the FIGs. The wireless device 10a may include a processor 11a, a memory 12a, and a transceiver 13a. The wireless device 10b may include a processor 11b, a memory 12b, and a transceiver 13b. The base station 20a may include a processor 21a, a memory 22a, and a transceiver 23a. The network entity device 30 may include a processor 31, a memory 32, and a transceiver 33. Each of the processors 11a, 11b, 21a, and 31 may be configured to implement proposed functions, procedures and/or methods described in the description. Layers of radio interface protocol may be implemented in the processors 11a, 11b, 21a, and 31. Each of the memory 12a, 12b, 22a, and 32 operatively stores a variety of programs and information to operate a connected processor. Examples of the memory may comprise main memory, level one (L1) cache, L2 cache, registers, and mass storage. Each of the transceivers 13a, 13b, 23a, and 33 is operatively coupled with a connected processor, transmits and/or receives radio signals or wireline signals. The base station 20a may be an eNB, a gNB, or one of other types of radio nodes, and may configure radio resources for the wireless device 10a and wireless device 10b. Examples of the wireless device 10a and wireless device 10b may comprise mobile phones, smartphones, handhelds, personal digital assistants (PDAs), tablet personal computers (PCs), laptop PCs, netbook, notebook PCs, smart watches, and other wireless devices.

[0028] Each of the processors 11a, 11b, 21a, and 31 may include an application-specific integrated circuit (ASICs), other chipsets, logic circuits and/or data processing devices. Each of the memory 12a, 12b, 22a, and 32 may include read-only memory (ROM), a random access memory (RAM), a flash memory, a memory card, a storage medium and/or other storage devices. Each of the transceivers 13a, 13b, 23a, and 33 may include baseband circuitry and radio frequency (RF) circuitry to process radio frequency signals. Each of displays 14a and 14b may comprise a liquid-crystal display (LCD), active-matrix organic light-emitting diode (AMOLED) display, mini light-emitting diode (LED) display, or micro LED display. When the embodiments are implemented in software, the techniques described herein may be implemented with modules, procedures, functions, entities, and so on, that perform the functions described herein. The modules may be stored in a memory and executed by the processors. The memory may be implemented

within a processor or external to the processor, in which those may be communicatively coupled to the processor via various means are known in the art.

[0029] The network entity device 30 may be a node in a CN. CN may include LTE CN or 5G core (5GC). 5GC includes user plane function (UPF), session management function (SMF), mobility management function (AMF), unified data management (UDM), policy control function (PCF), control plane (CP)/user plane (UP) separation (CUPS), authentication server (AUSF), network slice selection function (NSSF), and the network exposure function (NEF).

[0030] With reference to FIG. 2, a wireless device 10 may be an embodiment of the wireless device 10a or 10b and connected to and access a plurality of feed sources 40. For example, the feed sources 40 may comprise feed sources 40-49 and others. One or more of the feed sources 40-49 may be a portion of the Internet, a portion of the CN, or a portion of a radio access network and can be accessed by the mobile 10 through the network entity device 30 and/or the base station 20a. Feed sources 40-49 may be websites that offer content as feeds can inform mobile 10 of the existence of these feeds by, for example, displaying on a web page the feed's address or a link to the feeds. Web sites are realized by web servers.

[0031] Countless web pages are available as sources of content feeds. These web pages take many forms, including, for example, articles, blurbs, and web logs ("blogs"), video content, audio content, among others. In general, digital content is published by insertion into a web page (e.g., coding digital content into a HyperText Markup Language (HTML) file), which can then be viewed using a web browser. The wireless device 10 may obtain feeds 103 from feed sources 40, such as feed sources 41-49, and rearrange feeds 103 to form categorized feeds 104.

[0032] The "feeds" have been developed as a way to publish new content in a structured format that facilitates identification and analysis. A feed (also known as a "news feed" or "blog feed") can contain a content item (e.g., articles, video content, audio content), meta-data about the content item (e.g., title, date, and author), and/or meta-data about the feed itself (e.g., title, URL, and last-updated timestamp). Some feeds are described by Resource Description Framework (RDF) statements and/or encoded using extended Markup Language (XML) (such as, e.g., the XML syntax RDF/XML).

[0033] In the following description, the terms "content feed," "news feed," "blog feed," and "feed" may be used interchangeably to refer to content items (content), meta-data about the content items (e.g., title, date, and author), and meta-data about the feeds (e.g., title, URL, and last-updated timestamp). A feed can be described by Resource Description Framework (RDF) statements and/or encoded using extended Markup Language (XML) (e.g., the XML syntax RDF/XML). The term "syndication XML" refers to XML that has been developed for feeds, such as Atom and RSS ("Really Simple Syndication," "Rich Site Summary," or "RDF Site Summary").

[0034] The wireless device 10 comprises a content viewer 101. The content viewer 101 may use features of feeds to automatically collect and evaluate content feed for presentation to the user on a display area of the content viewer. A content viewer can be, for example, a web browser, a web browser plug-in, a widget, or a standalone application. The wireless device 10 loads the content of a feed from a feed source for presentation in a feed container displayed on a content viewer 101 and preloads content of a feed from a feed source for presentation in a yet-displayed feed container. The yet-displayed feed container is a feed container that is near an edge of a display area of the content viewer 101 but has not been shown on a content viewer 101. The phrase "content viewer" refers to a feed viewer that can also be used to browse the web (e.g., to display files containing HTML). A content viewer is usually located on a

user's wireless (e.g., as a web browser). Alternatively, a content viewer can also be located on a remote computer (e.g., as a remote application accessed using a terminal).

[0035] The wireless device 10 comprises a plurality of feed containers 102. The terms “feed container,” “feed viewer,” and “feed reader” may be used interchangeably to refer to a software component that enables a user to view a feed in a content viewer. A feed container can be coded into an HTML file, parsed, invoked, and displayed by a content viewer. A feed container can be, for example, a web browser plug-in, a widget, a gadget, or a standalone application. The content viewer 101, feed containers 102, feeds 103, and feeds 104 are stored in memory 12 of the wireless device 10.

[0036] With reference to FIG. 3, the wireless device 10 executes a content viewer processing method to show digital contents from various content sources.

[0037] The wireless device 10 aggregates content feeds (e.g., feeds 103) from a plurality of feed sources (e.g., feed sources 40-49) into categorized feeds (e.g., categorized feeds 104) of a plurality of feed categories according to user preference (200). Aggregation of content feeds may include, for example, filtering and/or merging the articles of multiple feeds to form a feed. Filtering includes, for example, selecting a subset of content items of a feed based on whether the content items satisfy a search query and/or the user preference. In an embodiment, the user preference may reflect statistics of Internet access activities through the mobile phone.

[0038] The wireless device 10 may classify the feeds 103 into the plurality of feed categories 105. For example, the wireless device 10 may classify the feeds 103 into the plurality of feed categories 105 according to content types of the feeds 103. Feeds classified into the same feed category may have the same content type. The content types of the feeds 103 may comprise news articles, text, social network content, financial information updates from stock markets or other markets, multimedia content, notifications from a web service of calendar or schedule, and other content types. Alternatively, the wireless device 10 may classify the feeds 103 into the plurality of feed categories 105 according to user preference. In an embodiment, the wireless device 10 may categorize the feeds from feed sources 41-43 into a first feed category 1051, the feeds from feed sources 44-46 into a second feed category 1052, the feeds from feed sources 47-49 into a third feed category 1053,

[0039] The wireless device 10 stores a pool of feed containers (e.g., feed containers 102) for the categorized feeds (e.g., categorized feeds 104) of the plurality of feed categories (e.g., feed categories 105) (202). The wireless device 10 selects a first feed container and a second feed container from the pool of feed containers (204). The first feed container is for presentation of categorized feeds of a first feed category (e.g., first feed category 1051) among the plurality of feed categories, and the second feed container is for presentation of categorized feeds of a second feed category (e.g., second feed category 1052) among the plurality of feed categories. The wireless device 10 may store a plurality of feed container templates.

[0040] With reference to FIG. 4, the wireless device 10 stores a plurality of feed container templates, such as feed container templates 50, 51, 52, 53, and 54. A feed container is an instance of one of the feed container templates. A dimension of the feed container template 50 can be a reference for dimensions of the feed container templates 51, 52, 53, and 54. For example, a feed container generated in form of the feed container template 50 can be a baseline feed container. A feed container generated in form of the feed container template 51, 52, 53, or 54 has a width being in terms of an integer multiple of a width of the baseline feed container a height being in terms of an integer multiple of a height of the baseline feed container.

[0041] With reference to FIG. 3 to FIG. 5, the wireless device 10 determines a baseline dimension of a baseline feed container (e.g., 1010) according to a dimension of a display area (e.g., 1011) of the content viewer 101 and determines a dimension of the first feed container and a dimension of the second feed container based on the baseline dimension of the baseline feed container (e.g., 1010) (206). In an embodiment, the content viewer comprises a web browser.

[0042] With reference to FIG. 5, the wireless device 10 displays the content viewer 101 in a display area of display 14. The content viewer 101 comprises a search bar 1012 and tabs 1013, 1014, 1015, and 1016. Each of the tab 1013, 1014, 1015, and 1016 is associated with a display area of the content viewer 101. In an example, the tab 1013 has a display area 1011. The wireless device 10 determines to fill the display area 1011 of the content viewer 101 with 3 by 2 baseline feed containers by determining a baseline height of a baseline feed container 1010 according to a height L2 of the display area 1011 of the content viewer 101 and a baseline width of the baseline feed container 1010 according to a width W2 of the display area 1011 of the content viewer 101. Any two vertically adjacent baseline feed containers 1010 are separated by a vertical spacing S1. Any two horizontally adjacent baseline feed containers 1010 are separated by a horizontal spacing S2. Similarly, the wireless device 10 may determine to fill the display area 1011 of the content viewer 101 with m by n baseline feed containers. The variables m and n are positive integers. Alternatively, the wireless device 10 may determine to fill the display area 1011 of the content viewer 101 with m by n baseline feed containers by determining a baseline height of a baseline feed container 1010 according to a height L1 of the display area 141 of the display 14 and a baseline width of the baseline feed container 1010 according to a width W1 of the display area 141 of the display 14.

[0043] With reference to FIG. 5 and FIG. 6, the wireless device 10 determines a dimension of the first feed container (e.g., 1018a, 1018b) and a dimension of the second feed container (e.g., 1019) based on the baseline dimension of the baseline feed container (e.g., 1010). For example, the wireless device 10 determines dimensions of feed containers 1017a, 1017b, 1018a, 1018b, and 1019 based on the baseline dimension of the baseline feed container 1010. Each of feed containers 1017a and 1017b is an instance of the feed container template 50. Each of feed containers 1018a and 1018b is an instance of the feed container template 51. The feed container 1019 is an instance of the feed container template 52.

[0044] With reference to FIG. 3, the wireless device 10 arranges a layout of a group of feed containers to fit the display area (e.g., 1011) of the content viewer 101. The group of feed containers comprises the first feed container and the second feed container (208).

[0045] The wireless device 10 displays a view of the layout of the group of feed containers in the display area of the content viewer in response to a user operation (210). The view of the layout of the group of feed containers is determined to have a dimension in terms of a number of rows of baseline feed containers and a number of columns of baseline feed containers.

[0046] With reference to FIG. 6, for example, the wireless device 10 arranges a layout 561 of a group of feed containers 1017a, 1017b, 1018a, 1018b, 1019, 1020a, 1020b, and 1021 to fit the width of the display area 1011 of the content viewer 101. The group of feed containers comprises the first feed container (e.g., 1018a or 1018b) and the second feed container (e.g., 1019 or 1021).

[0047] The wireless device 10 displays a view 562 of the layout 561 of the group of feed containers in the display area 1011 of the content viewer in response to a user operation, such as launching the content viewer 101, tapping the tab 1013, or tugging/sliding/dragging the view 562. The layout 561 of the group of feed containers is a list of feed

containers 1017a, 1017b, 1018a, 1018b, 1019, 1020a, 1020b, and 1021. The view 562 may comprise a subset of the list of feed containers 1017a, 1017b, 1018a, 1018b, 1019, 1020a, 1020b, and 1021.

[0048] With reference to FIG. 4, a feed container may comprise one or more of a multimedia display area, an insignia area, a logo area, and a title area. For example, a feed container generated in form of the feed container template 51 comprises a multimedia display area 510, an insignia area 511, a logo area 512, a page indicator 513, and a title area 514. A feed container generated in form of the feed container template 52 comprises a multimedia display area 520, an insignia area 521, a logo area 522, a page indicator 523, and a title area 524. A feed container generated in form of the feed container template 54 comprises a multimedia display area 540, an insignia area 541, a logo area 542, a page indicator 543, and a title area 544. The feed container generated in form of the feed container template 51 has the same dimension with the dimension of the baseline feed container generated in form of the feed container template 50. The feed container generated in form of the feed container template 52 has a height substantially the same as the height of the baseline feed container and a width substantially equal to twice the width of the baseline feed container plus a horizontal spacing between feed containers. The feed container generated in form of the feed container template 54 has a height substantially equal to twice the height of the baseline feed container plus a vertical spacing between feed containers and a width substantially the same as the width of the baseline feed container.

[0049] A specific feed container shown on the content viewer 101 can be a feed container generated by the wireless device 10 in form of any of the feed container templates 50, 51, 52, 53, or 54. The multimedia display area is configured for presentation of multimedia content in an active feed associated with the specific feed container.

[0050] The insignia area, such as 511, 521, or 541, is configured for presentation of an insignia showing a status of content in the active feed associated with the specific feed container. The status of content in the active feed may indicate a version of the active feed, an arrival time of the active feed, or whether the active feed has been read or accessed by the user of the wireless device 10.

[0051] The logo area, such as 512, 522, or 542, is configured for presentation of a logo showing a content type of the content in the active feed associated with the specific feed container. The content types of the active feed may comprise news articles, text, social network content, financial information updates from stock markets or other markets, multimedia content, notifications from a web service of calendar or schedule, and other content types.

[0052] The title area, such as 514, 524, or 544, is configured for presentation of a title in the content in the active feed associated with the specific feed container.

[0053] The multimedia display area, such as 510, 520, or 540, is configured for presentation of the content in the active feed associated with the specific feed container. When the content type of the content in the active feed associated with the specific feed container is playable content, the wireless device 10 may play the content of the active feed in the multimedia display area of the specific feed container in response to a playback activation gesture, such as a touch or a tap operation.

[0054] When the specific feed container is associated with two or more feeds, only one feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container. The two or more feeds associated with the specific feed container are arranged in an arrangement, and the specific feed container switches between the two or more feeds associated with the specific feed container according to the arrangement to present the active feed.

[0055] In an embodiment, a first candidate feed in the two or more feeds associated with the specific feed container is originally activated as the active feed of the specific feed container. When the first candidate feed is tugged away

from a center a display area of the specific feed container in response to an in-container tugging operation on the specific feed container, a neighbor candidate feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container and is presented in the display area of the specific feed container. The in-container tugging operation may comprise a sliding gesture or a tugging gesture on the specific feed container. The wireless device 10 determines a sliding gesture or a tugging gesture on the specific feed container as the in-container tugging operation and a sliding gesture or a tugging gesture out of the feed containers as the tugging operation for the list of feed containers. A tugging operation for the list of feed containers can move a view 562 of a layout 561 of the group of feed containers. The specific feed container may show an animated transition effect during switching between the first candidate feed and the neighbor candidate feed.

[0056] The specific feed container comprises a page indicator showing a position of a currently activated candidate feed that is activated as the active feed among the two or more feeds associated with the specific feed container according to the arrangement.

[0057] With reference to FIG. 7, when a specific feed container 1030 is associated with feeds of the feed sources 41, 42, and 43, only one feed from the feed sources 41, 42, and 43 associated with the specific feed container is activated as the active feed of the specific feed container. The feeds associated with the specific feed container are arranged in an arrangement, such as content C41, C42, and C43, and the specific feed container switches between the feeds associated with the specific feed container according to the arrangement to present the active feed.

[0058] A first candidate feed (e.g., content C42) in the feeds associated with the specific feed container 1030 is originally activated as the active feed of the specific feed container 1030. When the first candidate feed (e.g., content C42) is tugged down away from a center a display area 510 of the specific feed container 1030 in response to an in-container tugging operation on the specific feed container 1030, an upper neighbor candidate feed (e.g., content C41) in the feeds associated with the specific feed container 1030 is activated as the active feed of the specific feed container 130 and is presented in the display area 510 of the specific feed container. The specific feed container 1030 may show an animated transition effect during switching between the first candidate feed (e.g., content C42) and the upper neighbor candidate feed (e.g., content C41). The specific feed container 1030 comprises a page indicator 513 showing a position of a currently activated candidate feed (e.g., content C41) that is activated as the active feed among the feeds associated with the specific feed container 1030 according to the arrangement.

[0059] When the upper neighbor candidate feed (e.g., content C41) is tugged down away from a center a display area 510 of the specific feed container 1030 in response to an in-container tugging operation on the specific feed container 1030, since an upper end of the arrangement is reached, the switching of the candidate feeds associated with the specific feed container 1030 is cycled to a lower end of the arrangement, i.e., the content C43. Thus, a lower neighbor candidate feed (e.g., content C43) in the feeds associated with the specific feed container 1030 is activated as the active feed of the specific feed container 130 and is presented in the display area 510 of the specific feed container. The specific feed container 1030 may show an animated transition effect during switching between the upper neighbor candidate feed (e.g., content C41) and the lower neighbor candidate feed (e.g., content C43). The specific feed container 1030 comprises a page indicator 513 showing a position of a currently activated candidate feed (e.g., content C43) that is activated as the active feed among the feeds associated with the specific feed container 1030 according to the arrangement.

[0060] When the first candidate feed (e.g., content C42) is tugged up away from a center a display area 510 of the specific feed container 1030 in response to an in-container tugging operation on the specific feed container 1030, a

lower neighbor candidate feed (e.g., content C43) in the feeds associated with the specific feed container 1030 is activated as the active feed of the specific feed container 130 and is presented in the display area 510 of the specific feed container. The specific feed container 1030 may show an animated transition effect during switching between the first candidate feed (e.g., content C42) and the lower neighbor candidate feed (e.g., content C43). The specific feed container 1030 comprises a page indicator 513 showing a position of a currently activated candidate feed (e.g., content C43) that is activated as the active feed among the feeds associated with the specific feed container 1030 according to the arrangement.

[0061] When the lower neighbor candidate feed (e.g., content C43) is tugged up away from a center a display area 510 of the specific feed container 1030 in response to an in-container tugging operation on the specific feed container 1030, since the lower end of the arrangement is reached, the switching of the candidate feeds associated with the specific feed container 1030 is cycled to the upper end of the arrangement, i.e., the content C41. Thus, the upper neighbor candidate feed (e.g., content C41) in the feeds associated with the specific feed container 1030 is activated as the active feed of the specific feed container 130 and is presented in the display area 510 of the specific feed container. The specific feed container 1030 may show an animated transition effect during switching between the lower neighbor candidate feed (e.g., content C43) and the upper neighbor candidate feed (e.g., content C41). The specific feed container 1030 comprises a page indicator 513 showing a position of a currently activated candidate feed (e.g., content C41) that is activated as the active feed among the feeds associated with the specific feed container 1030 according to the arrangement.

[0062] Examples of the specific feed container 1030 may comprise any of the feed container 1017a, 1017b, 1018a, 1018b, 1019, 1020a, 1020b, and 1021. The specific feed container of the first feed container or the second feed container has a width being an integer multiple of a width of the baseline feed container plus the horizontal spacing S2 and a height being an integer multiple of a height of the baseline feed container plus the vertical spacing S1.

[0063] The specific feed container comprises one or more of a multimedia display area, an insignia area, a logo area, and a title area.

[0064] The content viewer 101 allows adding one or more new feed containers to the layout 561 of the group of feed containers or removing one or more existing feed containers from the layout 561 of the group of feed containers.

[0065] The wireless device 10 updates the view 562 of the layout 561 of the group of feed containers in the display area of the content viewer 101 in response to a tugging operation on the view 562 of the layout 561 of the group of feed containers. One or more rows of yet-displayed feed containers are preloaded for display on the display area 1011 of the content viewer 101 when the displacement of the layout 561 of the group of feed containers caused by the tugging operation exceeds a displacement threshold, and the displacement threshold is determined based on the baseline dimension of the baseline feed container. The wireless device 10 loads content of a feed from a feed source for presentation in a feed container displayed on a content viewer 101 and preloads content of a feed from a feed source for presentation in a yet-displayed feed container. The yet-displayed feed container is a feed container that is near an edge of the view 562 but has not been shown on the content viewer 101.

[0066] With reference to FIG. 6, for example, feed containers 1020a and 1020b are preloaded for display on the display area 1011 of the content viewer 101. With reference to FIG. 8, the yet-displayed feed container 1021 are preloaded for display on the display area 1011 of the content viewer 101 when the displacement of the layout 561 of the group of feed containers relative to the view 562, which is caused by the tugging operation exceeds the

displacement threshold. The displacement threshold may be one half of the height of the baseline feed container or one half of the spacing S1.

[0067] With reference to FIG. 9, a feed container 1031 is an instance of feed container template 53 and shows a feed from a social network. The feed container 1031 shows a notification emblem 10311 in synchronization with a desktop icon of a social network APP on a desktop screen of the wireless device 10.

[0068] With reference to FIG. 10, feed containers can be grouped into one or more feed container groups. For example, the wireless device 10 displays feed containers 1041a, 1041b, 1041c in a feed container group 1041, feed containers 1042a, 1042b, 1042c in a feed container group 1042, feed containers 1043a and 1043b in a feed container group 1043, and feed containers 1044a and 1044b in a feed container group 1044. The wireless device 10 may automatically classify feed containers into one or more feed container groups according to classifying rules or receives grouping operations that groups the feed containers into one or more feed container groups from the user. The grouping operations may comprise a tip and drag operation on a feed container. The tip and drag operation may comprise a tip gesture to select the feed container and a drag gesture to move the feed container into a range of a feed container group, such as 1041, 1042, 1043, or 1044. The range of a feed container group may be shown as a graphical user interface (GUI) element on the display area 1011.

[0069] FIG. 11 is a block diagram of an example system 700 for wireless communication according to an embodiment of the present disclosure. Embodiments described herein may be implemented into the system using any suitably configured hardware and/or software. FIG. 11 illustrates the system 700 including a radio frequency (RF) circuitry 710, a baseband circuitry 720, a processing unit 730, a memory/storage 740, a display 750, a camera 760, a sensor 770, and an input/output (I/O) interface 780, coupled with each other as illustrated.

[0070] The processing unit 730 may include circuitry, such as, but not limited to, one or more single-core or multi-core processors. The processors may include any combinations of general-purpose processors and dedicated processors, such as graphics processors and application processors. The processors may be coupled with the memory/storage and configured to execute instructions stored in the memory/storage to enable various applications and/or operating systems running on the system.

[0071] The baseband circuitry 720 may include circuitry, such as, but not limited to, one or more single-core or multi-core processors. The processors may include a baseband processor. The baseband circuitry may handle various radio control functions that enable communication with one or more radio networks via the RF circuitry. The radio control functions may include, but are not limited to, signal modulation, encoding, decoding, radio frequency shifting, etc. In some embodiments, the baseband circuitry may provide for communication compatible with one or more radio technologies. For example, in some embodiments, the baseband circuitry may support communication with 5G NR, LTE, an evolved universal terrestrial radio access network (EUTRAN) and/or other wireless metropolitan area networks (WMAN), a wireless local area network (WLAN), a wireless personal area network (WPAN). Embodiments in which the baseband circuitry is configured to support radio communications of more than one wireless protocol may be referred to as multi-mode baseband circuitry. In various embodiments, the baseband circuitry 720 may include circuitry to operate with signals that are not strictly considered as being in a baseband frequency. For example, in some embodiments, baseband circuitry may include circuitry to operate with signals having an intermediate frequency, which is between a baseband frequency and a radio frequency.

[0072] The RF circuitry 710 may enable communication with wireless networks using modulated electromagnetic radiation through a non-solid medium. In various embodiments, the RF circuitry may include switches, filters,

amplifiers, etc. to facilitate communication with the wireless network. In various embodiments, the RF circuitry 710 may include circuitry to operate with signals that are not strictly considered as being in a radio frequency. For example, in some embodiments, RF circuitry may include circuitry to operate with signals having an intermediate frequency, which is between a baseband frequency and a radio frequency.

[0073] In various embodiments, the transmitter circuitry, control circuitry, or receiver circuitry discussed above with respect to the mobile device, eNB, or gNB may be embodied in whole or in part in one or more of the RF circuitries, the baseband circuitry, and/or the processing unit. As used herein, “circuitry” may refer to, be part of, or include an Application Specific Integrated Circuit (ASIC), an electronic circuit, a processor (shared, dedicated, or group), and/or memory (shared, dedicated, or group) that execute one or more software or firmware programs, a combinational logic circuit, and/or other suitable hardware components that provide the described functionality. In some embodiments, the electronic device circuitry may be implemented in, or functions associated with the circuitry may be implemented by, one or more software or firmware modules. In some embodiments, some or all of the constituent components of the baseband circuitry, the processing unit, and/or the memory/storage may be implemented together on a system on a chip (SOC).

[0074] The memory/storage 740 may be used to load and store data and/or instructions, for example, for the system. The memory/storage for one embodiment may include any combination of suitable volatile memory, such as dynamic random access memory (DRAM)), and/or non-volatile memory, such as flash memory. In various embodiments, the I/O interface 780 may include one or more user interfaces designed to enable user interaction with the system and/or peripheral component interfaces designed to enable peripheral component interaction with the system. User interfaces may include, but are not limited to a physical keyboard or keypad, a touchpad, a speaker, a microphone, etc. Peripheral component interfaces may include, but are not limited to, a non-volatile memory port, a universal serial bus (USB) port, an audio jack, and a power supply interface.

[0075] In various embodiments, the sensor 770 may include one or more sensing devices to determine environmental conditions and/or location information related to the system. In some embodiments, the sensors may include, but are not limited to, a gyro sensor, an accelerometer, a proximity sensor, an ambient light sensor, and a positioning unit. The positioning unit may also be part of, or interact with, the baseband circuitry and/or RF circuitry to communicate with components of a positioning network, e.g., a global positioning system (GPS) satellite. In various embodiments, the display 750 may include a display, such as a liquid crystal display and a touch screen display. In various embodiments, the system 700 may be a mobile computing device such as, but not limited to, a laptop computing device, a tablet computing device, a netbook, an ultrabook, a smartphone, etc. In various embodiments, the system may have more or less components, and/or different architectures. Where appropriate, the methods described herein may be implemented as a computer program. The computer program may be stored on a storage medium, such as a non-transitory storage medium.

[0076] A person having ordinary skill in the art understands that each of the units, algorithm, and steps described and disclosed in the embodiments of the present disclosure are realized using electronic hardware or combinations of software for computers and electronic hardware. Whether the functions run in hardware or software depends on the condition of the application and design requirement for a technical plan. A person having ordinary skill in the art may use different ways to realize the function for each specific application while such realizations should not go beyond the scope of the present disclosure. It is understood by a person having ordinary skill in the art that he/she may refer to the working processes of the system, device, and unit in the above-mentioned embodiment since the working

processes of the above-mentioned system, device, and unit are basically the same. For easy description and simplicity, these working processes will not be detailed.

[0077] It is understood that the disclosed system, device, and method in the embodiments of the present disclosure may be realized in other ways. The above-mentioned embodiments are exemplary only. The division of the units is merely based on logical functions while other divisions exist in realization. It is possible that a plurality of units or components are combined or integrated into another system. It is also possible that some characteristics are omitted or skipped. On the other hand, the displayed or discussed mutual coupling, direct coupling, or communicative coupling operate through some ports, devices, or units whether indirectly or communicatively by ways of electrical, mechanical, or other kinds of forms.

[0078] The units as separating components for explanation are or are not physically separated. The units for display are or are not physical units, that is, located in one place or distributed on a plurality of network units. Some or all of the units are used according to the purposes of the embodiments. Moreover, each of the functional units in each of the embodiments may be integrated into one processing unit, physically independent, or integrated into one processing unit with two or more than two units.

[0079] If the software function unit is realized and used and sold as a product, it may be stored in a readable storage medium in a computer. Based on this understanding, the technical plan proposed by the present disclosure may be essentially or partially realized as the form of a software product. Or, one part of the technical plan beneficial to the conventional technology may be realized as the form of a software product. The software product in the computer is stored in a storage medium, including a plurality of commands for a computational device (such as a personal computer, a server, or a network device) to run all or some of the steps disclosed by the embodiments of the present disclosure. The storage medium includes a USB disk, a mobile hard disk, a read-only memory (ROM), a random access memory (RAM), a floppy disk, or other kinds of media capable of storing program codes.

[0080] The disclosure provides content viewer processing method and wireless device to facilitate web services on a content viewer. Various content can be pushed to the content viewer according to users' browsing habits. Users can directly open a customized webpage and use feed containers on the webpage to access content on their frequently-accessed websites for work, study, and entertainment through this webpage, instead of searching on the websites, which reduces operation time and APP installation burdens.

[0081] While the present disclosure has been described in connection with what is considered the most practical and preferred embodiments, it is understood that the present disclosure is not limited to the disclosed embodiments but is intended to cover various arrangements made without departing from the scope of the broadest interpretation of the appended claims.

Claims

1. A content viewer processing method executable in a wireless device, comprising:

aggregating content feeds from a plurality of feed sources into categorized feeds of a plurality of feed categories according to user preference;

storing a pool of feed containers for the categorized feeds of the plurality of feed categories;

selecting a first feed container and a second feed container from the pool of feed containers, wherein the first feed container is for presentation of categorized feeds of a first feed category among the plurality of feed categories, and the second feed container is for presentation of categorized feeds of a second feed category among the plurality of feed categories;

determining a baseline dimension of a baseline feed container according to a dimension of a display area of a content viewer and determining a dimension of the first feed container and a dimension of the second feed container based on the baseline dimension of the baseline feed container;

arranging a layout of a group of feed containers to fit the display area of the content viewer, wherein the group of feed containers comprises the first feed container and the second feed container; and

displaying a view of the layout of the group of feed containers in the display area of the content viewer in response to a user operation.

2. The content viewer processing method of claim 1, wherein a specific feed container of the first feed container or the second feed container has a width being an integer multiple of a width of the baseline feed container a height being an integer multiple of a height of the baseline feed container.

3. The content viewer processing method of claim 2, further comprising:

updating the view of the layout of the group of feed containers in the display area of the content viewer in response to a tugging operation on the view of the layout of the group of feed containers, wherein one or more rows of yet-displayed feed containers are preloaded for display on the display area of the content viewer when displacement of the layout of the group of feed containers caused by the tugging operation exceeds a displacement threshold, and the displacement threshold is determined based on the baseline dimension of the baseline feed container.

4. The content viewer processing method of claim 3, wherein the view of the layout of the group of feed containers is determined to have a dimension in terms of a number of rows of baseline feed containers and a number of columns of baseline feed containers.

5. The content viewer processing method of claim 3, wherein the specific feed container comprises one or more of a multimedia display area, an insignia area, a logo area, and a title area;

the multimedia display area is configured for presentation of multimedia content in an active feed associated with the specific feed container;

the insignia area is configured for presentation of an insignia showing a status of content in the active feed associated with the specific feed container;

the logo area is configured for presentation of a logo showing a content type of the content in the active feed associated with the specific feed container; and

a title area is configured for presentation of a title in the content in the active feed associated with the specific feed container.

6. The content viewer processing method of claim 5, wherein when the content type of the content in the active feed associated with the specific feed container is playable content, the content in the active feed is played in the multimedia display area of the specific feed container in response to a playback activation gesture.

7. The content viewer processing method of claim 3, wherein the specific feed container is associated with two or more feeds, only one feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container; and

the two or more feeds associated with the specific feed container are arranged in an arrangement, and the specific feed container switches between the two or more feeds associated with the specific feed container according to the arrangement to present the active feed.

8. The content viewer processing method of claim 7, wherein a first candidate feed in the two or more feeds associated with the specific feed container is originally activated as the active feed of the specific feed container, when the first candidate feed is tugged away from a center a display area of the specific feed container in response to an in-container tugging operation on the specific feed container, a neighbor candidate feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container and is presented in the display area of the specific feed container.

9. The content viewer processing method of claim 8, wherein the specific feed container comprises a page indicator showing a position of a currently activated candidate feed that is activated as the active feed among the two or more feeds associated with the specific feed container according to the arrangement.

10. A computer-readable storage medium, in which a computer program is stored, wherein the computer program causes a computer to execute a method of any of claims 1 to 9.

11. A computer program product, comprising a computer program, wherein the computer program causes a computer to execute a method of any of claims 1 to 9.

12. A wireless device comprising:

a memory storing a pool of feed containers and a content viewer;

a processor connected to the memory, configured to execute the following steps:

aggregating content feeds from a plurality of feed sources into categorized feeds of a plurality of feed categories according to user preference;

selecting a first feed container and a second feed container from the pool of feed containers, wherein the first feed container is for presentation of categorized feeds of a first feed category among the plurality of feed categories, and the second feed container is for presentation of categorized feeds of a second feed category among the plurality of feed categories;

determining a baseline dimension of a baseline feed container according to a dimension of a display area of the content viewer and determining a dimension of the first feed container and a dimension of the second feed container based on the baseline dimension of the baseline feed container;

arranging a layout of a group of feed containers to fit the display area of the content viewer, wherein the group of feed containers comprises the first feed container and the second feed container; and

displaying a view of the layout of the group of feed containers in the display area of the content viewer in response to a user operation.

13. The wireless device of claim 12, wherein a specific feed container of the first feed container or the second feed container has a width being an integer multiple of a width of the baseline feed container a height being an integer multiple of a height of the baseline feed container.

14. The wireless device of claim 13, further comprising:

updating the view of the layout of the group of feed containers in the display area of the content viewer in response to a tugging operation on the view of the layout of the group of feed containers, wherein one or more rows of yet-

displayed feed containers are preloaded for display on the display area of the content viewer when displacement of the layout of the group of feed containers caused by the tugging operation exceeds a displacement threshold, and the displacement threshold is determined based on the baseline dimension of the baseline feed container.

15. The wireless device of claim 14, wherein the view of the layout of the group of feed containers is determined to have a dimension in terms of a number of rows of baseline feed containers and a number of columns of baseline feed containers.

16. The wireless device of claim 14, wherein the specific feed container comprises one or more of a multimedia display area, an insignia area, a logo area, and a title area;

the multimedia display area is configured for presentation of multimedia content in an active feed associated with the specific feed container;

the insignia area is configured for presentation of an insignia showing a status of content in the active feed associated with the specific feed container;

the logo area is configured for presentation of a logo showing a content type of the content in the active feed associated with the specific feed container; and

a title area is configured for presentation of a title in the content in the active feed associated with the specific feed container.

17. The wireless device of claim 16, wherein when the content type of the content in the active feed associated with the specific feed container is playable content, the content in the active feed is played in the multimedia display area of the specific feed container in response to a playback activation gesture.

18. The wireless device of claim 14, wherein the specific feed container is associated with two or more feeds, only one feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container; and

the two or more feeds associated with the specific feed container are arranged in an arrangement, and the specific feed container switches between the two or more feeds associated with the specific feed container according to the arrangement to present the active feed.

19. The wireless device of claim 18, wherein a first candidate feed in the two or more feeds associated with the specific feed container is originally activated as the active feed of the specific feed container, when the first candidate feed is tugged away from a center a display area of the specific feed container in response to an in-container tugging operation on the specific feed container, a neighbor candidate feed in the two or more feeds associated with the specific feed container is activated as the active feed of the specific feed container and is presented in the display area of the specific feed container.

20. The wireless device of claim 19, wherein the specific feed container comprises a page indicator showing a position of a currently activated candidate feed that is activated as the active feed among the two or more feeds associated with the specific feed container according to the arrangement.

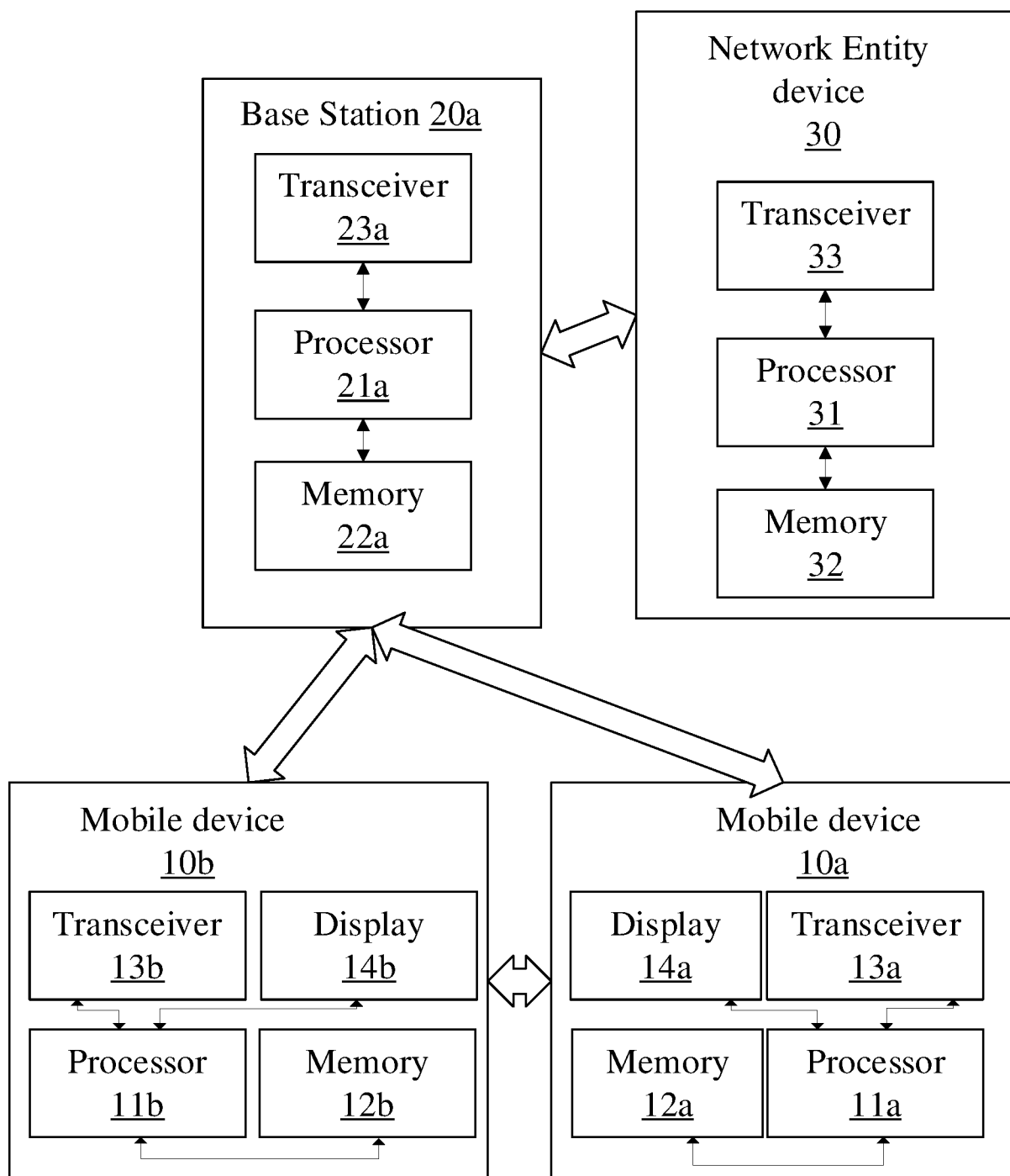


FIG. 1

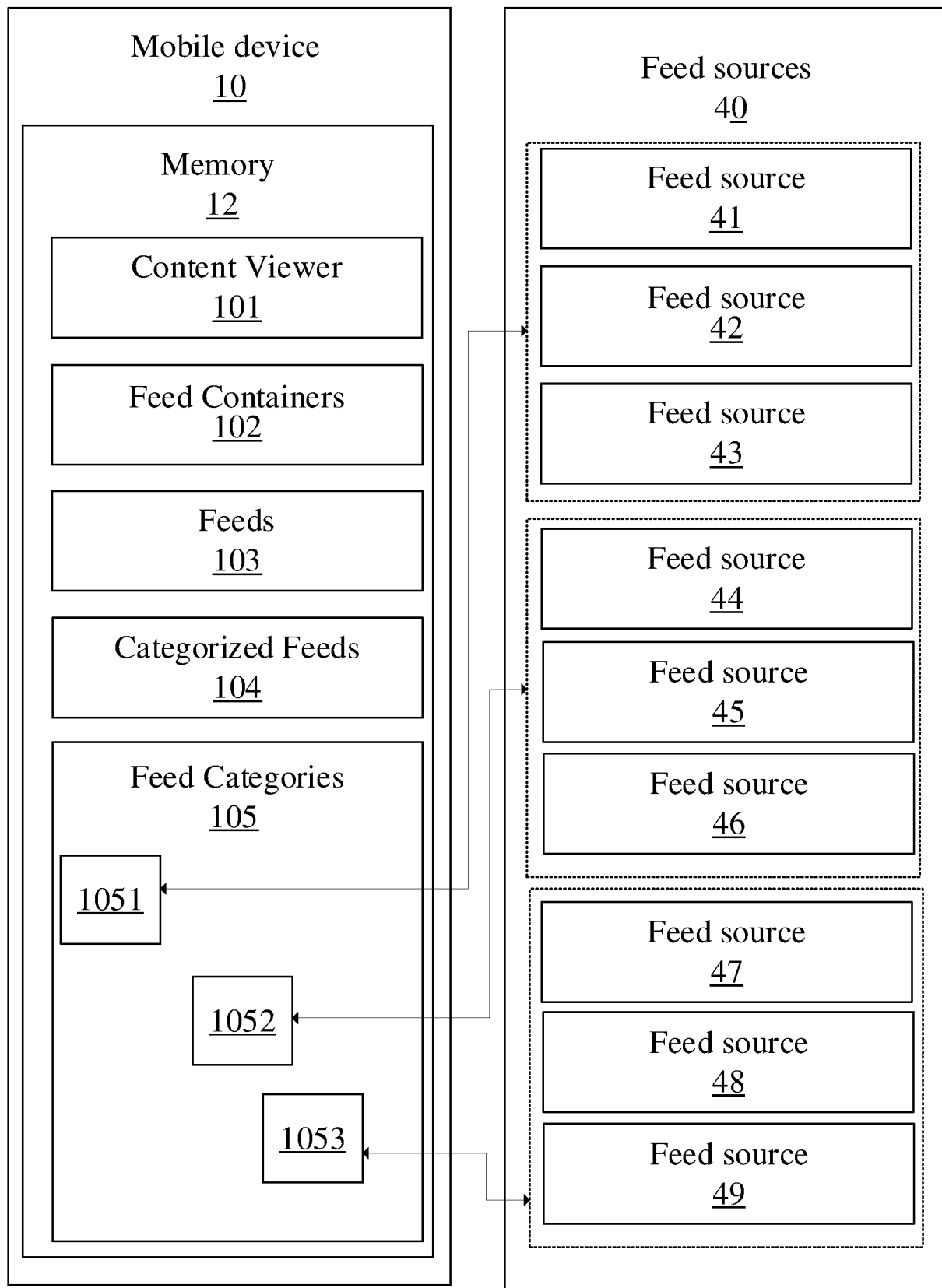


FIG. 2

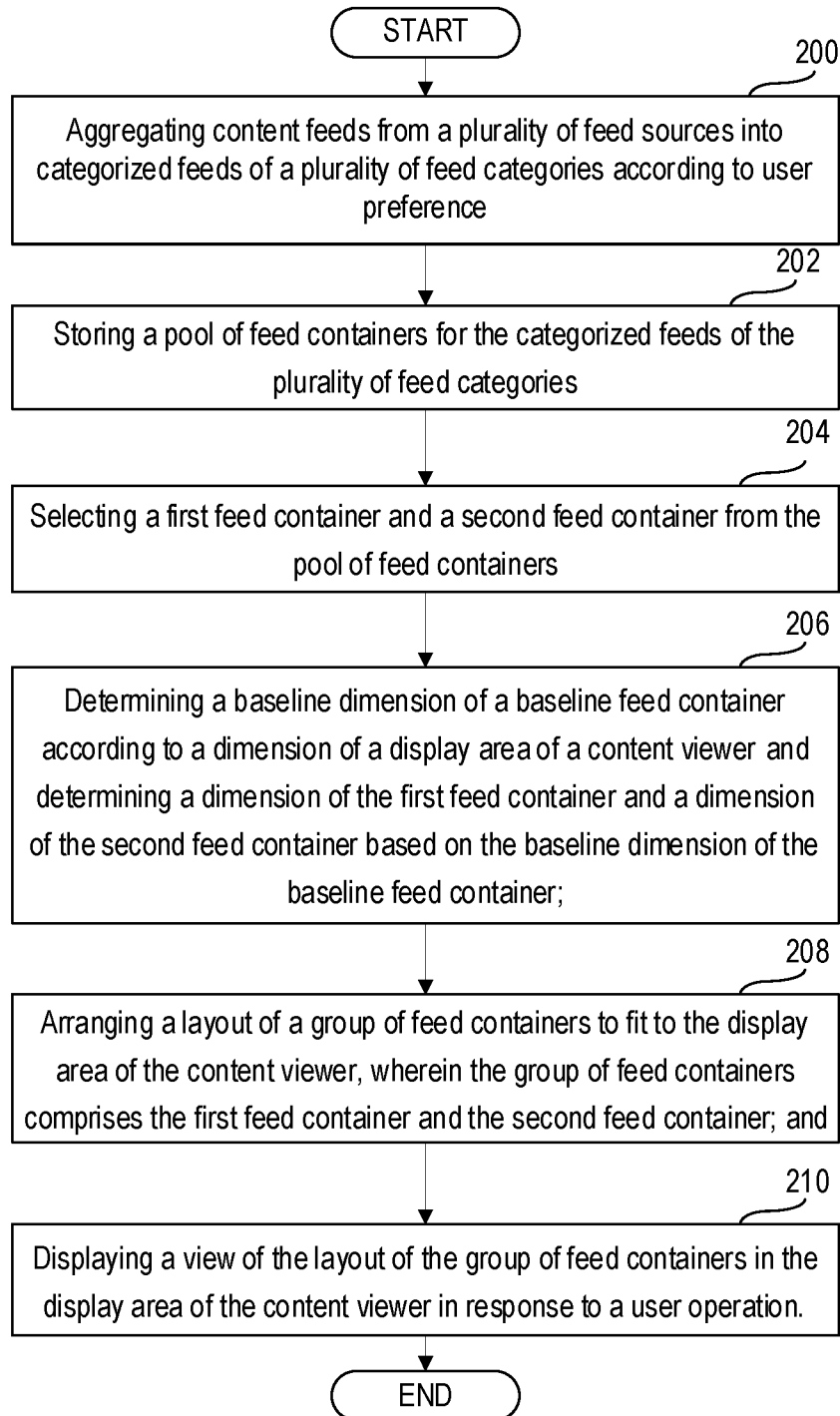


FIG. 3

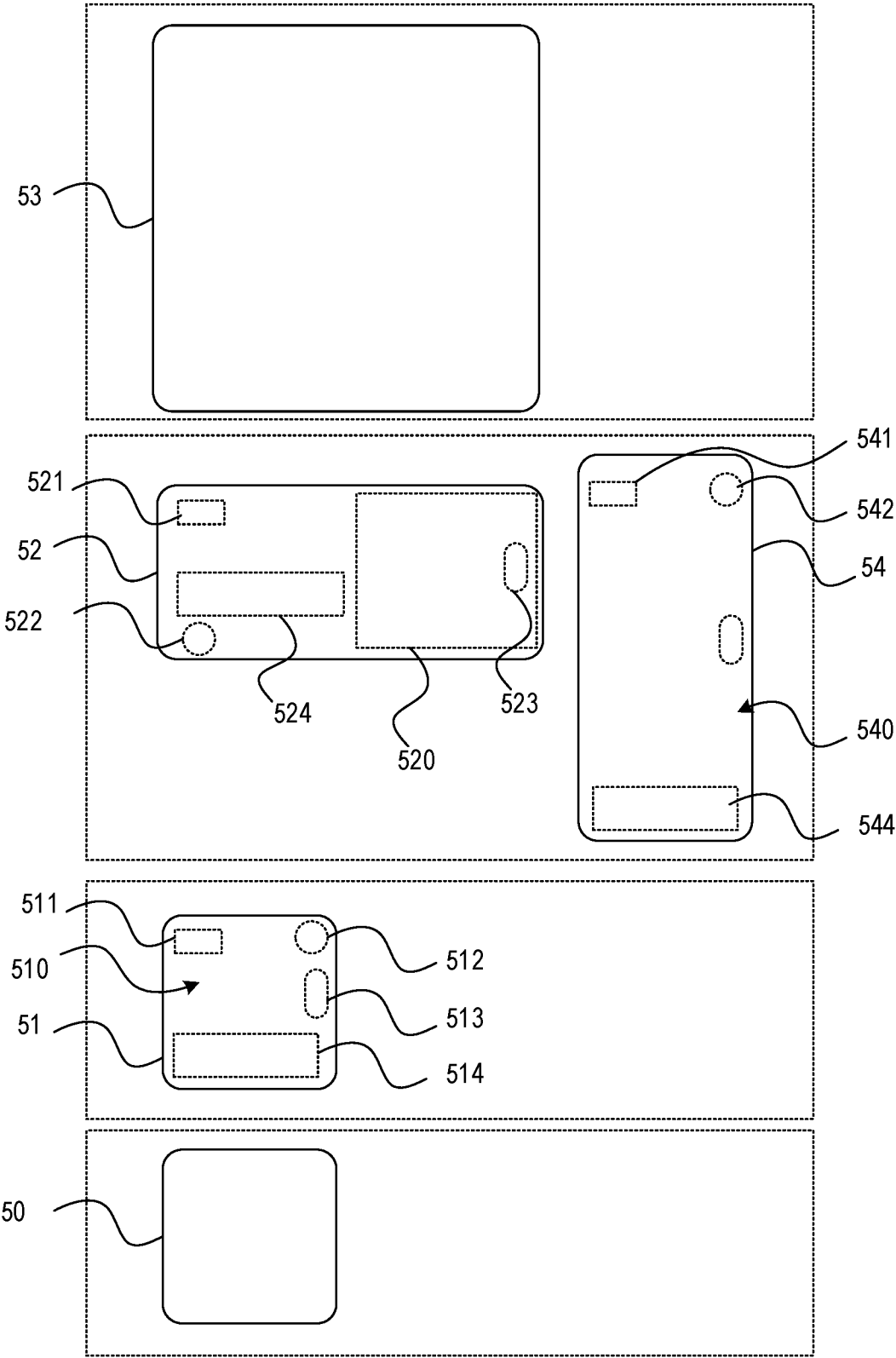


FIG. 4

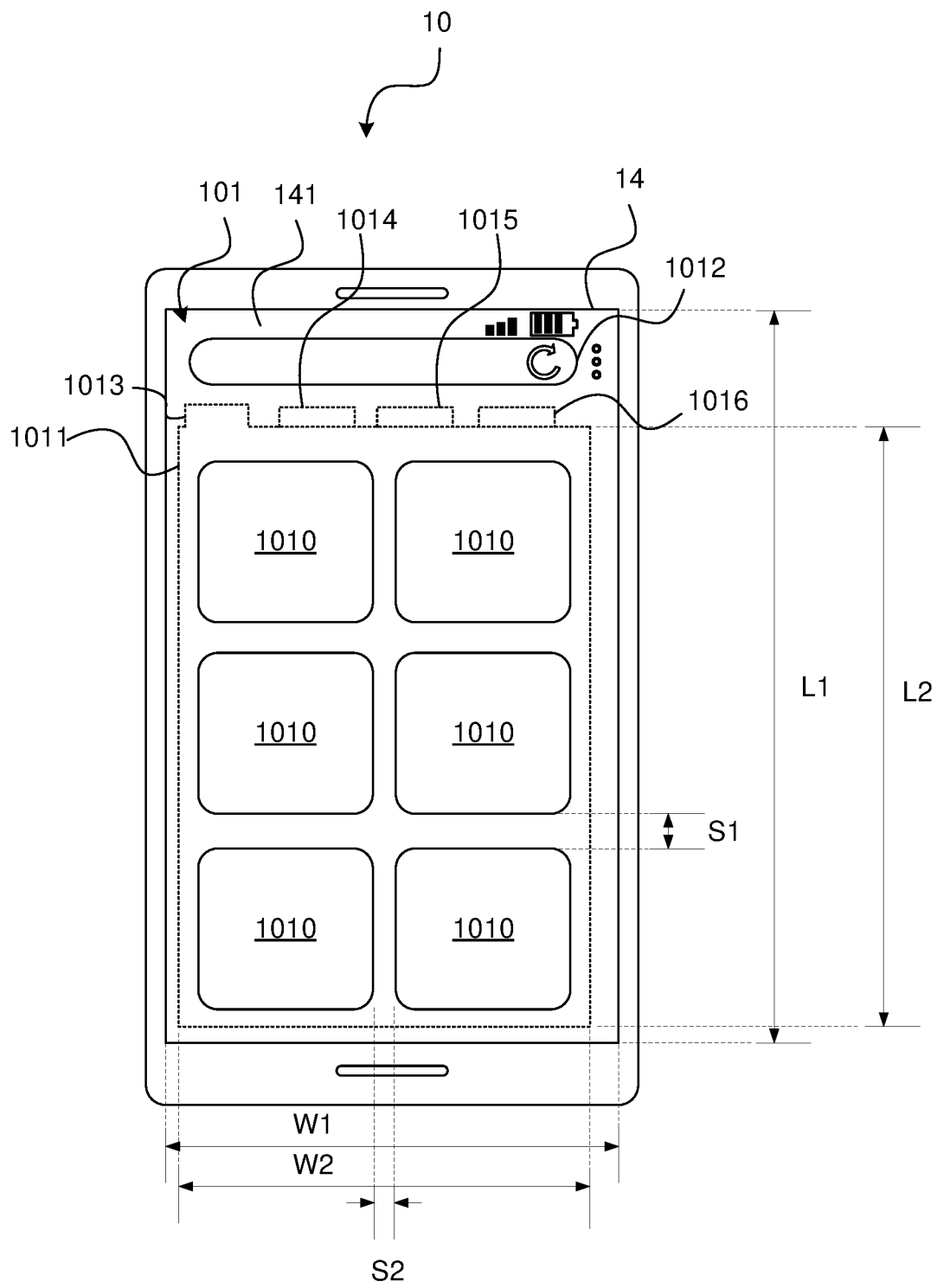


FIG. 5

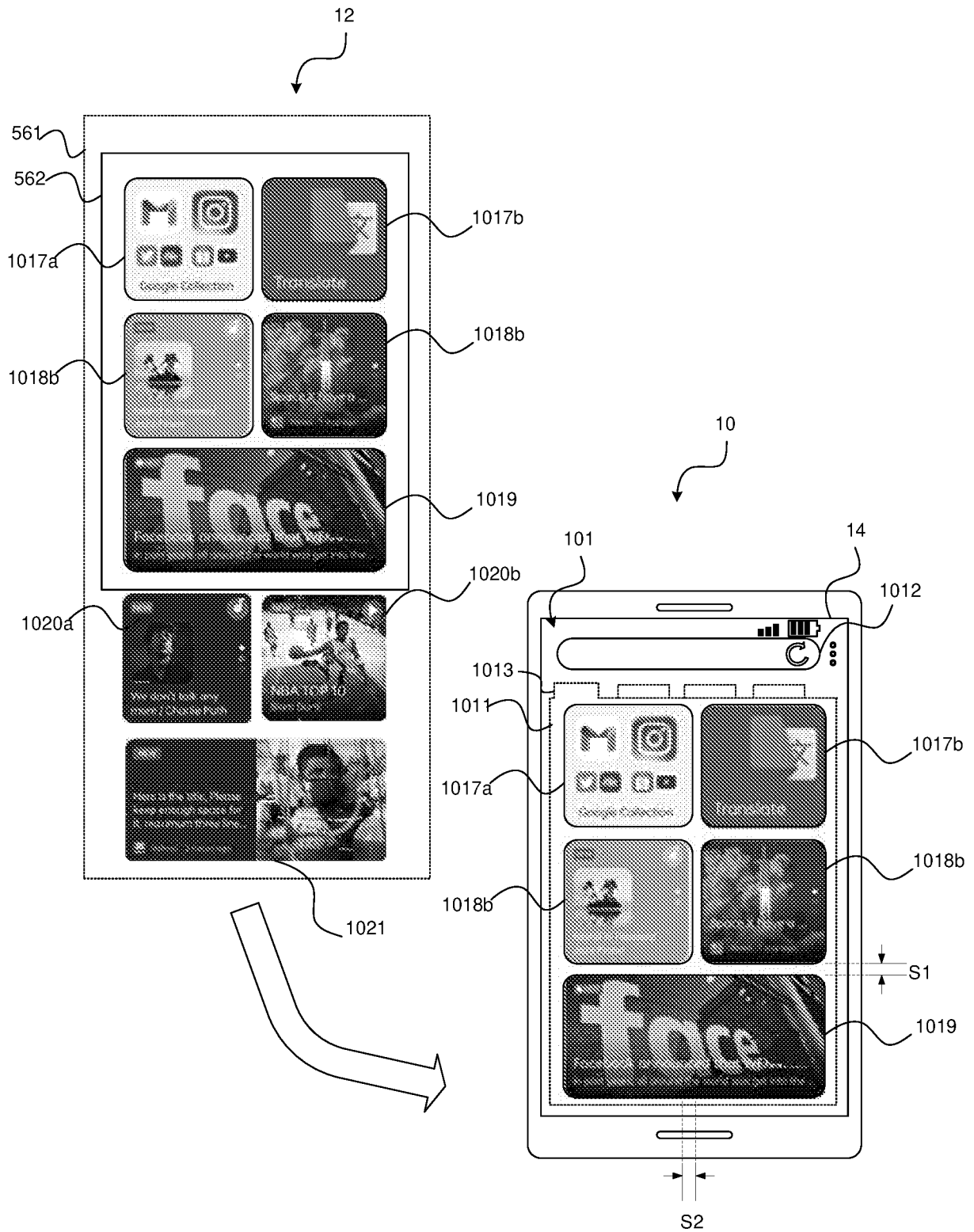


FIG. 6

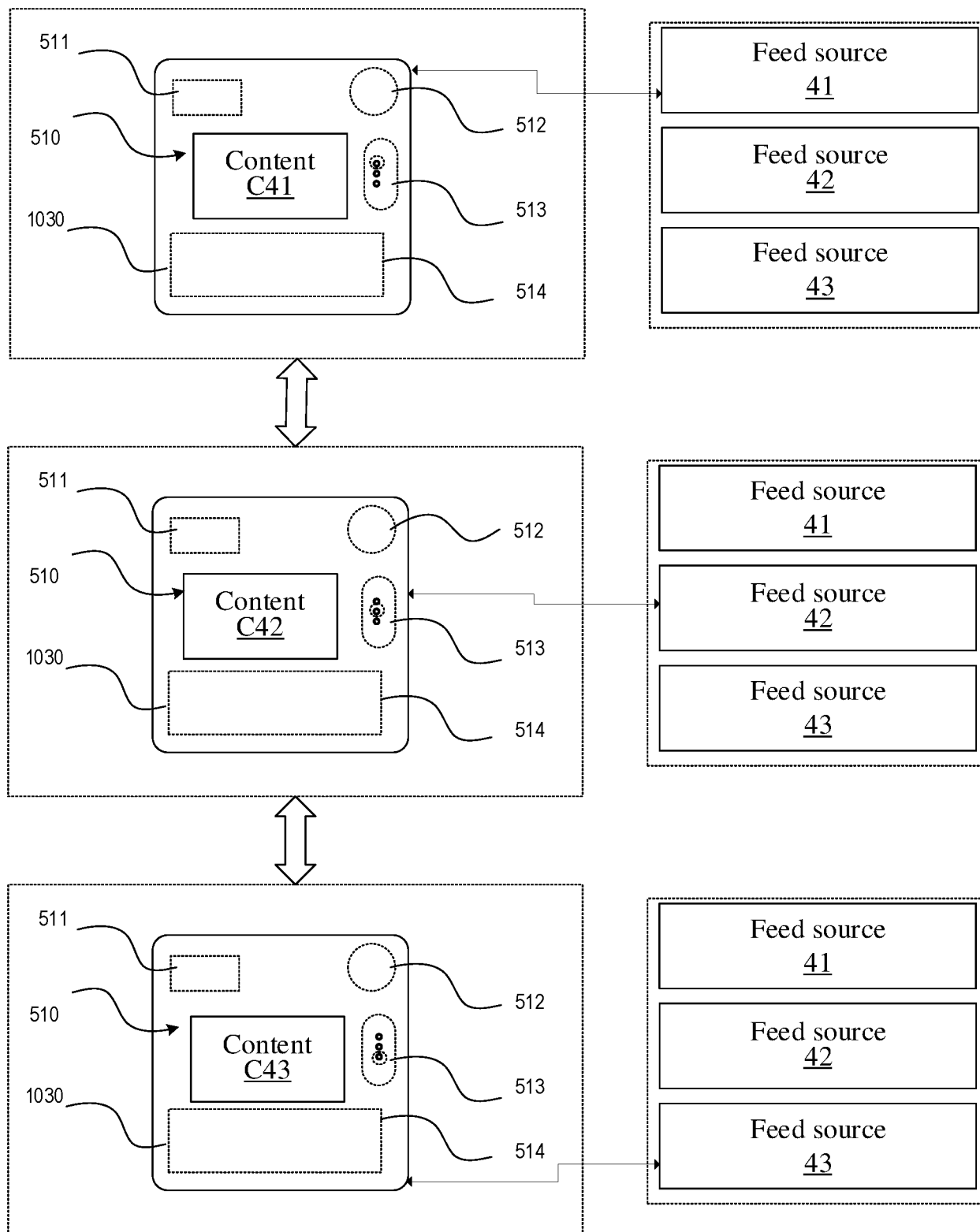


FIG. 7

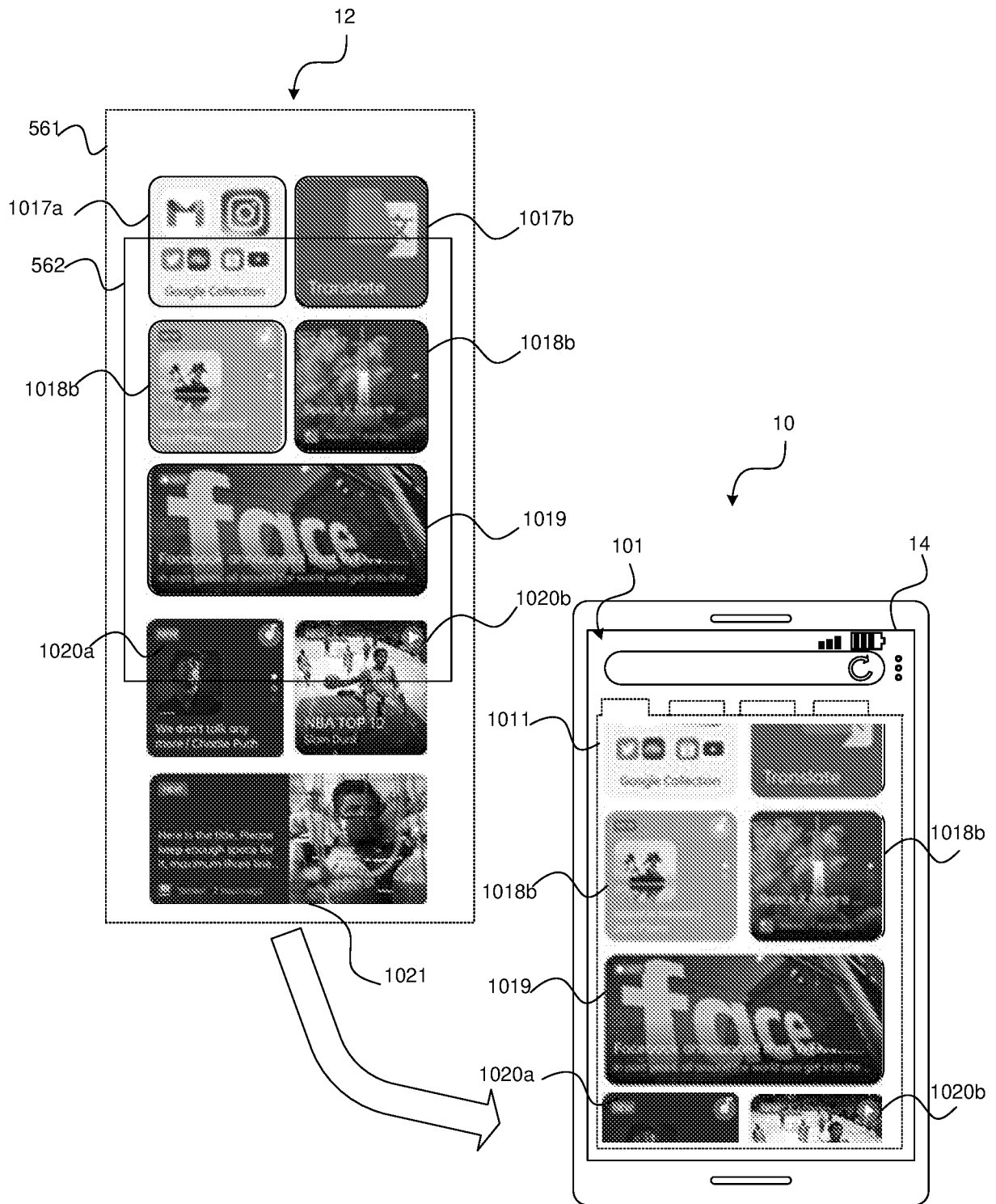


FIG. 8

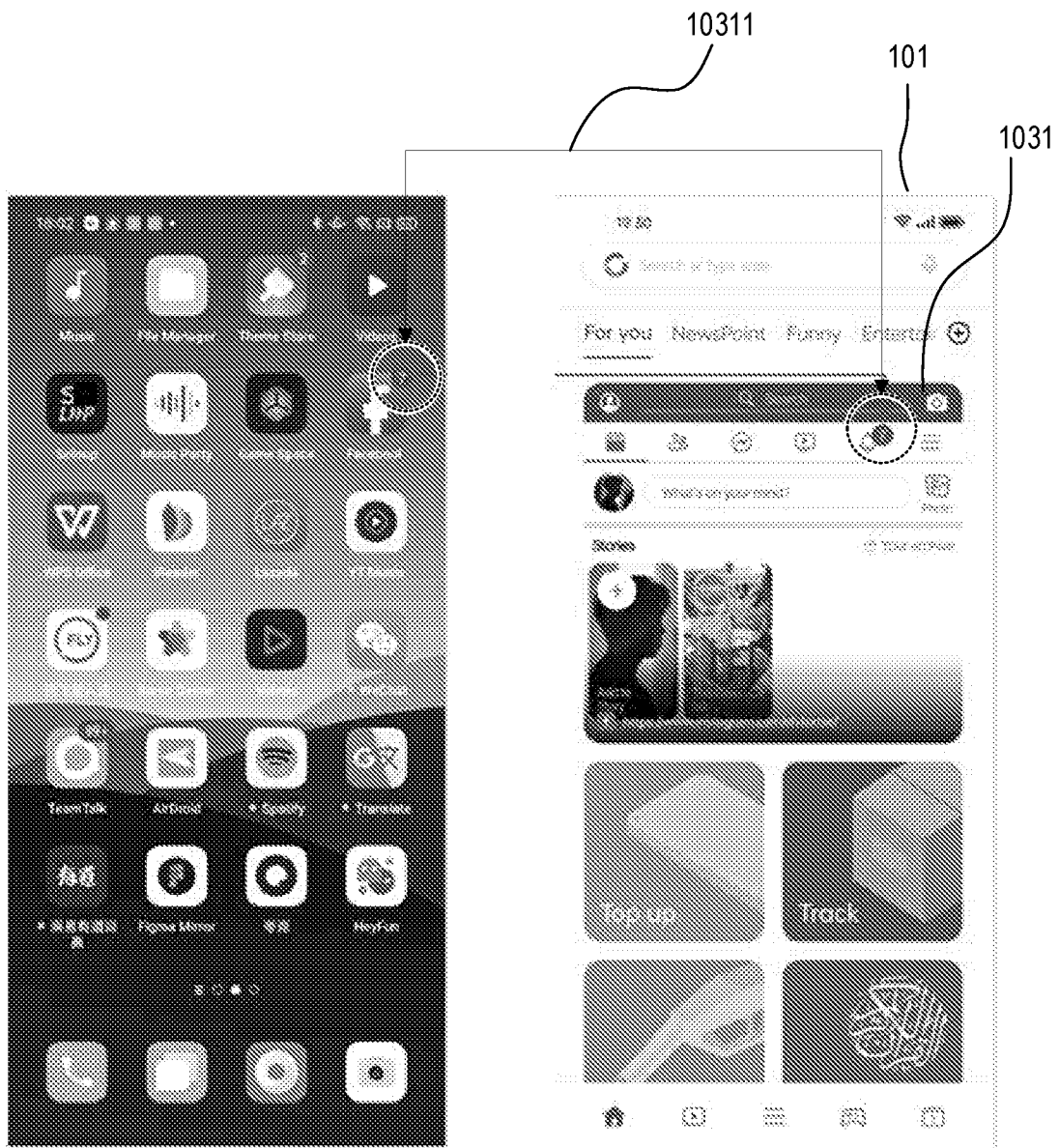


FIG. 9

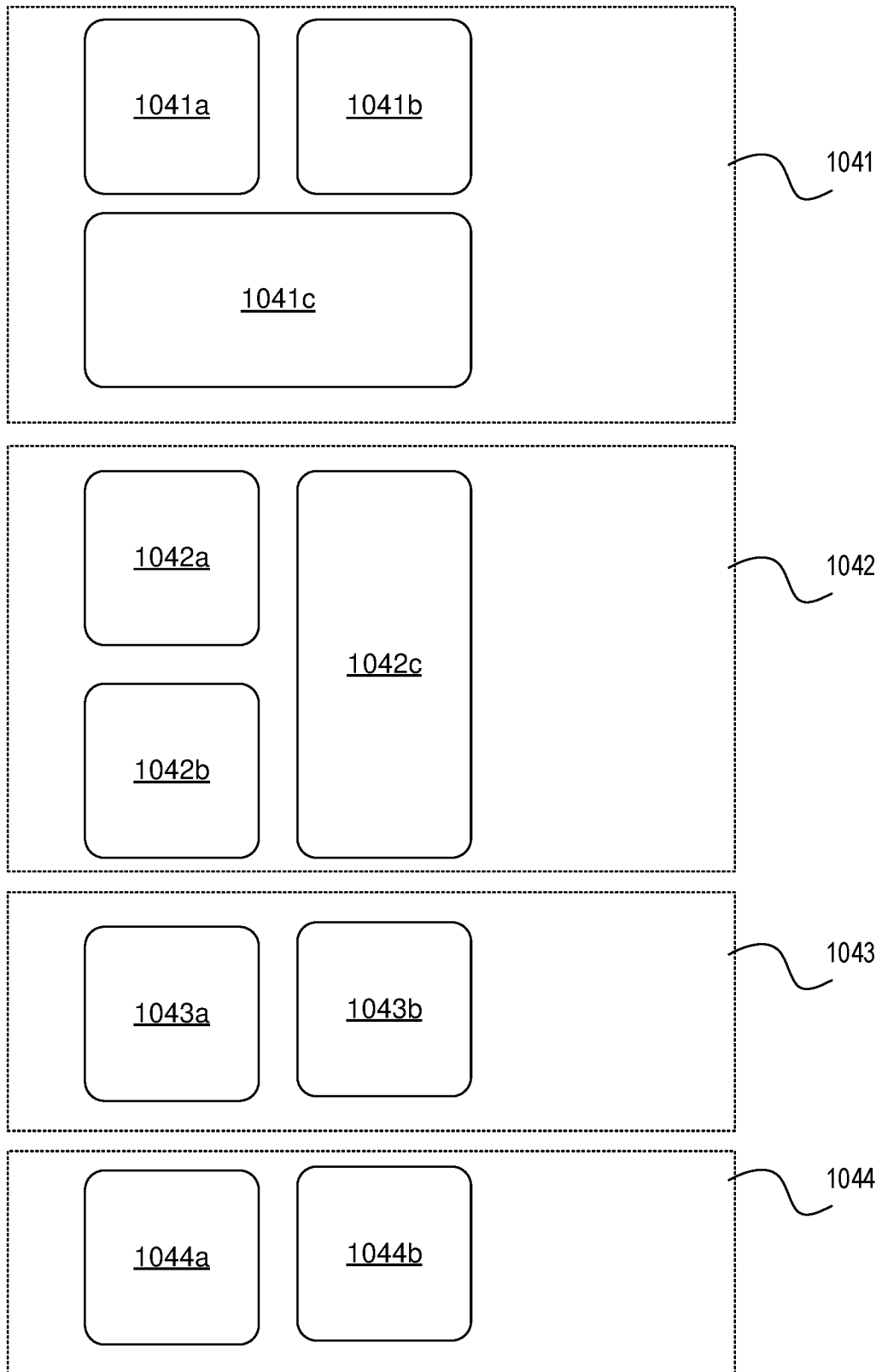


FIG. 10

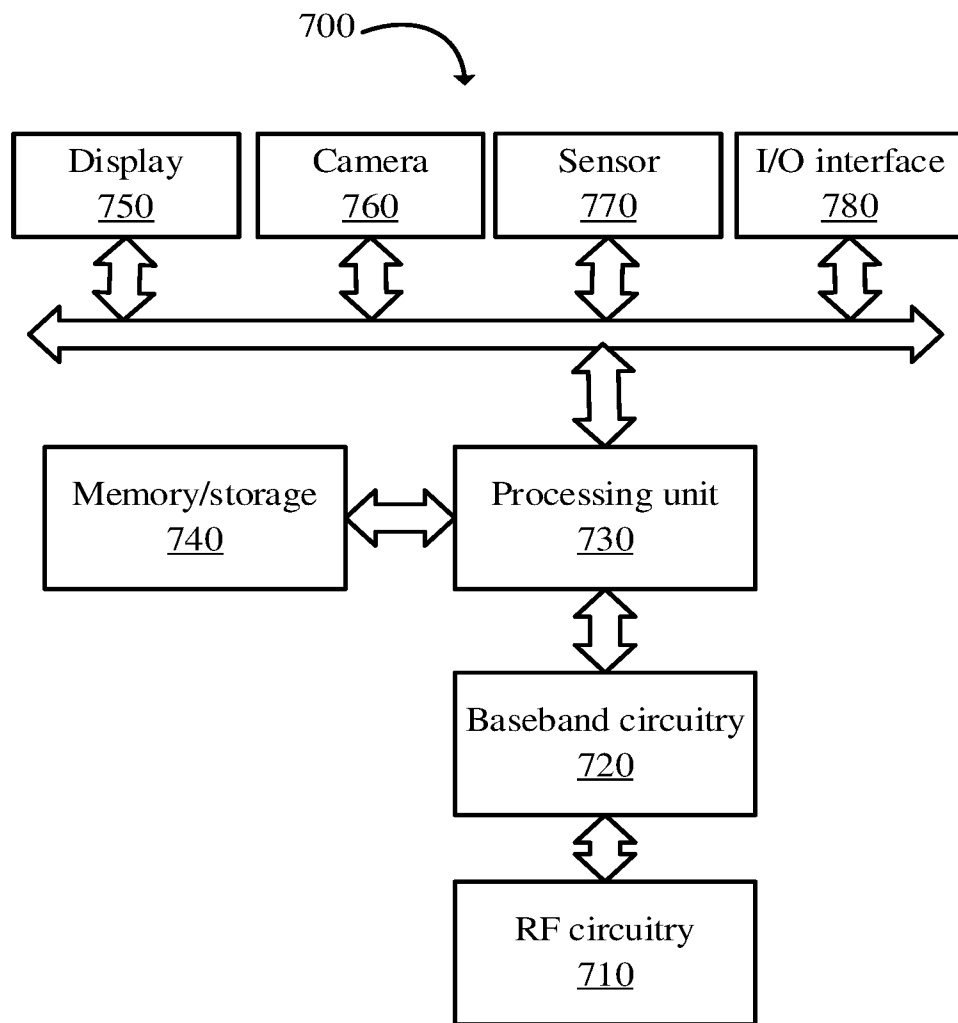


FIG. 11

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/073295

A. CLASSIFICATION OF SUBJECT MATTER

G06F 3/048(2013.01)i; G06F 40/106(2020.01)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)

G06F

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)

CNTXT;CNKI;ENTXT;WPABS:APP, aggregation application, aggregating, feed, categorize, container, layout, baseline, dimension, display, viewer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2017177547 A1 (MICROSOFT TECHNOLOGY LICENSING LLC) 22 June 2017 (2017-06-22) paragraphs 15-50 of the description	1-20
A	JP 2007316873 A (CANON KK) 06 December 2007 (2007-12-06) the whole description	1-20
A	CN 103795758 A (TNCT TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 14 May 2014 (2014-05-14) the whole description	1-20
A	US 2011208832 A1 (BANNISTER DOUG et al.) 25 August 2011 (2011-08-25) the whole description	1-20
A	US 2012060121 A1 (GOLDBERG STEVEN L et al.) 08 March 2012 (2012-03-08) the whole description	1-20
A	US 2013110978 A1 (FREQUENCY IP HOLDINGS LLC et al.) 02 May 2013 (2013-05-02) the whole description	1-20

☐ 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

31 March 2022

Date of mailing of the international search report

27 April 2022

Name and mailing address of the ISA/CN

National Intellectual Property Administration, PRC
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100088, China

Authorized officer

LIU, Shiru

Facsimile No. (86-10)62019451

Telephone No. 86-(010)-62411317

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2022/073295

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				US	2012278428	A1	01 November 2012
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