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GOVERNMENT OF INDIA

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MINISTRY OF COMMERCE AND INDUSTRY

Department of Industrial Policy and Promotion

It is hereby certified that annexed here to is a true copy of Provisional Specification, Abstract and Drawings of the patent application as filed and as detailed below:-

Date of Application : 07/05/2014

Application No. : 2284/CHE/2014

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560037.

In witness thereof
I have here unto set my hand

Dated this the 10th day of June 2015
20th day of Jyaistha, 1937(Saka)

By Authority of
THE CONTROLLER GENERAL OF PATENTS,
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(R. DEVAN)
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FORM 2
The Patent Act 1970
(39 of 1970)
&
The Patent Rules, 2005

PROVISIONAL SPECIFICATION
(SEE SECTION 10 AND RULE 13)

TITLE OF THE INVENTION

"A method and system for enhancing interaction with multiple gadgets
from a wearable device"

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The following specification particularly describes and ascertains the nature
of this invention and the manner in which it is to be performed:-

2284/CH/2014
07/05/2014

FIELD OF INVENTION

[001] The present invention relates to wearable devices and more particularly to a method and system for enhancing the user interaction on a wearable device, when it is connected to multiple electronic gadgets at the same time.

5

BACKGROUND OF INVENTION

[002] The advent of wearable devices makes it really easy to interact with a particular device on the move. The main drawback of any wearable device is that, it is awkward and difficult to wear multiple wearable devices of the same type (or category) by the same person at a time. For example, a person cannot wear two spectacles (for example, Google glass) at a time and also it is awkward to have two or three watches (for example, Samsung Gear) on a hand and so on. Moreover the capability and utility of a particular category of a wearable device is different from the other. Like the capability and utility of a watch kind of a wearable device is different from a spectacles kind of a wearable device and so one cannot replace the other. Hence there is very strong requirement to be able to connect to multiple electronic gadgets from a single wearable device.

20

OBJECT OF INVENTION

[003] The principal object of the embodiments herein is to provide a method and system for enhancing the user interaction on a wearable device, when it is connected to multiple electronic gadgets at the same time.

5 [004] Another object of the invention is to provide a method and system that enables switching between pluralities of device contexts connected to a wearable device at a time.

[005] Another object of the invention is to provide a method and system for a dedicated homescreen to interact with an external device from
10 a wearable device.

[006] Another object of the invention is to provide a method and system that enables seamless interaction with multiple gadgets connected to a wearable device by switching from one homescreen to another.

[007] Another object of the invention is to provide a method and
15 system that provides a single home screen on a wearable device for hosting application icons of the application residing in different external devices connected to the wearable device.

[008] Another object of invention is to provide a method and system
20 to view and customize application icons on the home screen of the wearable device using grids and a button.

SUMMARY

[009] Accordingly the embodiments herein provide a method and system to enable interaction with multiple gadgets connected to a single wearable device at a time by providing an efficient mechanism to switch to
5 different connected device contexts. The method and system comprises dedicated homescreens on the wearable device to interact with each of the external gadgets connected to it. Further, a method to interact with the different externally connected gadgets by switching to specific homescreens is provided.

10 [0010] A new homescreen-framework on the wearable device is provided to dynamically add, display and remove the homescreens for enabling the interaction with the different external gadgets connected to it. A mechanism to enable the user to launch applications residing on different connected devices effortlessly from a single Homescreen on the wearable
15 device is disclosed. A Homescreen with four grids and a button along with gestures to view and customize the application icons on the grid is provided.

[0011] The wearable device provides only one persistent homescreen for interacting with the wearable device itself. The framework
20 on the wearable device dynamically adds a new homescreen in the wearable device on connecting any new external gadget to it. The wearable device uses a dedicated homescreen to display the current home-screen UI

of the external *gadget* connected to it. The framework on the wearable device dynamically removes the homescreen from the wearable device on disconnecting any *gadget* from it.

[0012] In an embodiment, the wearable device automatically
5 displays the homescreen of the external *gadget* immediately on connecting the external *gadget*.

[0013] In an embodiment, the wearable device won't display the homescreen of the external *gadget* immediately when the *gadget* is connected.

10 [0014] A mechanism is provided to manage the order of the homescreens dynamically added on the wearable device. The switching to a particular home-screen on the wearable device enables user interaction with that particular external *gadget*.

[0015] The wearable device provides a button on the periphery of
15 the device to enable the user to easily interact with another *gadget* by switching the homescreens. Taping the same button from any device application context will switch to the active device homescreen.

[0016] A horizontal swipe on a homescreen will switch to the next
home-screen connected to the wearable device. Each and every homescreen
20 provides graphical icons (e.g. dots) to represent the multiple homescreens to enable the user to tap and select the required device. Each graphical icons can be further configured individually (e.g. a dot can be configured to

display in a particular color) to indicate the homescreen of a specific external gadget.

[0017] In an embodiment, the homescreen on the wearable device needs authentication credentials every-time the external gadget gets locked.

5 [0018] In another embodiment, the homescreen on the wearable device won't need authentication credentials even if the device gets automatically locked, if the user is authenticated at least once from that particular wearable device

[0019] Every gesture performed on a wearable device is dispatched to a specific device application based on the active homescreen context. Further, the notification area on the wearable device display is shared by all the connected gadgets.

10 [0020] In an embodiment, the user can customize the persistent Homescreen of the wearable device to include application icons from different connected devices.

[0021] The four grids of the Homescreen displays app icons present in the respective connected device in the case of dynamically added device homescreen. In case of the persistent homescreen each grid is mapped to a particular device. There is a gesture to view different other app icons on the connected device from the wearable device. Further, there is a gesture to customize the app icons displayed in the grid on the wearable homescreen.

[0022] These and other aspects of the embodiments herein will be better appreciated and understood when considered in conjunction with the following description and the accompanying drawings. It should be understood, however, that the following descriptions, while indicating preferred embodiments and numerous specific details thereof, are given by way of illustration and not of limitation. Many changes and modifications may be made within the scope of the embodiments herein without departing from the spirit thereof, and the embodiments herein include all such modifications.

10

BRIEF DESCRIPTION OF FIGURES

[0023] This invention is illustrated in the accompanying drawings, throughout which like reference letters indicate corresponding parts in the various figures. The embodiments herein will be better understood from the following description with reference to the drawings, in which:

[0024] FIG. 1 illustrates the scenarios with separate wearable devices for individual gadgets and a single wearable device for multiple gadgets;

[0025] FIG. 2 illustrates a homescreen-framework on a wearable device that enables to dynamically add/display/remove home-screens on the wearable device, according to the embodiments as disclosed herein;

20

[0026] FIG. 3 illustrates a Copy/Paste functionality for transferring a file or files between the external devices connected to the wearable device, according to the embodiments as disclosed herein;

[0027] FIG. 4 illustrates the persistent Homescreen of the wearable device to enable the user for launching applications residing on different other connected devices, according to the embodiments as disclosed herein;

[0028] FIG. 5 illustrates Homescreen on a wearable display and gestures for viewing different other app icons present in the connected device from the wearable device and also method for selecting individual grids for customization according to the embodiments as disclosed herein;

[0029] FIG. 6 illustrates a “tap” gesture on the dynamically added Homescreen on the wearable device to view different other app icons on the same connected device, according to the embodiments as disclosed herein;

[0030] FIG. 7 illustrates a method for customizing the dynamic Homescreen on the wearable device, according to the embodiments as disclosed herein;

[0031] FIG. 8 illustrates a method for customizing the persistent homescreen for displaying icons from different other connected devices at a time, according to the embodiments as disclosed herein;

[0032] FIG. 9 illustrates an architecture that includes different components of the disclosed method and system, according to the embodiments as disclosed herein;

[0033] FIG. 10 illustrates a high level architecture of the wearable device, according to the embodiments as disclosed herein; and

5 [0034] FIG. 11 illustrates a widget frame work for implementing the homescreen- framework, according to the embodiments as disclosed herein.

DETAILED DESCRIPTION OF INVENTION

[0035] The embodiments herein and the various features and advantageous details thereof are explained more fully with reference to the non-limiting embodiments that are illustrated in the accompanying drawings and detailed in the following description. Descriptions of well-known components and processing techniques are omitted so as to not unnecessarily obscure the embodiments herein. The examples used herein are intended merely to facilitate an understanding of ways in which the embodiments herein can be practiced and to further enable those of skill in the art to practice the embodiments herein. Accordingly, the examples should not be construed as limiting the scope of the embodiments herein.

[0036] The embodiments herein achieve a method and system for enhancing the user interaction on a wearable device, when it is connected to multiple electronic gadgets at the same time. The method and system disclosed herein provides a dedicated home screen to interact with an external device from the wearable device. The method includes interacting with different externally connected devices by switching the home screen on the wearable device. Further, the method and system disclosed herein provides a home screen frame work to dynamically add/display/remove home screens when new external devices are connected to the wearable device or removed from it.

[0037] Referring now to the drawings and more particularly to FIGS. 1 through 11, where similar reference characters denote corresponding features consistently throughout the figures, there are shown preferred embodiments.

5 [0038] FIG. 1 illustrates the scenarios with separate wearable devices for individual gadgets and a single wearable device for multiple gadgets. The figure depicts a person wearing two wearable devices (watches as shown in the figure) for connecting to individual gadgets. It may be uncomfortable or it may be awkward for a user to wear the two
10 wearable devices. In the second scenario, the user is having a single wearable device for connecting to multiple gadgets.

[0039] FIG. 2 illustrates a homescreen-framework on a wearable device that enables to dynamically add/display/remove home-screens on the wearable device, according to the embodiments as disclosed herein. The
15 homescreen framework is provided on the wearable device. In general, on any portable device the home-screens are basically used for customizing the device environment for providing a user with options for easy handling of the same device based on his requirements.

[0040] The method and system described herein re-defines the
20 conventional homescreen concept on a wearable device as a mechanism for enabling seamless interaction between the different gadgets connected to a wearable device. Though the concept is described for a wearable device, it

can be extended to any computing device that support homescreen-
framework to implement the same.

[0041] FIG. 3 illustrates Copy/Paste functionality for transferring a
file or files between the external devices connected to the wearable device,
5 according to the embodiments as disclosed herein. The figure shows a very
common and a simple use-case to copy files from one device to another
effortlessly through the wearable device. For the Copy/Paste feature, the
figure shows an embodiment by transferring the file from the origin device
first to the wearable and then transferring the copied content from the
10 wearable device to the destination device.

[0042] There can be yet another embodiment for the same, wherein
only a small meta-data is passed thru' the wearable device enabling the
origin and destination to establish the connection and providing the content
details, like name, type, location and so on, and the actual data transfer
15 happens directly between the origin and the destination devices
automatically the moment the paste functionality is triggered on the
destination.

[0043] In the scenario, shown in FIG. 3, when a user triggers copy
functionality from the menu launched on the wearable device, the copy
20 functionality initiates a data transfer from the mobile device to the wearable
device to copy the selected item to the wearable device.

[0044] When the user triggers a paste functionality from the menu launched on the wearable device, the paste functionality initiates a data transfer from the wearable device to the laptop device (as shown in the figure) to paste the copied content to laptop.

5 [0045] FIG. 4 illustrates the persistent Homescreen of the wearable device to enable the user for launching applications residing on different other connected devices, according to the embodiments as disclosed herein.

[0046] FIG. 5 illustrates Homescreen on a wearable display and gestures for viewing different other app icons present in the connected device from the wearable device, and also method for selecting individual grids for customization according to the embodiments as disclosed herein. The Homescreen (HS) on the wearable device is constructed using four grids and a button at the center as shown in the figure. Each of the grids contains an app icon and at a time maximum of four application icons can be displayed on the homescreen of the wearable device.

15 [0047] FIG. 5 (a) shows the structure of the Homescreen on the wearable device. FIG. 5 (b) shows tap gesture for viewing different other app icons. FIG. 5 (c) shows "Tap and drag" gesture for selecting a single grid on the Homescreen for customizing the grid with required application icon. Once the grid is selected, user can perform the "Tap" gesture on the button to choose the required app icon for the selected grid.

[0048] FIG. 5 (d) shows the selection of multiple grids on the
5 Homescreen for customizing the grids with required application icons,
similar to FIG. 5 (c).

[0049] FIG. 6 illustrates a "tap" gesture on the dynamically added
5 Homescreen on the wearable device to view different other app icons on
the same connected device, according to the embodiments as disclosed
herein. The button at the center is used either to view other application
icons as shown in FIG. 6 or to customize the homescreen grid with needed
app icons as shown in FIG. 7. There are different gestures that can be
10 performed on the button to view the icons and to customize the grids as
shown in FIG. 5. The "Tap" gesture on the Button is used to view other
icons that are not present in the current Homescreen. The "Tap and Drag"
gesture is used to select a grid or a group of grids for customizing the icon
in those grids. Once the grids are selected, the user can perform "Tap"
15 gesture to choose the required application icons and select whichever he
needs to be displayed on the grid/grids. Other than different dynamic
device specific home screens on the wearable, there is one persistent HS
that can display app icons from different connected devices. In this case
every grid is assigned to a particular connected device. The Grid
20 Management component handles this.

[0050] The app icons on the grid can be customized the same way
using the button. This is shown in fig. 8. Here the top 2 grids are assigned

as 1 to laptop and the other to the stereo, while both the bottom grids are assigned to the same mobile device. Here also, the user can customize the application icons as required using the above mentioned gestures on the button.

5 [0051] FIG. 7 illustrates a method for customizing the dynamic Homescreen on the wearable device, according to the embodiments as disclosed herein. The customization includes grid selection and app icon selection. In this case, the Homescreen correspond to a single connected device, for example a Mobile.

10 [0052] FIG. 8 illustrates a method for customizing the persistent homescreen for displaying icons from different other connected devices at a time, according to the embodiments as disclosed herein. In an embodiment, the different connected devices itself may include a method to mark those application icons that should be added in the Persistent Homescreen of the
15 wearable device when connected.

[0053] Only Persistent Homescreen allows mapping its individual grids to different connected devices. The figure also shows two different grids mapped to the same Mobile device.

20 [0054] FIG. 9 illustrates an architecture that includes different components of the disclosed method and system, according to the embodiments as disclosed herein. The figure shows different components involved in implementing the Homescreen framework. This embodiment is

for a touch screen based wearable device. The same concept can be realized using separate buttons on the periphery of the device for achieving the same functionality. The different components in the HomeScreen framework on the wearable device includes a grid management module, a grid customization module, a grid gesture processing module, a grid selection module, a communication module and an event communication module. Further, the connected device includes a HS framework module, App icon navigation module and a HS event handling module, as shown in FIG. 9.

10 [0055] FIG. 10 illustrates a high level architecture of the wearable device, according to the embodiments as disclosed herein. The method and system discloses a wearable device that is built on web browser technology, particularly using widgets over web-runtime. The reason for choosing web technology is that it would provide easy development environment on those
15 wearable devices which is limited by its UI capability and also would easily support multiple device platforms. Due to its inherent limitations, the wearable device itself doesn't provide the whole lot of applications/utilities on it, but the wearable device provides utilities when external gadgets are connected to it. The disclosed method and system helps people to interact
20 with multiple gadgets especially on the move effortlessly

[0056] The architecture of the wearable device (shown in the figure) comprises a light weight browser based UI that supports wearable DAM

framework, a Web Runtime (WRT), Web kit/ Web core and a Connectivity module.

[0057] FIG. 11 illustrates a widget frame work for implementing the homescreen-framework, according to the embodiments as disclosed herein.

5 The disclosed method and system requires a corresponding widget application on the wearable device to handle each and every state of the device application running on the actual device. As depicted in the FIG. 11, the application framework on the device shares the application states to the wearable device while managing the applications running on it and thus
10 manages the wearable device environment as well.

[0058] The homescreen framework is a part of the application manager. Every device connected to the wearable device has to install a specific home-screen widget application on the wearable device so as to interact with the other device specific applications and functionalities. The
15 home-screen widget application is installed on the wearable device when it is connected for the first time.

[0059] The home-screen widget application installed on the wearable device will be a special widget built on based on a standard set of specifications set by the homescreen-framework in order for it to be
20 considered as a home-screen application by the framework on the wearable device. The homescreen displayed on the wearable device also gets updated depending on the active homescreen on the actual connected device. The

convenience of homescreen comes from the fact that, it is easy for the user to switch back and forth.

[0060] In addition to the conventional methods like tapping on the homescreen icon or tapping a button on the periphery of the device to switch
5 from one homescreen to another, there can be different other embodiments as well like having dedicated hand gestures to trigger the switching.

[0061] The embodiments disclosed herein can be implemented through at least one software program running on at least one hardware device and performing network management functions to control the
10 elements.

[0062] The foregoing description of the specific embodiments will so fully reveal the general nature of the embodiments herein that others can, by applying current knowledge, readily modify and/or adapt for various applications such specific embodiments without departing from the generic
15 concept, and, therefore, such adaptations and modifications should and are intended to be comprehended within the meaning and range of equivalents of the disclosed embodiments. It is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation. Therefore, while the embodiments herein have been described in
20 terms of preferred embodiments, those skilled in the art will recognize that the embodiments herein can be practiced with modification within the spirit and scope of the embodiments as described herein.

ABSTRACT

A method and system that provides a user friendly and seamless way to switch and interact to the multiple gadgets connected from a single wearable device is disclosed. The method and system provides a dedicated home screen to interact with an external device from the wearable device. The method includes interacting with different externally connected devices by switching the home screen on the wearable device. Further, the method and system disclosed herein provides a home screen frame work to dynamically add/display/remove home screens when new external devices are connected to the wearable device or removed from it.

FIG.11

Dated 7th May, 2014

Signature



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Application Number: /2014
Total No Of Sheets: 11
Sheet No.: 1/11

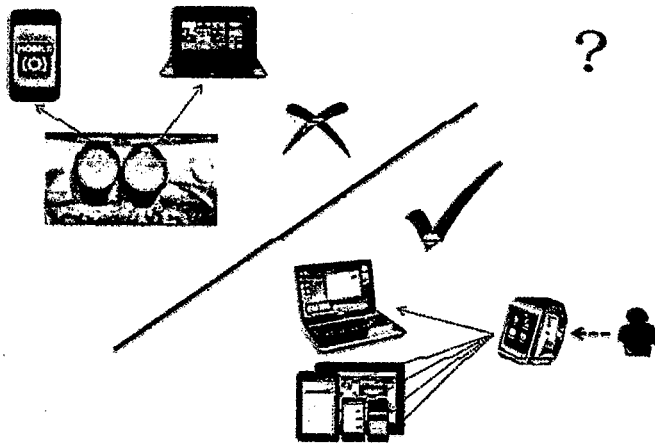


FIG. 1

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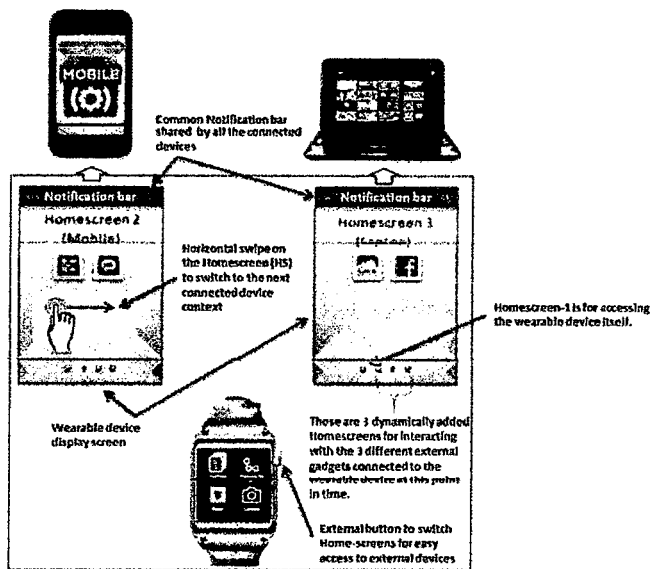


FIG. 2

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Total No Of Sheets: 11

Application Number:

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Sheet No.: 3/11

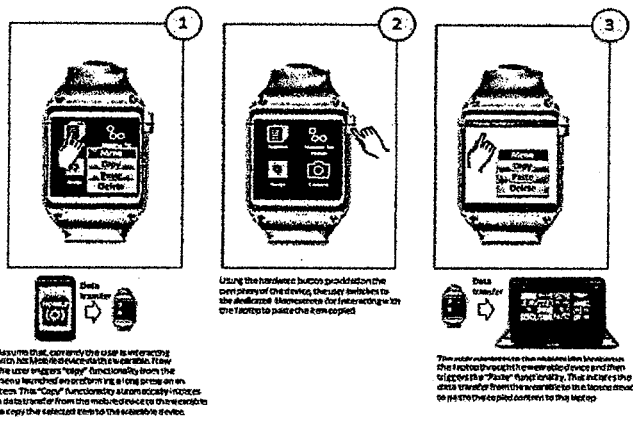


FIG. 3

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Total No Of Sheets: 11
Sheet No.: 4/11

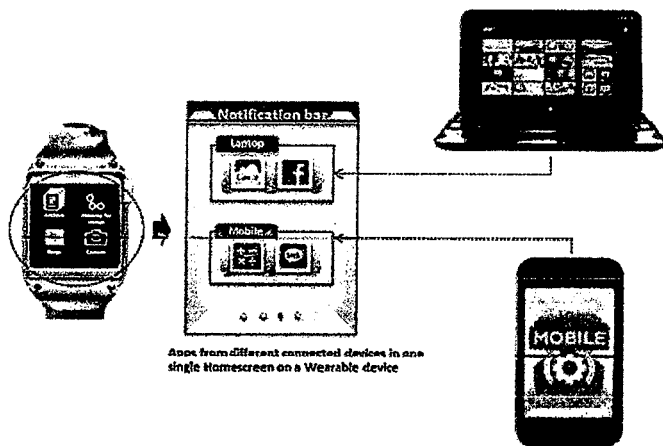


FIG. 4

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Total No Of Sheets: 11
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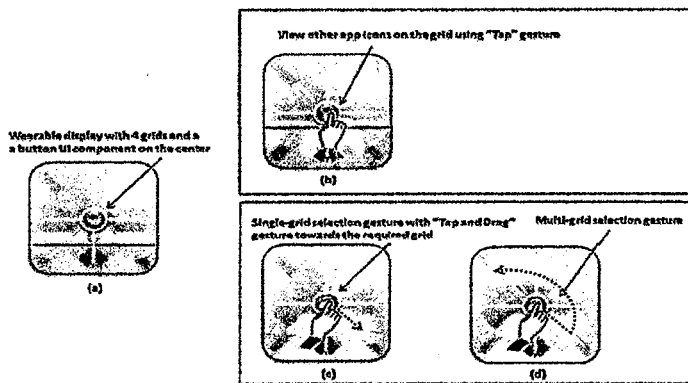


FIG. 5

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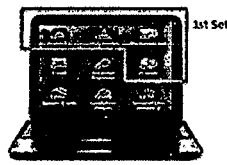
Total No Of Sheets: 11

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/2014

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Shows pre-set app icons on the Homescreen of the wearable.
Also shows user performing a "Tap" gesture to view another set of 4 app icons from the connected Device.



Shows the new set of 4 app icons on user performing the "Tap" gesture as shown above



FIG. 6


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 Total No Of Sheets: 11
 Sheet No.: 7/11

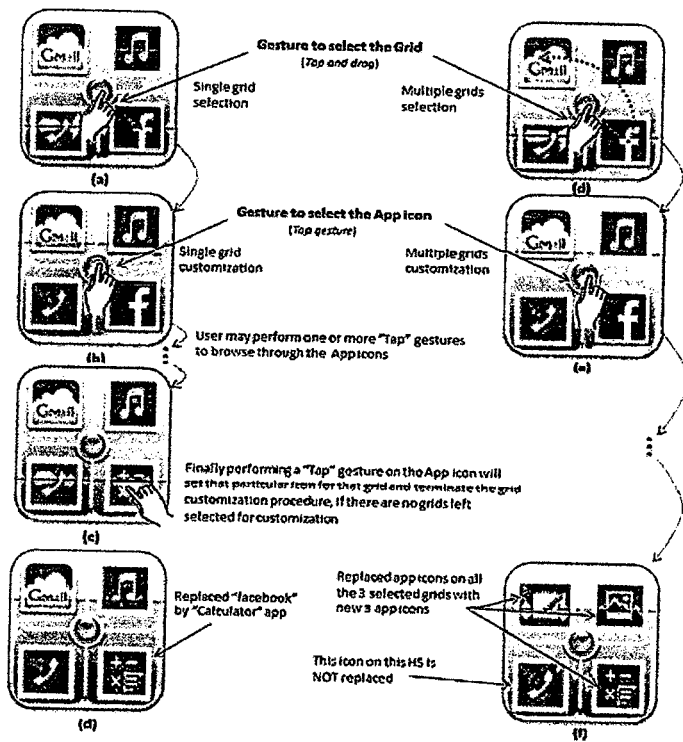


FIG. 7

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Total No Of Sheets: 11
Sheet No.: 8/11

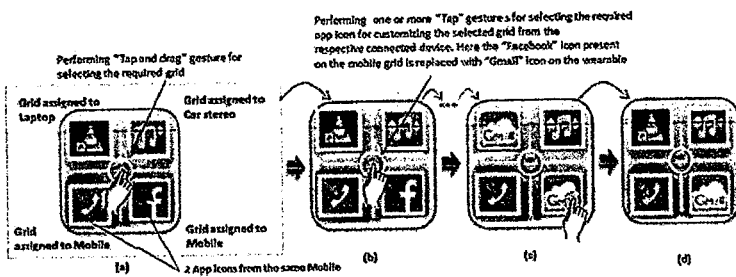


FIG. 8

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Sheet No.: 9/11

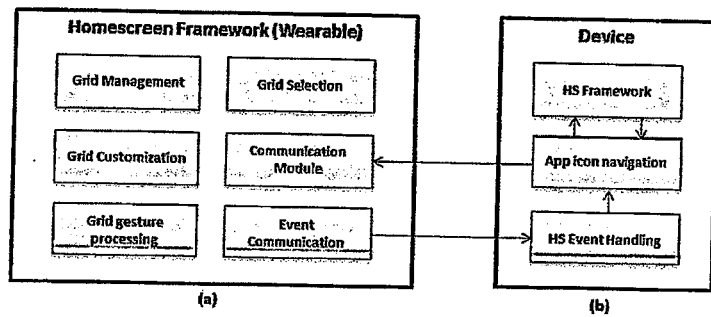


FIG. 9

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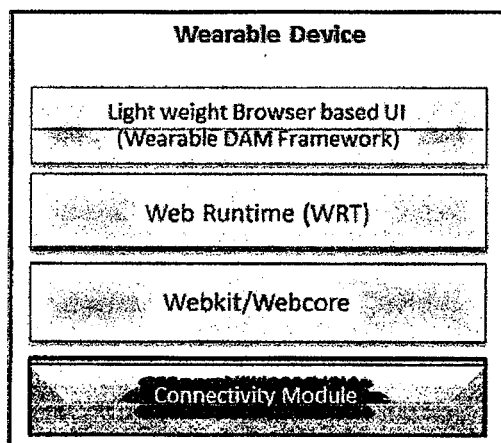


FIG. 10

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 Total No Of Sheets: 11
 Application Number: /2014 Sheet No.: 11/11

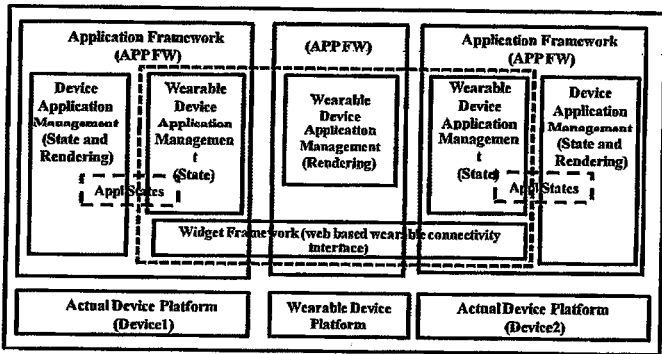


FIG. 11

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