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(54) Title: SYSTEM AND METHOD FOR TESTING FUNCTIONS OF ELECTRONIC DEVICES

(57) Abstract: According to embodiments of the invention, a system for testing functions of an electronic device with graphical user interface (GUI) is disclosed. The disclosed system includes a communication component for communicating with the electronic device under test (DUT), an operation component for executing one or more application on the electronic device without physically interacting with the device and a component for capturing images displayed on the GUI of the electronic device on execution of the one or more application on electronic device, wherein the captured images are compared with standard pre-captured images.

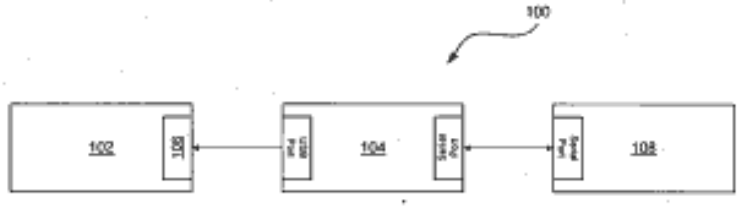

Figure 1

ABSTRACT

System and Method for Testing Functions of Electronic Devices

According to embodiments of the invention, a system for testing functions of an electronic device with graphical user interface (GUI) is disclosed. The disclosed system includes a communication component for communicating with the electronic device under test (DUT), an operation component for executing one or more application on the electronic device without physically interacting with the device and a component for capturing images displayed on the GUI of the electronic device on execution of the one or more application on electronic device, wherein the captured images are compared with standard pre-captured images.

We Claim:

1. A system for testing functions of an electronic device with graphical user interface (GUI), the system comprises:

a communication component for communicating with the electronic device;

an operation component for executing one or more application on the electronic device without physically interacting with the electronic device; and

a component for capturing images displayed on the GUI of the electronic device on execution of the one or more application, wherein the captured images are compared with standard pre-captured images.

2. The system as claimed in claim 1, wherein the electronic device is a computer system, a mobile phone, a tablet or a PDA.

3. The system as claimed in claim 1, wherein the electronic devices 102 has a touch interface.

4. The system as claimed in claim 1, wherein the electronic devices 102 has one or more communication port 106.

5. The system as claimed in claim 1, wherein the operation component 108 resides in a computer system.

6. The system as claimed in claim 1, wherein the operation component 108 performs button click operation on the electronic devices 102 by sending electronic signals.

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FIELD OF INVENTION

The invention generally relates to system and method for testing functions of electronic devices with graphical user interface (GUI).

BACKGROUND

Most electronic devices specifically devices with a graphical user interface (GUI) are tested manually, typically repeatedly operating electronic device using an input device, such as by touch, mouse and keyboards. However, manually repeating operations is time consuming. Hence, in most cases, only selected devices are tested from a batch of manufactured devices.

Although various software applications are available, that uses software script to identify erroneous devices. However, these applications validate only the software part of the electronic device and not the actual functioning. Moreover, at times these applications require installation of whole or at least a part of the testing software on the device under test (DUT). Some applications also provide simulation solutions that may help in testing the physical functioning of the DUT. Such applications are highly specific to a particular type of device and require installation of whole or at least a part of the testing software on the device under test (DUT).

Moreover, it is not possible to test GUI electronically/automatically of an electronic device such as, but not limited to, mobile phone, tablet, laptop etc. for various application. To test GUI typically each application is initiated one by one and expected outcome is verified manually.

SUMMARY OF THE INVENTION

The present disclosure is directed to overcoming one or more of the problems as set forth above.

According to embodiments of the invention, a system for testing functions of an electronic device with graphical user interface (GUI) is disclosed. The disclosed system includes a communication component for communicating with the electronic device under test (DUT), an operation component for executing one or more application on the electronic device without physically interacting with the device and a component for capturing images displayed on the GUI of the electronic device on execution of the one or more application on electronic device, wherein the captured images are compared with standard pre-captured images.

According to embodiments of the invention, a method for testing functions of an electronic device with GUI is disclosed. The disclosed method includes executing one or more application on the electronic device, capturing images displayed on the GUI of the electronic device on execution of the application and comparing the captured images with standard pre-captured images.

BRIEF DESCRIPTION OF DRAWINGS

Other objects, features, and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Figure 1 illustrates an exemplary system for testing functions of electronic devices with graphical user interface according to an embodiment of the invention; and

Figure 2 illustrates an exemplary process flow for testing functions of electronic devices with graphical user interface according to an embodiment of the invention.

DETAILED DESCRIPTION OF DRAWINGS

The following description with reference to the accompanying drawings is provided to assist in a comprehensive understanding of exemplary embodiments of the invention as defined by the claims and their equivalents. It includes various specific details to assist in that understanding but these are to be regarded as merely exemplary. Accordingly, those of ordinary skill in the art will recognize that various changes and modifications of the embodiments described herein can be made without departing from the scope and spirit of the invention. In addition, descriptions of well-known functions and constructions are omitted for clarity and conciseness.

Figure 1 illustrates an exemplary system 100 for testing functions of an electronic device 102 with graphical user interface (GUI) according to an embodiment of the invention. According to exemplary embodiments, the electronic device 102 or the device under test (DUT) 102 may be a computer system, a mobile device, a tablet or any other embedded device with a GUI. According to another embodiment the electronic device 102 may have one or more

operating system such as, but not limited to, windows, Linux, android, etc. According to yet another embodiment the electronic device 102 may have a touch interface. The disclosed system 100 includes a communication component 104 for communicating with the electronic device 102. The electronic device 102 may have one or more communication port 106 such as, but not limited to, USB Port. The communication port 106 may enable communication between the electronic device 102 and the communication component 104. According to an embodiment, the communication between the electronic device 102 and the communication component 104 may be wireless or wired.

The communication component 104 may be connected to an operation component 108 for executing one or more application on the electronic device 102. According to an embodiment, the operation component 108 may reside in a computer system. The operation component 108 may execute one or more application on the electronic device 102 without physical interaction such as, but not limited to, keyboard, mouse, GUI touch etc. According to an embodiment, the operation component 108 may perform button click operation on the device by sending electronic signals. The operation component 108 may trained for all the buttons locations in different screens of the electronic device 102, with that as reference the operation component 108 may perform the button click operation whenever requested for perform.

Figure 2 illustrates an exemplary process flow 200 for testing functions of electronic devices with graphical user interface (GUI) according to an embodiment of the invention. At step 202, the process starts with connecting the electronic device 102 to the communication component 104 of the system 100. The connection may be wired such as plug and play type using a USB port or may be wireless using a wireless connection. The communication

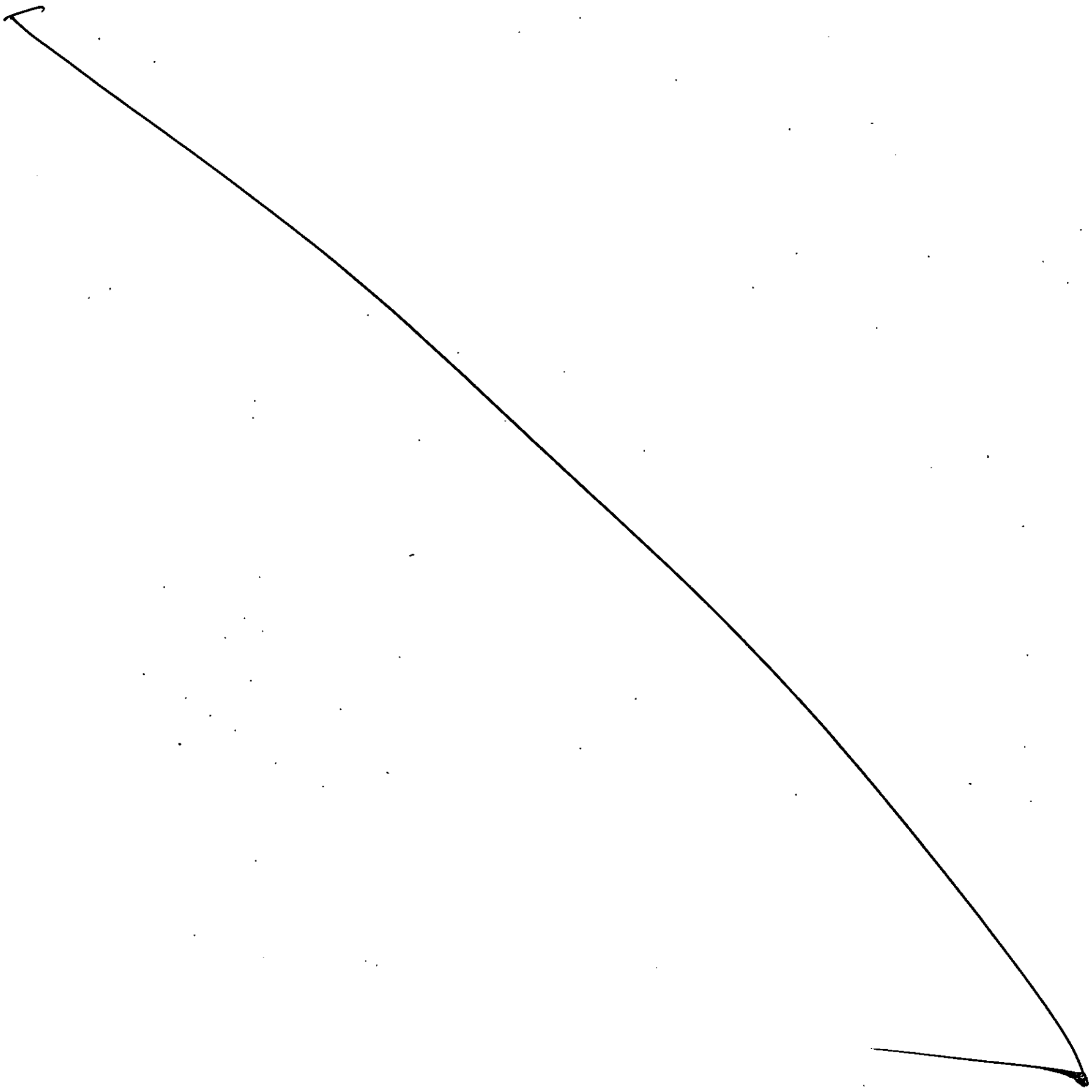
component 104 may work like a mouse when connected to the electronic device 102. According to an embodiment, the communication component 104 may uses Generic plug and play mouse protocol, such that it gets connects to embedded devices as a mouse and wait for mouse data packet from the operation component 108. According to an embodiment, at step 204 an acknowledgement may be send to the operation component 108 once the communication component 104 is connected with the electronic device 102.

At step 206, the communication component 104 may request data packets from the operation component 108. According to an embodiment, the data packets may be mouse data packets. According to another embodiment, the Mouse data packet may be same as the generic/real mouse packet. The operation component 108 based on the need may frame packets to perform operation such as, but not limited to, left click, Right click, move mouse to 1 to 127 mickeys to left or right, click hold, double click etc. At step 208, the communication component 104 may validate data packets, on receiving the mouse data packet from the operation component 108. At step 210, the data packets may be transmitted to the electronic device 102 on validation.

Further, the system 100 includes an image capturing-component 110 for capturing images displayed on the GUI of the electronic device 102. The image-capturing component 110 may capture images displayed on the GUI of the electronic device 102 when one or more application is executed on the electronic device on receiving the data packet by the operation component 108. The captured images may be compared with the standard pre-captured images. According to an embodiment, the pre-captured images may correspond to the images captured from a standard device while executing the corresponding application. The

electronic device 102 passes the test if the captured images correspond to the pre-captured images.

In the drawings and specification there has been set forth preferred embodiments of the invention, and although specific terms are employed, these are used in a generic and descriptive sense only and not for purposes of limitation. Changes in the form and the proportion of parts, as well as in the substitution of equivalents, are contemplated as circumstances may suggest or render expedient without departing from the spirit or scope of the invention.



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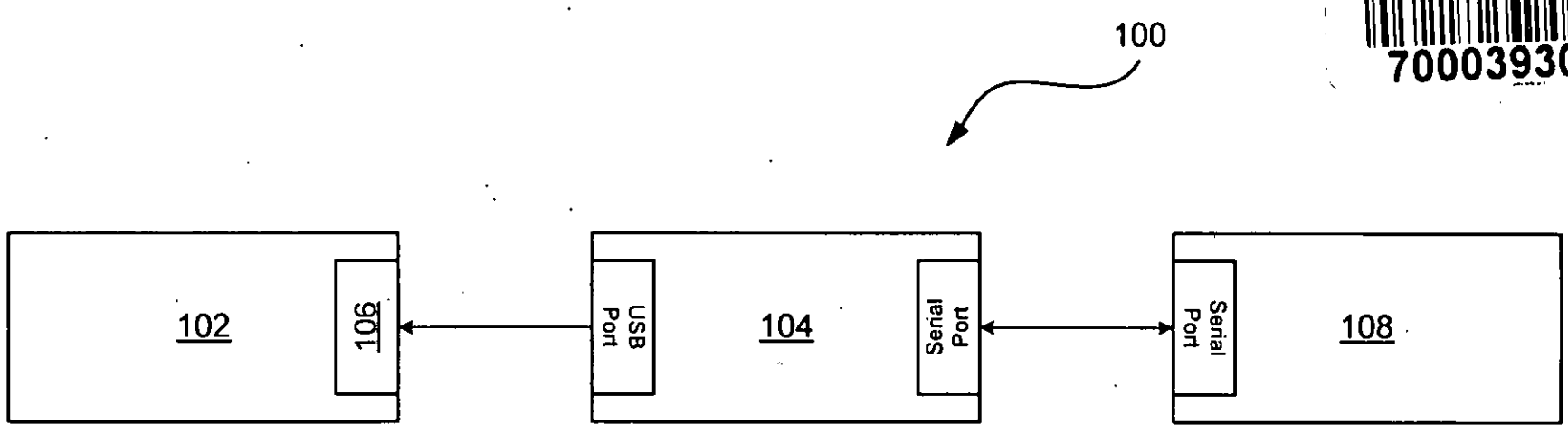

Figure 1

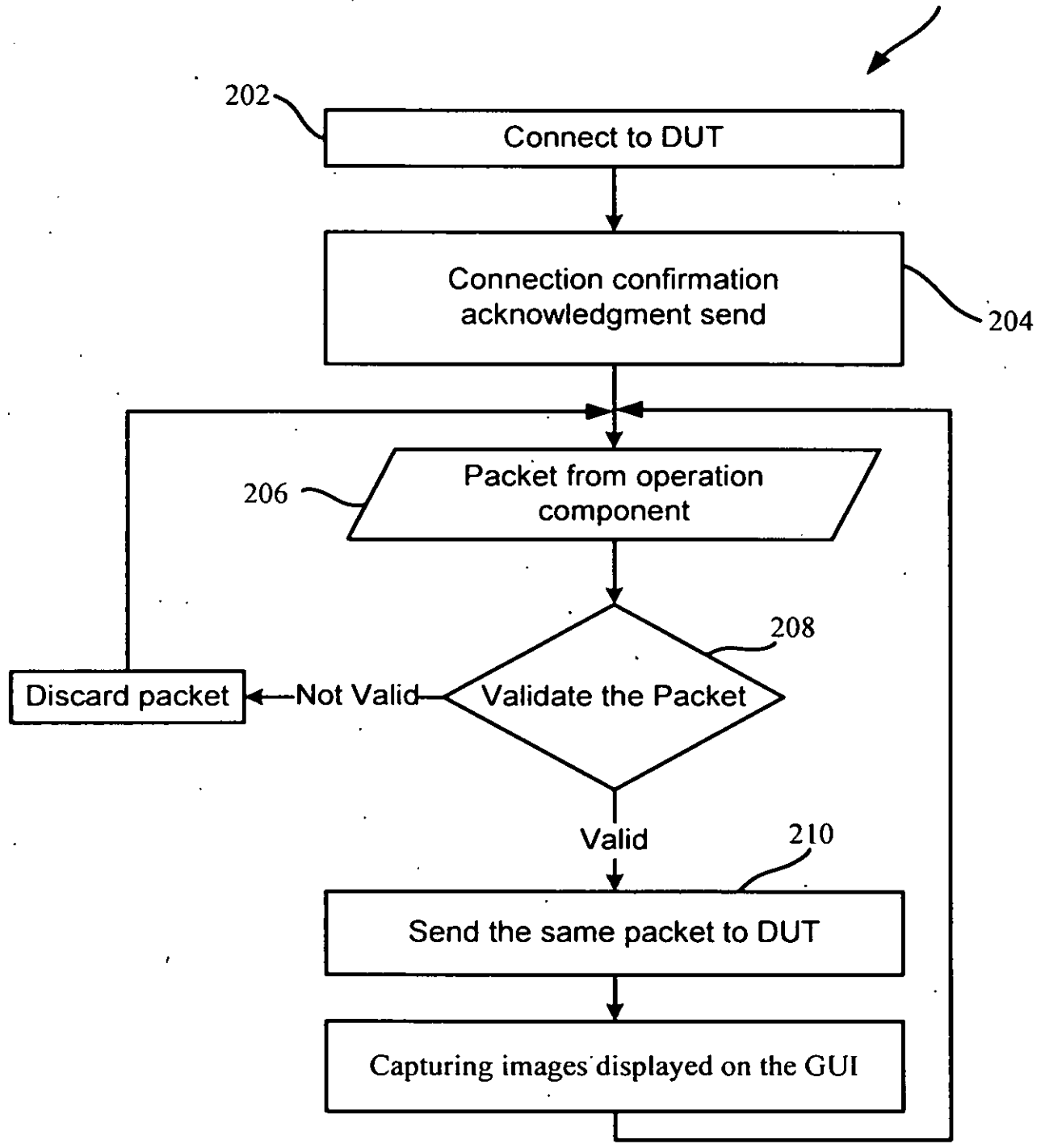

Figure 2

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