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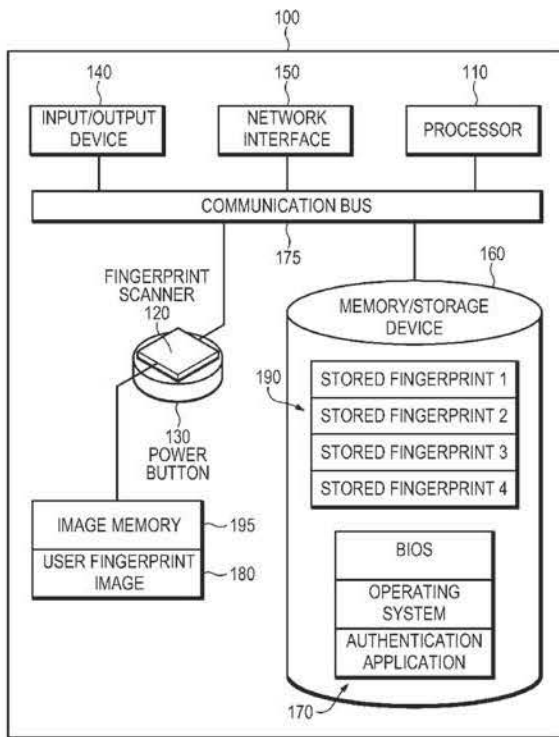
(54) **Title:** FINGERPRINT SCANNER

Figure 1

(57) **Abstract**: A machine including a processor, a power button, a fingerprint scanner coupled on the power button, and an authentication application executable by the processor for comparing a user fingerprint image with a stored fingerprint image.

ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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FINGERPRINT SCANNER

BACKGROUND

[0001]   When powering on a machine such as a computing device, a user presses a power button switch on the machine. After the machine receives power, hardware and software components of the machine are loaded. The user gains access to the machine by logging into the machine with a registered password using an input device, such as a mouse or keyboard.

[0002]   **BRIEF DESCRIPTION OF THE DRAWINGS**

[0003]   Various features and advantages of the disclosed embodiments will be apparent from the detailed description which follows, taken in conjunction with the accompanying drawings, which together illustrate, by way of example, features of the disclosed embodiments.

[0004]   Figure 1 illustrates a block diagram of a machine with a fingerprint scanner according to an embodiment of the invention.

[0005]   Figure 2 illustrates a device having a fingerprint scanner on a power button and coupled to additional components according to an embodiment of the invention.

[0006]   Figure 3 illustrates a laptop that is powered on when a fingerprint scanner detects a user according to an embodiment of the invention.

[0007]   Figure 4 illustrates a fingerprint scanner on a power button and a status indicator positioned on a lid of a laptop according to an embodiment of the invention.

[0008]   Figure 5 illustrates a fingerprint scanner on a power button and a status indicator positioned on a base of a laptop according to an embodiment of the invention.

[0009]   Figure 6 illustrates timelines of a fingerprint scanner scanning a fingerprint, a machine powering on, and a lid of the machine unlocking according to an embodiment of the invention.

[0010]   Figure 7 is a flow chart illustrating a method for authenticating a user according to an embodiment of the invention.

[0011]   Figure 8 is a flow chart illustrating a method for authenticating a user according to another embodiment of the invention.

[0012]   **DETAILED DESCRIPTION**

[0013]   Figure 1 illustrates a block diagram of a machine 100 with a fingerprint scanner 120 according to an embodiment of the invention. In one embodiment, the machine 100 is a desktop, a laptop, a server, and/or any device that includes a fingerprint scanner 120. As illustrated in Figure 1, the machine 100 includes a processor 110, a fingerprint scanner 120 coupled to a power button 130, an input/output device 140, a network interface 150, a storage device 160, an authentication application 170, and a communication bus 175 for the machine 100 and/or one or more components of the machine 100 to communicate with one another. In other embodiments, the machine 100 includes additional components and/or is coupled to additional components in addition to and/or in lieu of those noted above and illustrated in Figure 1.

[0014]   As noted above, the machine 100 includes a processor 110. The processor 110 receives and executes instructions for various components and/or applications of the machine 100, such as a fingerprint scanner 120 and an authentication application 170. A fingerprint scanner 120 is an optical device that scans an image of a user's fingerprint when the fingerprint scanner detects the user. In one embodiment, the fingerprint scanner 120 is disposed on an exterior of the machine 100, such as a lid of a laptop. In one embodiment, the fingerprint scanner 120 detects a user when the user touches or presses the fingerprint scanner 120 with a finger. In other embodiments, the fingerprint scanner 120 detects the user when the user's finger is within proximity of the fingerprint scanner 120. Additionally, the fingerprint scanner 120 is coupled to at least one power source (Figure 2) on the machine 100 and receives power while the machine 100 is powered off.

[0015]   For the purposes of this application, the machine 100 is powered on when a BIOS and an operating system of the machine 100 have been loaded. Additionally, powering on the machine 100 is a process that includes, but is not limited to, loading the BIOS and the operating system on the machine 100. Once the operating system has finished loading, the process of powering on the machine 100 is complete and the machine 100 is powered on. Additionally, the machine 100 is powered off when the machine 100 is not powered on and is not in the process of powering on. While the machine 100 is powered off, the fingerprint scanner 120 receives power while other components of the machine 100 do not receive power.

[0016]   When a user touches the fingerprint scanner 120 with a finger, an optical device on the fingerprint scanner 120 begins to scan an image of the user's fingerprint. Further, when the fingerprint scanner 120 has finished scanning the user's fingerprint, a user fingerprint image 180 is created and stored as an image file. In one embodiment, the user fingerprint image 180 is stored on an image memory 195 included in the fingerprint scanner 120. In another embodiment, the user fingerprint image 180 is stored on a storage device 160 accessible to the machine 100. The image memory 195 is memory directly coupled to and included in the fingerprint scanner 120. In some

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