A NETWORK-ENABLED SMART APPARATUS AND SYSTEMS AND METHODS FOR ACTIVATING AND PROVISIONING SAME

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Patent Application No. 17/213,943 filed March 26, 2021, the disclosure of which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] This disclosure relates generally to network-enabled appliances and other apparatus, and, more particularly, to systems and methods for activating network-enabled apparatus using web-based near field communication (NFC) protocols.

BACKGROUND OF THE INVENTION

[0003] Many home appliances, vehicles, and IT systems now have virtually immediate network connectivity upon installation in the home. Typical activation procedures, however, require the homeowner to connect the new appliance or other apparatus to their home network, then download an installation application to their home computer or mobile device. The application then walks the homeowner through the process of activating and provisioning the new apparatus according to the homeowner's use preferences. Typically, this requires the user to locate and enter identification information for the new device. The application may also require that the homeowner provide account information required for management or use of the device.

SUMMARY OF THE INVENTION

[0003a] According to an aspect, there is provided a network-enabled apparatus, comprising an apparatus data processing system; a memory storing apparatus identification information, wherein the network-enabled apparatus: transmits, to a user device via a near field communication (NFC)-enabled web page, an instruction to tap a transaction card to the user device; reads, via the NFC-enabled web page, NFC information transmitted to the user device by the transaction card; transmits, to a service administration server, the NFC information

and apparatus identification information; and receives, from the service administration server, a service activation command.

[0003b] According to another aspect, there is provided a method for activating a network-enabled apparatus, the method comprising: transmitting, by the network-enabled apparatus to a user device via a near field communication (NFC)-enabled web page, an instruction to tap a transaction card to the user device; reading, by the network-enabled apparatus via the NFC-enabled web page, NFC information transmitted to the user device by the transaction card; transmitting, by the network-enabled apparatus to a service administration server, the NFC information and apparatus identification information; and receiving, by the network-enabled apparatus from the service administration server, a service activation command.

[0003c] According to another aspect, there is provided a non-transitory, computer-accessible medium containing instructions for execution by a network-enabled computer system, wherein, when executed by the network-enabled computer system, the instructions cause the network-enabled computer system to perform procedures comprising: transmitting, to the user device via a near field communication (NFC)-enabled web page, an instruction to tap a transaction card to the user device; reading, via the NFC-enabled web page, NFC information transmitted to the user device by the transaction card; transmitting, to a service administration server, the NFC information and apparatus identification information; and receiving, from the service administration server, a service activation command.

[0004] There is also disclosed a network-enabled apparatus comprising an apparatus data processing system, at least one operational system in communication with the apparatus data processing system and configured for carrying out a mechanical or electrical operation, a first network communication interface configured for establishing communication over a wide area network, a second network communication interface configured for establishing

communication over a local network, and a memory. The memory has stored therein apparatus identification information, at least one service application comprising instructions for the apparatus data processing system to implement a service operation using the at least one operational system, and an activation application. The activation application comprises instructions for the apparatus data processing system to establish an internet connection via the first network communication interface and create an NFC-enabled web page. The application further comprises instructions to transmit, to a user device via the second communication interface, an instruction to navigate to the NFC-enabled web page and instructions to transmit to the user device via the NFC-enabled web page an instruction for a user of the user device to tap an NFC-enabled smart transaction card to the user device. The activation application also comprises instructions to read, via the NFC-enabled web page, NFC information transmitted to the user device by the smart transaction card. The NFC information includes card identification information unique to the smart transaction card. The activation application still further comprises instructions to transmit the NFC information and the apparatus identification information to a service administration server, and receive, from the service administration server, a service activation command. Responsive to the service activation command, the application will cause activation of at least one of the at least one service application.

[0005] There is also disclosed a method for activating a network-enabled apparatus using an NFC-enabled user device and an NFC-enabled smart transaction card associated with a card account. The method comprises establishing an internet connection by the network-enabled apparatus, creating an NFC-enabled web page by the network-enabled apparatus, and transmitting, by the network-enabled apparatus to the user device, an instruction to navigate to the NFC-enabled web page. The method further comprises transmitting, by the

network-enabled apparatus to the user device via the NFC-enabled web page, an instruction for the user to tap the smart transaction card to the user device, and reading, by the network-enabled apparatus via the NFC-enabled web page, NFC information transmitted to the user device by the smart transaction card. The NFC information includes card identification information unique to the smart transaction card. The method still further comprises transmitting, by the network-enabled apparatus to a service administration server of a service administrator, the NFC information and apparatus identification information, identifying, by the service administration server using the apparatus identification information, the network-enabled apparatus, and transmitting the NFC information by the service administration server to a card administration server. The method also comprises receiving, by the service administration server from the card administration server, card account information associated with the card account, identifying an account holder by the service administration server using the card account information, and associating, by the service administration server, the network-enabled apparatus with the card account and an apparatus service account with the service administrator. The method further comprises transmitting, by the service administration server to the network-enabled apparatus, a service activation command.

[0006] There is also disclosed a method for activating a network-enabled apparatus using an NFC-enabled user device and an NFC-enabled smart transaction card associated with a card account. The method comprises establishing communication between the network-enabled apparatus and the user device, creating an NFC-enabled web page by the network-enabled apparatus, and navigating to the NFC-enabled webpage by a web browser on the user device. The method further comprises establishing NFC communication between the smart transaction card and the user device and reading, by the network-enabled apparatus via the