companies and the like to improve security.

[0005]

As described above, Web applications have many benefits and are expected to have a wider variety of uses in the future. In particular, Web applications are increasingly used in portable terminal devices such as smartphones and tablet terminal devices, because the portable terminal devices have smaller storage capacities than personal computers (PC).

LIST OF PRIOR ART DOCUMENTS

PATENT DOCUMENT

[0006]

Patent Document 1: JP 2009-169730A

DISCLOSURE OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0007]

However, conventional Web browsers have limited functionality, and this imposes restrictions on widening of the range of use of Web applications. Specifically, conventional Web browsers do not allow Web applications to directly control external devices connected to terminal devices, and it is thus difficult to use Web applications in systems in which external devices are used.

[0008]

It should be noted that even when a conventional Web browser is used, in an environment in which, for example, a device driver of a printer serving as an external device is installed on a terminal device, a user can cause the printer to be operated by the Web browser via the device driver. However, in this case, the printer is operated under directions from the user, and is not directly controlled by a Web application.

[0009]

~~It is an example of an object~~ Embodiments of the present invention seek to provide a terminal device, a method for controlling an external device, and a computer-readable recording

medium that address the foregoing problems and that can enable a Web application to control an external device.

MEANS FOR SOLVING THE PROBLEMS

[0010]

~~In order to achieve the above-described object, a~~A terminal device according to ~~an~~ first aspect of the present invention includes:

a program execution unit that executes a Web application transmitted from a Web server;

a communication unit that performs data communication with ~~an~~ external devices; and

a communication control unit that controls the external devices via the communication unit in accordance with a direction from the Web application,

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

the communication control unit operates the information reading device via the communication unit in accordance with a direction from the Web application, and causes information read by the information reading device to be output to the program execution unit, and furthermore the communication control unit operates the printer via the communication unit in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and causes a result of the data processing to be printed out.

[0011]

~~Moreover, in order to achieve the above-described object, a~~A method for controlling ~~an~~ external devices according to ~~an~~ a second aspect of the present invention is a method for controlling ~~an~~ external devices, the external devices being connected to a terminal device that executes a Web application transmitted from a Web server, the method including the steps of:

(a) executing the Web application; and

(b) controlling the external devices via a communication device in accordance with a direction from the Web application, the communication device being included in

the terminal device and being capable of performing data communication with the external devices

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained, and furthermore the printer is operated via the communication device in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and a result of the data processing is printed out.

[0012]

~~Furthermore, in order to achieve the above-described object, a~~A computer-readable recording medium according to a~~n~~ third aspect of the present invention is a computer-readable recording medium recording a program for controlling ~~an~~ external devices, the external devices being connected to a terminal device that executes a Web application transmitted from a Web server, the program including instructions that cause

a processor of the terminal device to execute the steps of:

(a) executing the Web application; and

(b) controlling the external devices via a communication device in accordance with a direction from the Web application, the communication device being included in the terminal device and being capable of performing data communication with the external device

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained, and furthermore the printer is operated via the communication device in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and a result of the data processing is printed out.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0013]

As described above, according to the present invention, it is possible to enable a Web application to control an external device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

[Figure 1] Figure 1 is a block diagram showing the configuration of a terminal device according to an embodiment of the present invention.

[Figure 2] Figure 2 is a sequence diagram showing the operation of the terminal device according to the embodiment of the present invention.

[Figure 3] Figure 3 is a block diagram showing an example of a portable terminal device that can be used as the terminal device according to the embodiment of the present invention.

MODE FOR CARRYING OUT THE INVENTION

[0015]

Embodiment

Hereinafter, a terminal device, a method for controlling an external device, and a program according to an embodiment of the present invention will be described with reference to Figures 1 to 3.

[0016]

Device configuration

CLAIMS

1. A terminal device comprising:

a program execution unit that executes a Web application transmitted from a Web server;

a communication unit that performs data communication with ~~an~~ external device~~s~~; and

a communication control unit that controls the external device~~s~~ via the communication unit in accordance with a direction from the Web application,

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

the communication control unit operates the information reading device via the communication unit in accordance with a direction from the Web application, and causes information read by the information reading device to be output to the program execution unit, and furthermore the communication control unit operates the printer via the communication unit in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and causes a result of the data processing to be printed out.

~~2. The terminal device according to claim 1,~~

~~wherein when the external device is an information reading device that is capable of reading information from code or a recording medium,~~

~~the communication control unit operates the information reading device via the communication unit in accordance with a direction from the Web application, and causes information read by the information reading device to be output to the program execution unit.~~

~~3~~2. A method for controlling ~~an~~ external device~~s~~, the external device~~s~~ being connected to a terminal device that executes a Web application transmitted from a Web server, the method comprising the steps of:

(a) executing the Web application; and

(b) controlling the external device~~s~~ via a communication device in accordance

with a direction from the Web application, the communication device being included in the terminal device and being capable of performing data communication with the external devices,

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained, and furthermore the printer is operated via the communication device in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and a result of the data processing is printed out.

~~4. The method for controlling an external device according to claim 3,~~

~~wherein when the external device is an information reading device that is capable of reading information from code or a recording medium,~~

~~in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained.~~

~~5~~3. A computer-readable recording medium recording a program for controlling ~~an~~ external device~~s~~, the external device~~s~~ being connected to a terminal device that executes a Web application transmitted from a Web server, the program comprising instructions that cause a processor of the terminal device to execute the steps of:

(a) executing the Web application; and

(b) controlling the external device~~s~~ via a communication device in accordance with a direction from the Web application, the communication device being included in the terminal device and being capable of performing data communication with the external device~~s~~,

wherein when the external devices are a printer and an information reading device that is capable of reading information from code or a recording medium,

in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained, and furthermore the printer is operated via the communication device in accordance with a direction from the Web application when data processing is executed to the information read by the information reading device, and a result of the data processing is printed out.

~~6. The computer-readable recording medium according to claim 5,~~

~~wherein when the external device is an information reading device that is capable of reading information from code or a recording medium,~~

~~in the step (b), the information reading device is operated via the communication device in accordance with a direction from the Web application, and information read by the information reading device is obtained.~~