time, and/or limits the development environment for the user.

[0005] A need for accurate previewing of printed output is particularly high for printed labels. Printed labels continue to be used in many applications, including for shipping and mailing, medical specimen vials, grocery and product inventories, or the like. Unfortunately, previous solutions, such as described in H06-110626, require a user to connect a printing device to a computing device. Furthermore, the connected printing device requires special firmware that expands the printing image in the printer's image buffer, which is sent back to the computing device for display. This results in wasted printer memory resource.

Solution to Problem

[0006] There remains a desire in the industry for users to preview an accurate representation of printed matter, without a need to connect a printing device

[0007] In one aspect, there is provided a method of emulating a printer on a computing device provided with printer firmware and programming code that interfaces with the firmware for a customized printing operation, the method comprising the steps of:

providing the firmware with the printer and the computing device, wherein the firmware is operable on each of the computing device and the printer as a function of at least one respective application programming interface provided with the printer, or provided with the computing device and the printer;

providing the programming code with the computing device; and

running the programming code on the computing device, wherein the programming code interfaces with the firmware provided with the computing device and causes the computing device to emulate the printer running the programming code, thereby accurately representing a printer output and the functioning of the printer, wherein the computing device and the printer are not connected to each other.

[0007a] In another aspect, there is provided a system for emulating a printer on a computing device that is provided with

printer firmware and programming code that interfaces with the firmware for a customized printing operation, the system comprising:

at least one respective application programming interface that is provided with the printer, or is provided with the computing device and the printer;

the printer firmware that is provided with the printer and the computing device, wherein the firmware is operable on each of the computing device and the printer as a function of the at least one respective application programming interface;

the programming code that is provided with the computing device, wherein the programming code runs on the computing device and interfaces with the firmware provided with the computing device and causes the computing device to emulate the printer running the programming code, thereby accurately representing a printer output and the functioning of the printer, wherein the computing device and the printer are not connected to each other.

[0007b] Accordingly, a system and method are provided for accurately emulating a printer on a computing device that is not connected to the printer. The computing device is provided with firmware and programming code that interfaces with the firmware for a customized printing operation. Moreover, the firmware is provided with the printer and the computing device, and is operable on each of the computing device and the printer as a function of at least one respective application programming interface. One application programming interface may be provided with the printer and another application programming interface may be provided with the computing device, or both the computing device and the printer may be provided with the same application programming interface.

Advantageous Effects of Invention

[0008] The programming code is provided with the computing device, and the computing device runs the programming code. The programming code interfaces with the firmware provided with the computing device and causes the computing device to emulate the printer, when the printer runs the programming code. Moreover, the computing device and the printer are not connected.

[0009] Other features and advantages of the present invention will become apparent from the following description of the invention that refers to the accompanying drawings.

Brief Description of Drawings

[0010] For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred, it being understood, however, that the invention is not limited to the precise arrangements and instrumentalities shown. The features and advantages of the present invention will become apparent from the following description of the invention that refers to the accompanying drawings, in which:

[0011] [fig.1]Fig. 1 illustrates an example hardware arrangement in accordance with an em-