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Noonan

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(54) **ONLINE IMAGE CUSTOMIZATION AND PRINTING ON MERCHANDISE**

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(76) Inventor: **Jeremy Noonan**, Fair Oaks, CA (US)

*Primary Examiner* — Douglas Q Tran

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(74) *Attorney, Agent, or Firm* — Ash Tankha; Lipton, Weinberger & Husick

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(57) **ABSTRACT**

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**G06F 3/12** (2006.01)

**G06K 1/00** (2006.01)

(52) **U.S. Cl.** ..... **358/1.15**; 358/1.13

(58) **Field of Classification Search** ..... 358/1.1, 358/1.13, 1.14, 1.15, 1.18; 705/26.5, 27.2

See application file for complete search history.

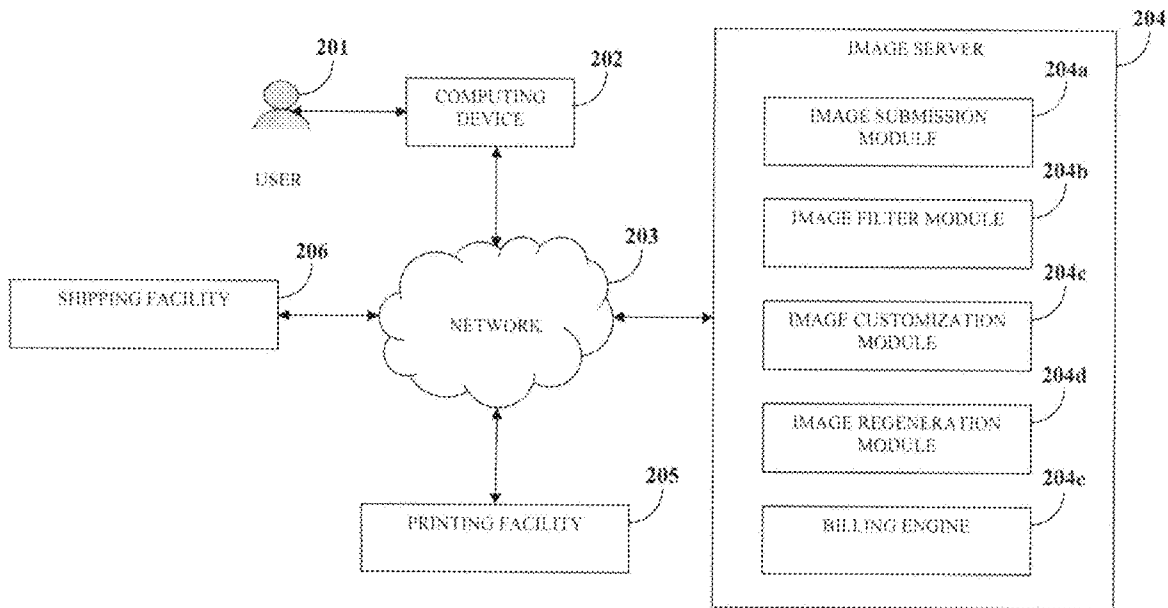
Disclosed herein is a computer implemented method and system for customizing an image to be printed on a printable surface of an item selected by a user. The user submits an image on a host website. The user selects at least one of multiple image filters provided on the host website. The user adjusts settings of the selected image filters to be applied on the image. The user may also set transparency of one or more colors of the image. The colors are selected from a palette comprising the colors of the image. The user customizes the image using the adjusted settings of the selected image filters. The host website regenerates the customized image for each of the adjusted settings. The user selects an item on the host website and customizes external attributes of the item. The customized image is then printed on the printable surface of the selected item.

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**13 Claims, 11 Drawing Sheets**



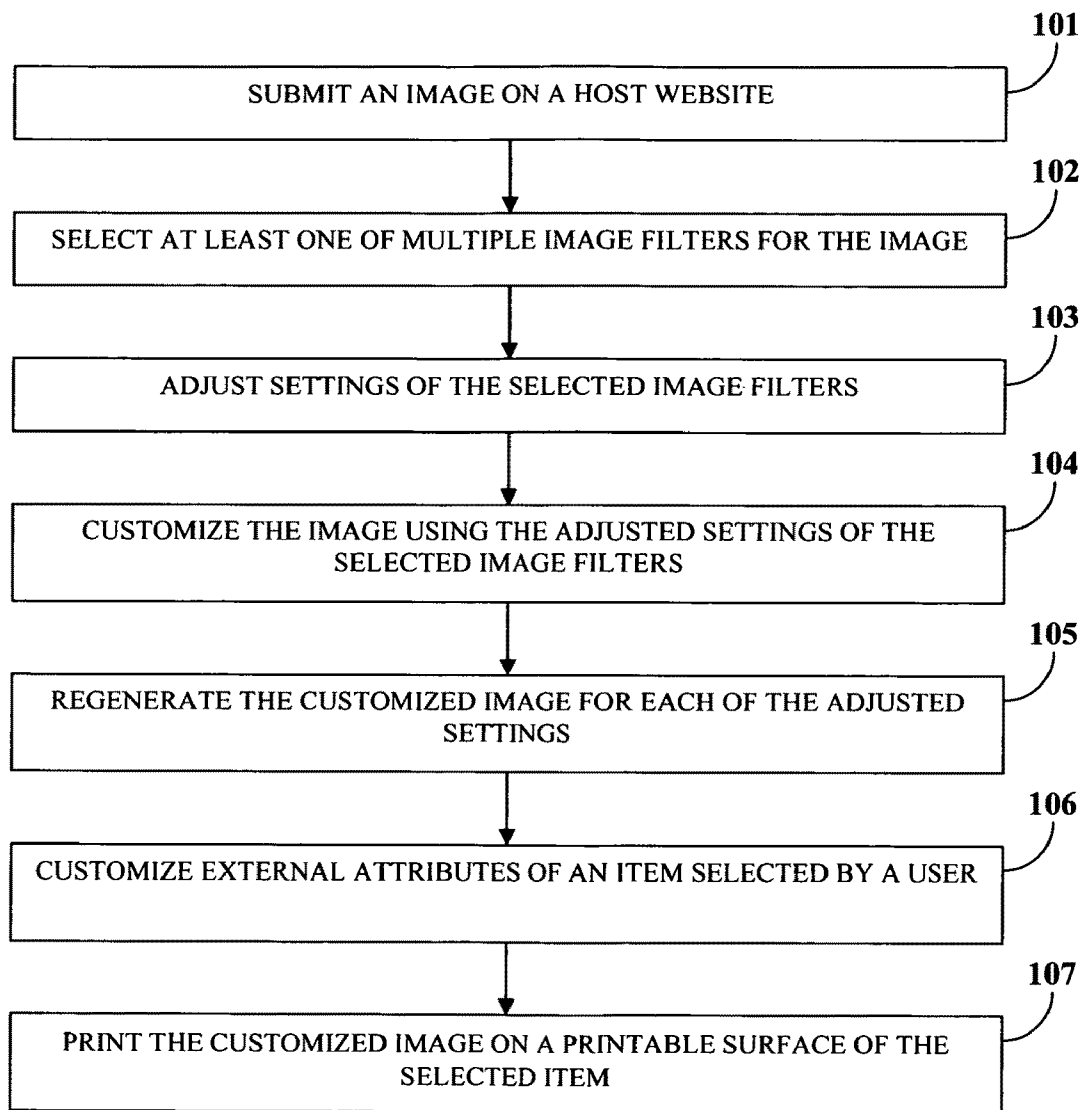


FIGURE 1

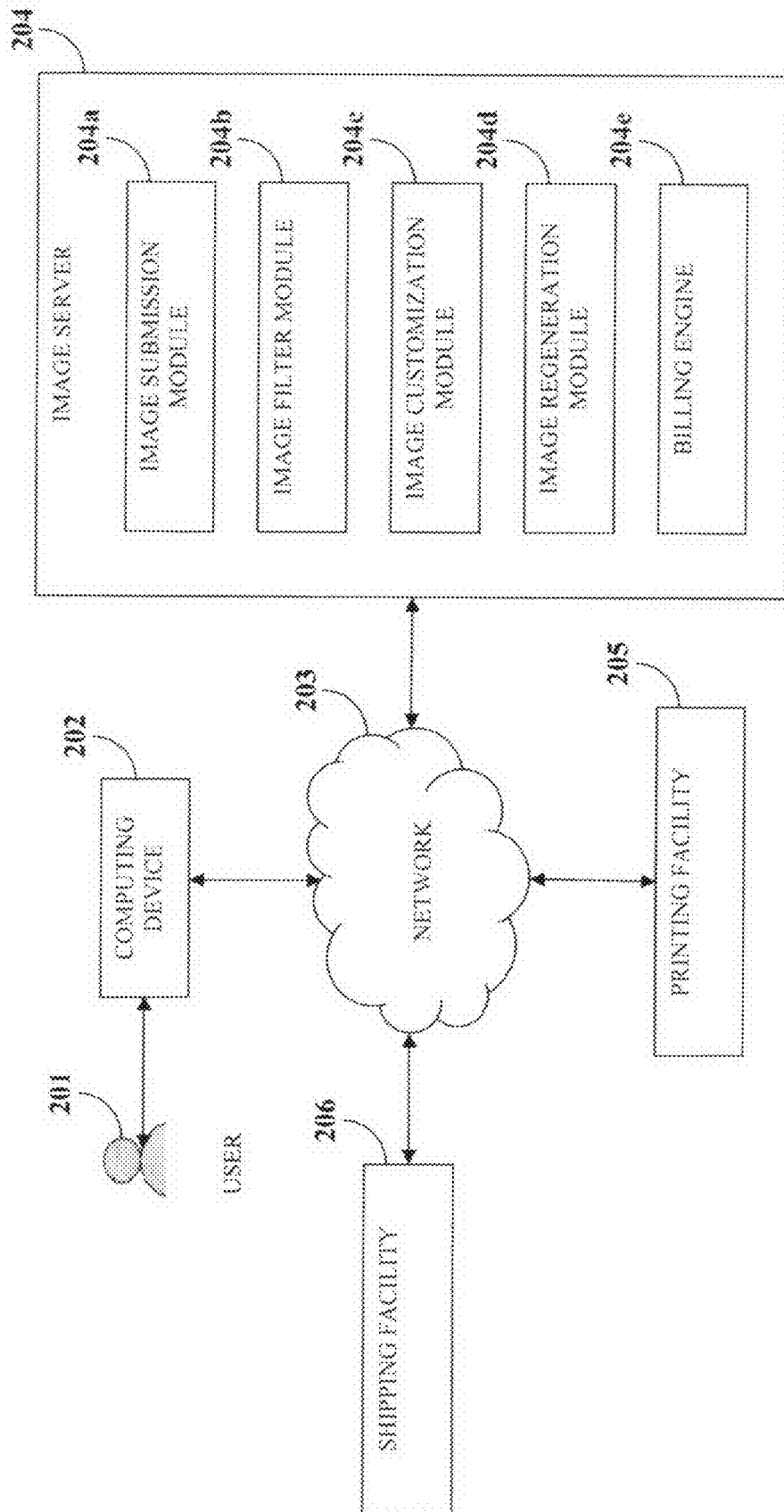


FIGURE 2

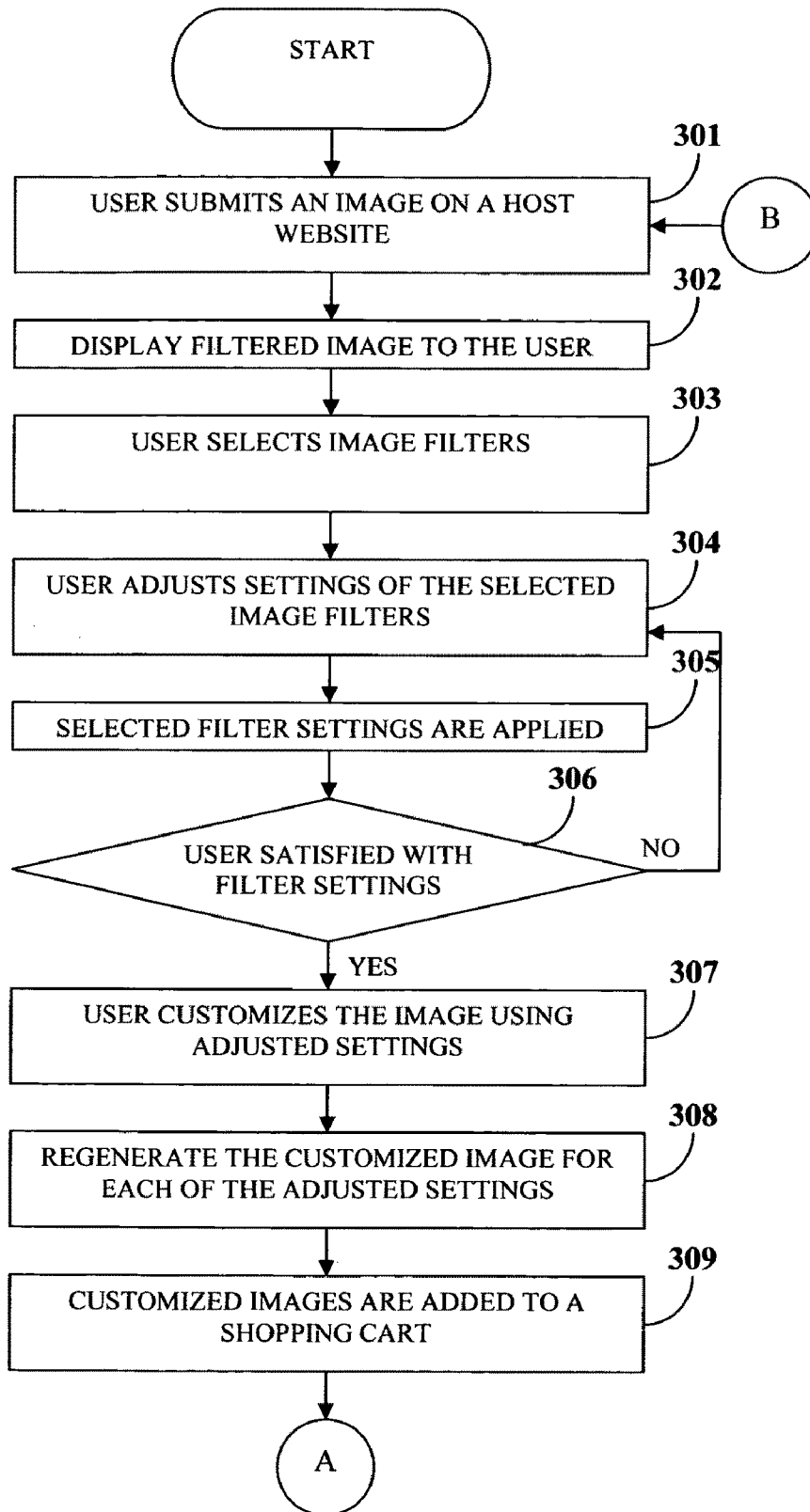


FIGURE 3A

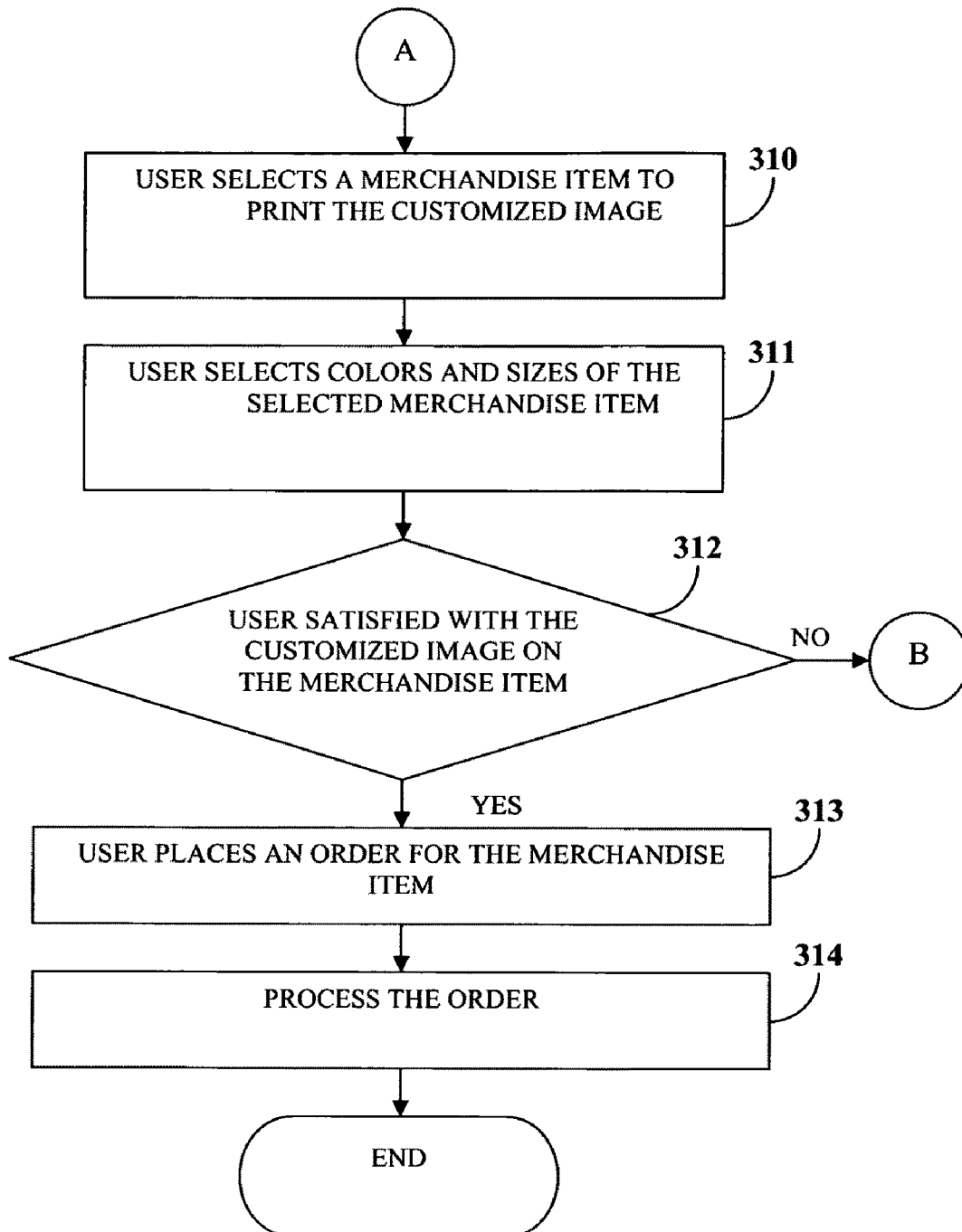


FIGURE 3B

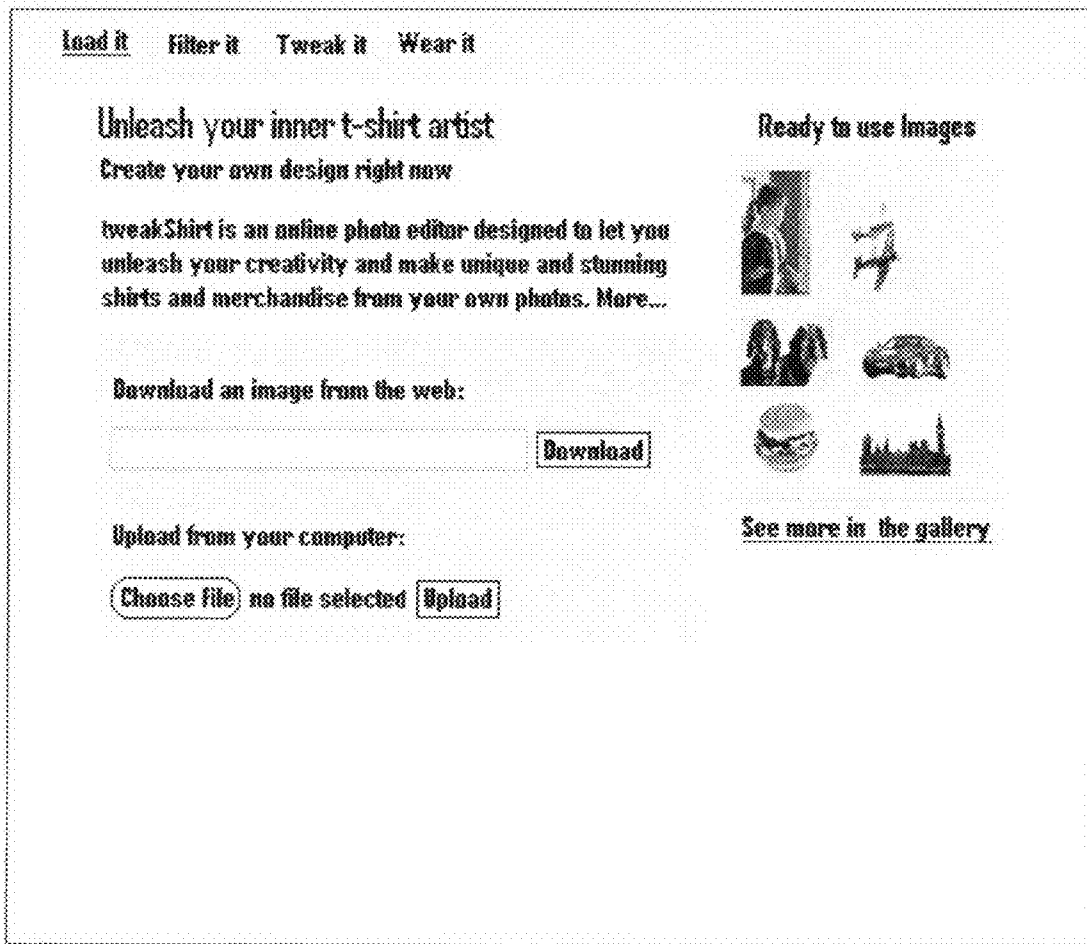


FIGURE 4A

load it   filter it   Tweak it   Wear it

**Choose one of our design filters**  
These are few low-res samples. You can tweak the filters in the next step

Your image



**Color reduction**  
Simplified colors create a cool vector look

**Shades of gray**  
A cool vector look with shades of gray

**Retina burn**  
Blaring colors are sure to grab attention

**Comic style black and white**  
Black and white shading gives the feel of a graphic novel

**Recolor**  
Substitute gorgeous color palettes into your image

**Monochrome**  
Solid images can be achieved with pure black and white filter

FIGURE 4B

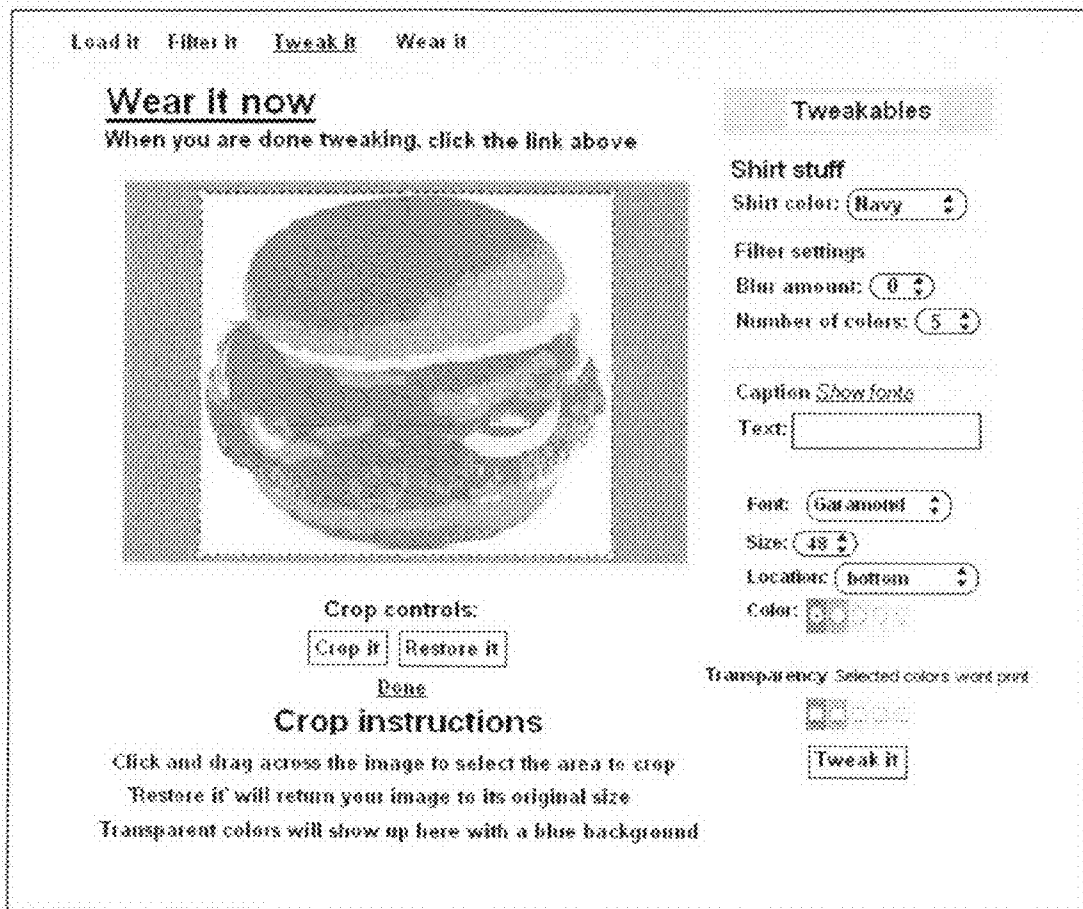


FIGURE 4C



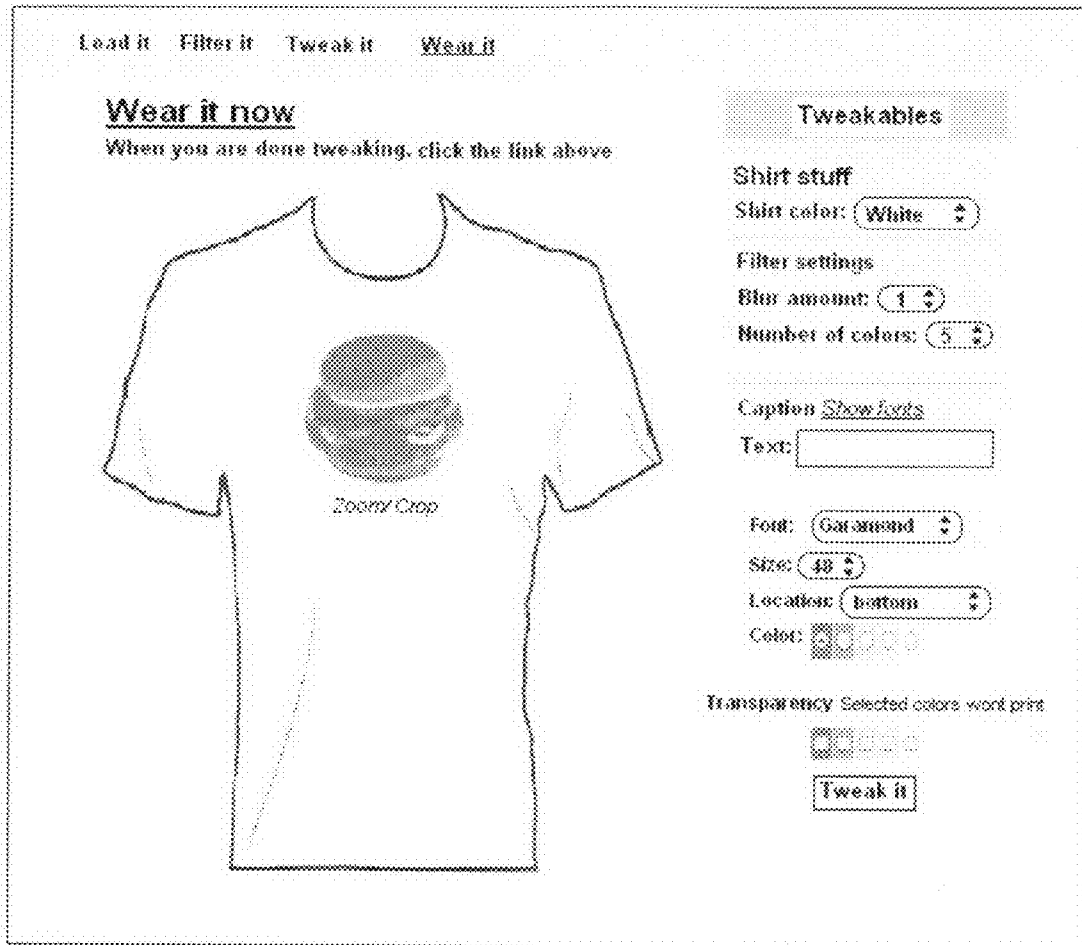


FIGURE 4D

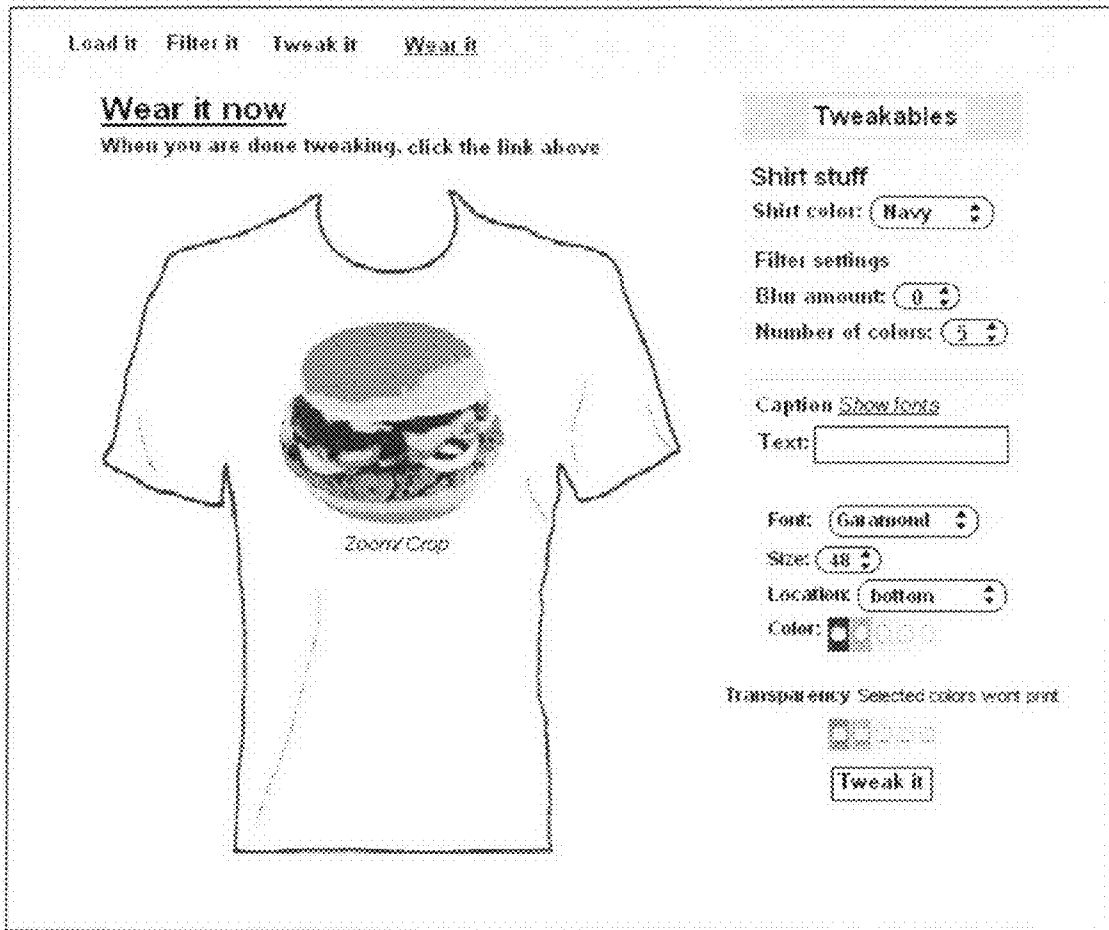


FIGURE 4E

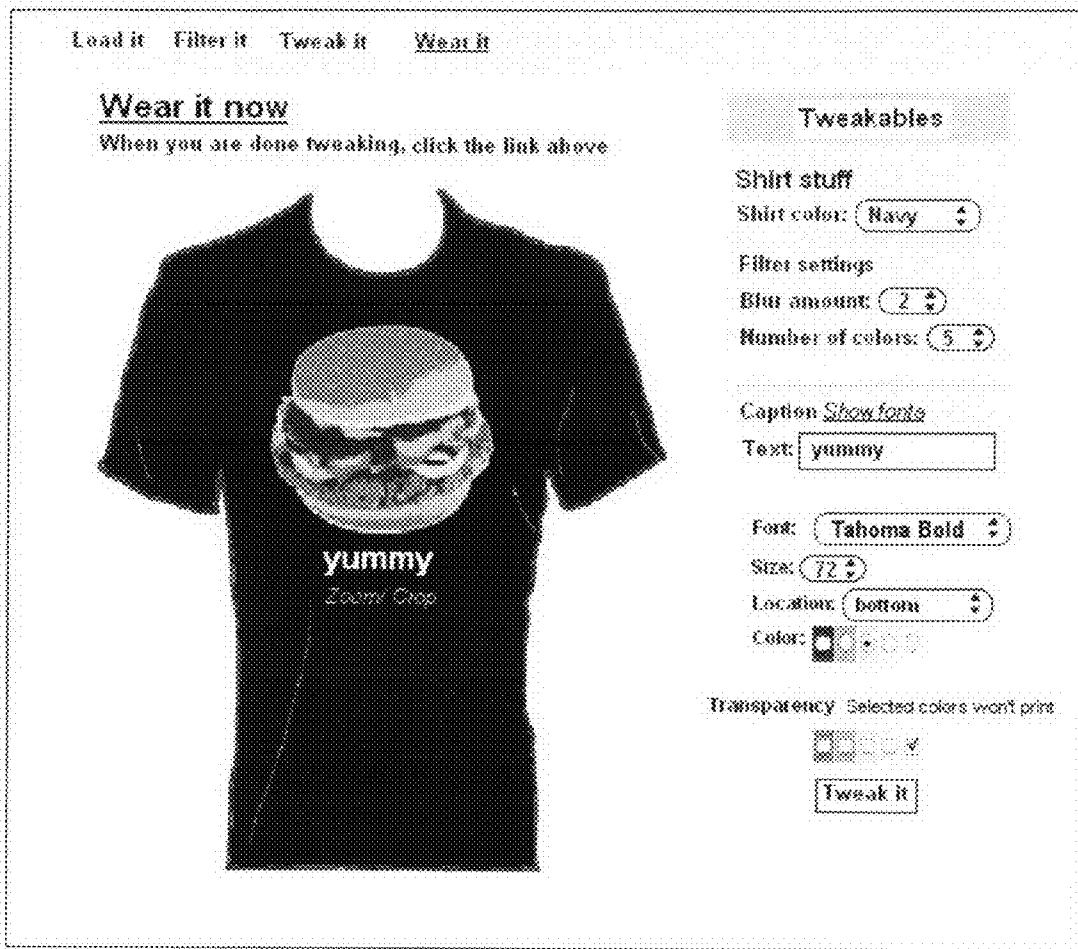


FIGURE 4F

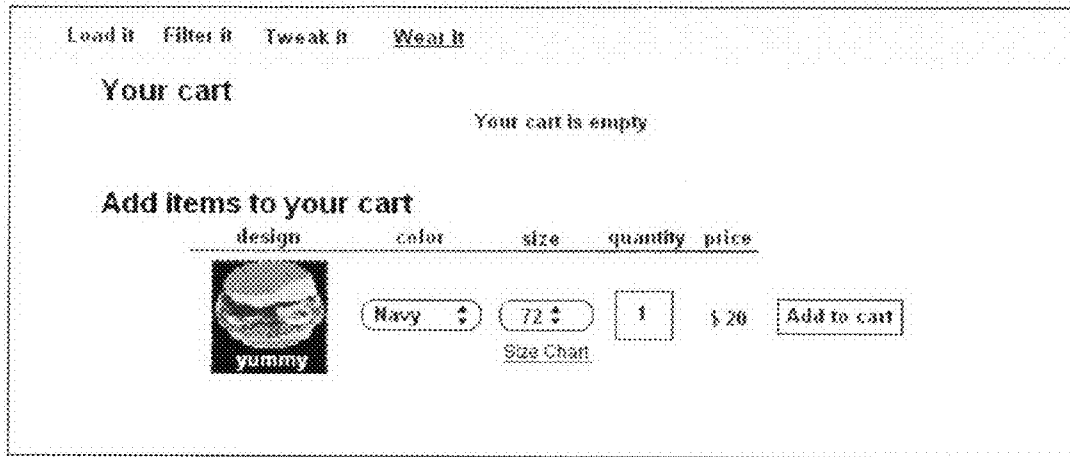


FIGURE 4G

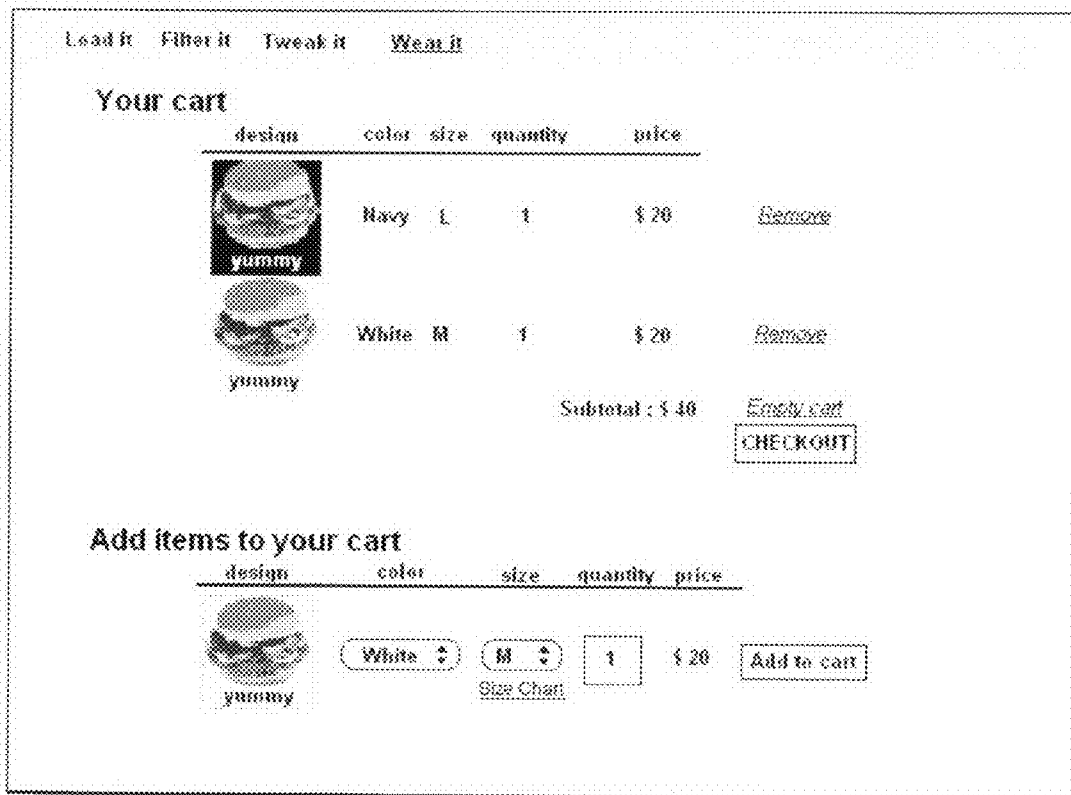


FIGURE 4H

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## ONLINE IMAGE CUSTOMIZATION AND PRINTING ON MERCHANDISE

### BACKGROUND

This invention, in general, relates to electronic commerce. More particularly, this invention relates to customizing an image to be printed on a printable surface of an item selected by a customer.

Product customization is popular in online marketing. Customers may desire to add personalized features to a wide variety of products. A customer may use photo editing software for personalizing text and graphics of a product. Typically, the photo editing software may not be available to everyone. The customer may also desire to customize the graphic image attributes namely the size, shape, or format of a digital image using the photo editing software. The customer may also desire to remove colors from an image in order to set transparency using the photo editing software. However, the photo editing software may be complicated to use and the customization options presented to the customer are often quite limited. Even in an online environment the customers may not have the necessary image filters or tools to customize the graphic image to match the preference of the customers.

The customers may also wish to customize the product onto which the customized image is to be printed. The customers may desire to customize the size, shape, and colors of the products. However, the customer may not have the required options for customizing the product to the customer's preferences. Therefore, the customer may be provided with an unsatisfactory product. Therefore, there is a need for an online image customization tool that is widely available, economical, and enables the users to customize images and print the customized image on products with ease.

### SUMMARY OF THE INVENTION

The computer implemented method and system disclosed herein addresses the above stated need for customizing an image to be printed on a printable surface of an item selected by a user.

The user submits an image on a host website. The image may be obtained from multiple sources including a computing device of the user, a host website, and external websites. The host website provides multiple image filters for customizing the image. The user may select at least one of multiple image filters provided on the host website. The user may adjust settings of the selected image filters in order to customize the image. The user may also set transparency of one or more colors of the image. The colors are selected from a palette comprising the colors present in the image. The method disclosed herein therefore enables the user to remove selected colors from the image during customization. The user customizes the image by applying the selected image filters with adjusted settings. The user may also provide a text message with the customized image. The step of customizing the image further includes editing image attributes and text attributes. The user may adjust image attributes including blur amount of the image, size of the image, image resolution, print resolution, location of the image on the printable surface, and number of colors used in the image. The user may edit text attributes such as text size, location of text with respect to the image, and text color.

The host website regenerates the customized image for each of the adjusted settings of the image filters. The user may then select an item provided by the host website in order to

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print the customized image on the item. The host website enables the user to customize external attributes of the selected item. The external attributes include size, shape, texture, material, color, and quantity of the item. The customized image may be printed on the printable surface of the selected item. The user may place an order for the item printed with the customized image and perform an online monetary transaction for purchasing the item.

### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of the embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, exemplary constructions of the invention are shown in the drawings. However, the invention is not limited to the specific methods and instrumentalities disclosed herein.

FIG. 1 illustrates a method of customizing an image to be printed on a printable surface of an item selected by a user.

FIG. 2 illustrates a system for customizing an image to be printed on a printable surface of an item selected by a user.

FIGS. 3A-3B illustrate a flowchart describing the steps involved in customizing an image to be printed on a printable surface of an item selected by a user.

FIG. 4A exemplarily illustrates a screen shot of a webpage for submitting an image by a user.

FIG. 4B exemplarily illustrates a screen shot displaying multiple filters used for customizing the image by a user.

FIG. 4C exemplarily illustrates a screen shot of a webpage for cropping an image by a user.

FIGS. 4D-4F exemplarily illustrate the steps involved in editing image attributes and text attributes by adjusting filter settings.

FIGS. 4G-4H exemplarily illustrate a screen shot of a webpage for adding customized images to a shopping cart.

### DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates a method of customizing an image to be printed on a printable surface of an item selected by a user **201**. The user **201** accesses a host website using a web browser on a computing device **202**. The computing device **202** may be a personal computer, a laptop, a mobile phone, a personal digital assistant, etc. The user **201** submits **101** an image on the host website. The image may be a digital photograph provided by the customer or another type of graphic image. The image may be obtained from multiple sources such as a computing device **202** of the user **201**, a host website, and external websites. For example, the user **201** may upload an image stored on the computing device **202**, use a sample photo provided by the host website, or provide a link for downloading the image.

The host website provides multiple image filters for customizing the image. The image filters may include filters for color reduction, recoloring the image, brightening colors of the image, creating grayscale and negative of the image, etc. The host website displays the image submitted by the user **201** in multiple filtered forms on the host website. The image submitted by the user **201** is also displayed alongside the image filter options on the host website. The user **201** may then select **102** at least one of multiple image filters provided on the host website based on the user's **201** preferences.

On selecting the image filters, the image in the selected filtered form is displayed to the user **201**. The user **201** may then adjust **103** settings of the selected image filters. The user **201** may adjust image attributes including blur amount of the

image, size of the image, image resolution, print resolution, location of the image on the printable surface, and number of colors used in the image. The user **201** may also adjust the hue, saturation, and brightness of the image. The host website also provides the user **201** with a series of checkboxes containing all the colors used in the image. The user **201** may set the transparency of the image by selecting colors from a palette comprising the colors of the image. The selected colors are then made transparent on an item selected by the user **201**. The host website therefore enables the user **201** to remove background colors in the image and print the image without the background colors on the item.

The user **201** then customizes **104** the image by applying the selected image filters with adjusted settings. The user **201** may customize the image by cropping the image to a size preferred by the user **201**. The user **201** may also be allowed to perform image manipulations such as changing the shape of the image, scaling the image, and changing the format of the image. The user **201** may scale the image by stretching or compressing the image horizontally or vertically. A preview of the cropped or manipulated image is then displayed on the host website.

The user **201** also has an option of adding a caption to the image. The user **201** may enter text to be printed as a caption for the image. The user **201** may also have an option of choosing font and editing text attributes such as text size, location of text with respect to the image, and text color. The resulting image comprising the image and the caption is then displayed on the host website. Each of the resulting images is regenerated **105** and displayed on the host website. The user **201** views the displayed regenerated images on the host website. The regenerated images comprise the adjustments made to the settings of the image filters including the image attributes, the text attributes, the transparency settings, etc. The user **201** may then select one of the regenerated images and add the selected regenerated image to a shopping cart.

The host website provides a variety of merchandise items to the user **201**. The user **201** may select an item and customize **106** external attributes of the item. The external attributes include size, shape, texture, material, color, and quantity of the item. The customized image may be printed **107** on a printable surface of the selected item.

The user **201** places an order for the item with the customized image. The user **201** may also place an order for prints of the customized image. Once the user **201** has placed the order, the user **201** is requested to provide a billing address and a shipping address. The user **201** then performs an online monetary transaction for purchasing the item. The user **201** may purchase the item via a credit card payment, check payment, or a demand draft payment. On receipt of the payment, the item with the customized image is shipped to the address provided by the user **201**.

FIG. 2 illustrates a system for customizing an image to be printed on a printable surface of an item selected by a user **201**. The system disclosed herein comprises a computing device **202**, an image server **204**, a printing facility **205**, and a shipping facility **206** connected via a network **203**. The image server **204** comprises an image submission module **204a**, an image filter module **204b**, an image customization module **204c**, an image regeneration module **204d**, and a billing engine **204e**.

The user **201** accesses a host website using a web browser on the computing device **202**. The computing device **202** may be a personal computer, a laptop, a mobile phone, a personal digital assistant, etc. A user **201** submits an image on the host website. The image may be a digital photograph or a graphic image provided by the customer. The image may be obtained

from multiple sources such as a computing device **202** of the user **201**, a host website, and external websites. For example, the user **201** may upload an image stored on the computing device **202**, use a sample photo provided by the host website, or provide a link for downloading the image.

An image submission module **204a** acquires the image submitted by a user **201**. The host website provides multiple image filters for customizing the image. The image filters may include filters for color reduction, recoloring the image, brightening colors of the image, creating grayscale and negative of the image, etc. The image filter module **204b** filters the image submitted by the user **201** and displays the image in multiple filtered forms on the host website. The user **201** then selects at least one of multiple image filters provided on the host website.

The image filter module **204b** further enables the user **201** to adjust **103** settings of the selected image filters. The image filter module **204b** enables the user **201** to adjust image attributes including blur amount of the image, image resolution, print resolution, size of the image, location of the image on the printable surface, and number of colors used in the image. The image filter module **204b** also enables the user **201** to adjust the hue, saturation, and brightness of the image. The image filter module **204b** also provides the user **201** with a series of checkboxes containing all the colors used in the image. The image filter module **204b** enables the user **201** to adjust transparency of the image by selecting colors from a palette comprising colors of the image. The selected colors are made transparent on an item selected by the user **201**. The image filter module **204b** therefore enables the user **201** to remove background colors in the image. The image without the background colors may later be printed on the item using the printing facility **205**.

The image customization module **204c** enables the user **201** to customize the selected image using one or more of the adjusted settings of the selected image filters. The image customization module **204c** enables the user **201** crop the image to a size preferred by the user **201**. The image customization module **204c** may also enable the perform image manipulations such as changing the shape of the image, scaling the image, and changing the format of the image.

The image customization module **204c** further enables the user **201** to add a caption to the image. The user **201** may enter text to be printed as a caption for the image. The user **201** may also have an option of choosing font and editing text attributes such as text size, location of text with respect to the image, and text color. The image customization module **204c** therefore customizes the image based on the user's **201** preferences.

The image regeneration module **204d** regenerates each of the resulting images and displays the regenerated images on the host website. The regenerated images comprise the adjustments made to the settings of the image filters including the image attributes, the text attributes, the transparency settings, etc. The user **201** selects the regenerated images and adds the regenerated images to a shopping cart.

The user **201** may select an item from a variety of merchandise items provided on the host website. The user **201** customizes external attributes of the item using the image customization module **204c**. The image customization module **204c** customizes external attributes such as size, shape, texture, material, color, and quantity of the item. The printing facility **205** prints the customized image on a printable surface of the selected item.

The user may then place an order for the item printed with the customized image. The user **201** may also place an order for prints of the customized image. Once the user **201** has

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placed the order, the user **201** is asked to provide a billing address and a shipping address. The billing engine **204e** processes the order. The billing engine **204e** manages and controls the online monetary transaction performed by the user **201** during purchase of the item with the customized image. On receipt of the payment, the shipping facility **206** ships the item with the customized image to the address provided by the user **201**.

FIGS. 3A-3B illustrate a flowchart describing the steps involved in customizing an image to be printed on a printable surface of an item selected by the user **201**. The user **201** submits **301** an image on the host website. The host website displays **302** the image submitted by the user **201** in multiple filtered forms on the host website. The user **201** selects **303** at least one of multiple image filters in order to manipulate the image. The user **201** then adjusts **304** settings of the selected image filters. The selected image filters are then applied **305** to the image. The host website determines **306** whether the user **201** is satisfied with the filter settings. If the user **201** is satisfied **306** with the filter settings, the user **201** customizes **307** the image using the adjusted settings. If the user **201** is not satisfied **306** with the filter settings the user **201** is further adjusts **304** settings of the selected filtered images. The host website then regenerates **308** the customized image for each of the adjusted settings of the image filters and displays each of the regenerated images on the host website.

The user **201** selects and adds **309** the regenerated images to the shopping cart. The user **201** further selects **310** a merchandise item onto which the customized image is to be printed. The user **201** selects **311** colors and sizes of the selected merchandise item. If the user **201** is satisfied **312** with the merchandise item with the customized image, the user **201** places **313** an order for the merchandise item. If the user **201** is not satisfied **312** with the customized image on the printable surface, the user **201** may submit **301** another image on the host website. The order is then processed **314** and the user **201** performs an online monetary transaction for purchasing the merchandise item.

Consider an example where a user **201**, for example Jason wishes to create a customized image and wishes to print the customized image of a hamburger on a T-Shirt selected by Jason. Jason accesses the host website using a web browser on his personal computer (PC). Jason submits an image of the hamburger on a web page of the host website by downloading the image from the web or uploading the image stored on his PC as illustrated in FIG. 4A. The host website applies image filters to the image and displays the filtered images along with the submitted image as illustrated in FIG. 4B. Jason may select a filtered image from the displayed filtered images. The host website then displays the selected image as illustrated in FIG. 4C.

Jason may crop the image and adjust settings of the selected image filter in order to customize the image. The host website displays the cropped image on an image of a T-shirt as illustrated in FIG. 4D. Jason may also alter the blur amount and the number of colors used in the image as illustrated in FIG. 4D. Jason may then choose a color for the T-shirt as illustrated in FIG. 4E. Jason may also choose to remove a background color from the image. Jason may select colors from a palette comprising colors of the image and make the selected colors transparent on the T-shirt. Jason may further add a text caption for the T-shirt as illustrated in FIG. 4F. Jason may also select font style, text size, color of the text and the location of the caption on the T-shirt. Jason then adds the customized image to a shopping cart as illustrated in FIGS. 4G-4H. Jason then places an order for the item printed with

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the customized image and performs an online monetary transaction for purchasing the item.

It will be readily apparent that the various methods and algorithms described herein may be implemented in a computer readable medium appropriately programmed for general purpose computers and computing devices. Typically a processor, for e.g., one or more microprocessors will receive instructions from a memory or like device, and execute those instructions, thereby performing one or more processes defined by those instructions. Further, programs that implement such methods and algorithms may be stored and transmitted using a variety of media, for e.g., computer readable media in a number of manners. In one embodiment, hard-wired circuitry or custom hardware may be used in place of, or in combination with, software instructions for implementation of the processes of various embodiments. Thus, embodiments are not limited to any specific combination of hardware and software. A 'processor' means any one or more microprocessors, Central Processing Unit (CPU) devices, computing devices, microcontrollers, digital signal processors or like devices. The term 'computer-readable medium' refers to any medium that participates in providing data, for example instructions that may be read by a computer, a processor or a like device. Such a medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media include, for example, optical or magnetic disks and other persistent memory volatile media include Dynamic Random Access Memory (DRAM), which typically constitutes the main memory. Transmission media include coaxial cables, copper wire and fiber optics, including the wires that comprise a system bus coupled to the processor. Transmission media may include or convey acoustic waves, light waves and electromagnetic emissions, such as those generated during Radio Frequency (RF) and Infrared (IR) data communications. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, any other magnetic medium, a Compact Disc-Read Only Memory (CD-ROM), Digital Versatile Disc (DVD), any other optical medium, punch cards, paper tape, any other physical medium with patterns of holes, a Random Access Memory (RAM), a Programmable Read Only Memory (PROM), an Erasable Programmable Read Only Memory (EPROM), an Electrically Erasable Programmable Read Only Memory (EEPROM), a flash memory, any other memory chip or cartridge, a carrier wave as described hereinafter, or any other medium from which a computer can read. In general, the computer-readable programs may be implemented in any programming language. Some examples of languages that can be used include C, C++, C#, or JAVA. The software programs may be stored on or in one or more mediums as an object code. A computer program product comprising computer executable instructions embodied in a computer-readable medium comprises computer parsable codes for the implementation of the processes of various embodiments.

The present invention can be configured to work in a network environment including a computer that is in communication, via a communications network, with one or more devices. The computer may communicate with the devices directly or indirectly, via a wired or wireless medium such as the Internet, Local Area Network (LAN), Wide Area Network (WAN) or Ethernet, Token Ring, or via any appropriate communications means or combination of communications means. Each of the devices may comprise computers, such as those based on the Intel® processors, AMD® processors, Sun® processors, IBM® processors etc., that are adapted to

communicate with the computer. Any number and type of machines may be in communication with the computer.

The foregoing examples have been provided merely for the purpose of explanation and are in no way to be construed as limiting of the present method and system disclosed herein. While the invention has been described with reference to various embodiments, it is understood that the words, which have been used herein, are words of description and illustration, rather than words of limitation. Further, although the invention has been described herein with reference to particular means, materials and embodiments, the invention is not intended to be limited to the particulars disclosed herein; rather, the invention extends to all functionally equivalent structures, methods and uses, such as are within the scope of the appended claims. Those skilled in the art, having the benefit of the teachings of this specification, may effect numerous modifications thereto and changes may be made without departing from the scope and spirit of the invention in its aspects.

I claim:

**1.** A computer implemented method of customizing an image to be printed on a printable surface of an item selected by a user, comprising the steps of:

submitting said image on a host website by said user;  
 selecting at least one of a plurality of image filters for the image by the user, wherein said image filters are provided on said host website;  
 adjusting settings of said selected image filters by the user, wherein the selected image filters are applied on the image;  
 said customizing of the image using one or more of said adjusted settings of the selected image filters;  
 regenerating said customized image for each of the adjusted settings of the selected image filters;  
 customizing external attributes of said item selected by the user; and  
 printing the customized image on said printable surface of the item;  
 whereby the image submitted by the user is customized and printed on the printable surface of the item selected by the user.

**2.** The computer implemented method of claim **1**, wherein the item includes a merchandise item.

**3.** The computer implemented method of claim **1**, wherein the image is obtained from a plurality of sources, wherein said sources comprise a computing device of the user, the host website, and external websites.

**4.** The computer implemented method of claim **1**, wherein said step of adjusting the image comprises setting transparency of one or more colors of the image, wherein said colors are selected from a palette comprising the colors of the image.

**5.** The computer implemented method of claim **1**, wherein said step of customizing the image comprises providing a text message with the customized image.

**6.** The computer implemented method of claim **5**, further comprising a step of editing one or more of text attributes of said text message wherein said text attributes comprise text size, text font, text color, and location of text on the printable surface.

**7.** The computer implemented method of claim **1**, wherein said step of customizing the image comprises editing one or more of image attributes wherein said image attributes com-

prise blur amount of the image, image resolution, print resolution, size of the image, location of the image on the printable surface, and number of colors in the image.

**8.** The computer implemented method of claim **1**, wherein said external attributes include size, shape, texture, material, color, and quantity of the item.

**9.** The computer implemented method of claim **1**, further comprising a step of purchasing the item with the customized image by the user through an online monetary transaction.

**10.** A computer implemented system for customizing an image to be printed on a printable surface of an item selected by a user, comprising:

an image server comprising:  
 an image submission module for submitting said image on a host website by said user;  
 an image filter module for enabling selection of at least one of a plurality of image filters for the image by the user, wherein said image filter module further enables adjustment of settings of said selected image filters by the user;  
 an image customization module for customizing the image using said adjusted settings of the selected image filters, wherein said image customization module further enables customization of external attributes of said item selected by the user;  
 an image regeneration module for regenerating said customized image for each of the adjusted settings of the selected image filters; and  
 a printing facility for printing the customized image on said printable surface of the item selected by the user.

**11.** The computer implemented system of claim **10**, wherein the image filter module is used by the user to set transparency of one or more colors of the image to be printed on the printable surface, wherein said colors are selected from a palette comprising the colors of the image.

**12.** The computer implemented system of claim **10**, further comprising a billing engine for managing and controlling an online monetary transaction performed by the user during purchase of the item with the customized image.

**13.** A computer program product comprising computer executable instructions embodied in a computer-readable medium, wherein said computer program product comprises:

a first computer parsable program code for enabling submission of an image on a host website by a user;  
 a second computer parsable program code for enabling selection of at least one of a plurality of image filters by said user, wherein said image filters are provided on said host website;  
 a third computer parsable program code for enabling adjustment of settings of said selected image filters by the user;  
 a fourth computer parsable program code for customizing said image using said adjusted settings of the selected image filters;  
 a fifth computer parsable program code for regenerating said customized image for each of the adjusted settings of the selected image filters;  
 a sixth computer parsable program code for customizing external attributes of an item selected by the user; and  
 a seventh computer parsable program code for printing the customized image on a printable surface of said item.