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	TR	ANSMITTAL LETTER TO	THE UNITED STATES	
	Ľ	ESIGNATED/ELECTED O	FFICE (DO/EO/US)	P-7751-US U S APPLICATION NO (If known, see 37 CFR 1 5)
	С	ONCERNING A FILING UI	NDER 35 U.S.C. 371	US AFFLICATION NO (IL KIOWA, SEC 37 CFK 13)
INTE	RNAT	IONAL APPLICATION NO	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
		PCT/IL2006/000281	March 1, 2006	March 1, 2005
TITL	E OF I	NVENTION DEVICES, SYSTEMS A	ND METHODS OF CAPTURING AND D	ISPLAYING APPEARANCES
APPI	ICAN	T(S) FOR DO/EO/US VILCOVSKY,	Nissi	
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1.	\boxtimes	This is a FIRST submission of items conce		
2		This is a SECOND or SUBSEQUENT subr		r 35 U S.C. 371
3	\boxtimes	This is an express request to promptly beg	in national examination procedures (35 l	JSC 371(f)) The submission must include items
		(5), (6), (9) and (21) indicated below		
4	\boxtimes	The US has been elected (PCT Article 31)		
5	\boxtimes	A copy of the International Application as f		
	_	a 🖂 is attached hereto (required only	if not communicated by the Internationa	l Bureau)
		b 🔲 has been communicated by the	International Bureau	
		c is not required, as the application	n was filed in the United States Receiving	g Office (RO/US)
6		An English language translation of the Inte		
		a is attached hereto		
		b i has been previously submitted u	nder 35 U S C 154(d)(4)	
7		Amendments to the claims of the Internation	onal Application under PCT Article 19 (35	5 U S C 371(c)(3))
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		b have been communicated by the	International Bureau	
			the time limit for making such amendmer	Is has NOT expired
		d 🔲 have not been made and will no	t be made	
8		An English language translation of the am	endments to the claims under PCT Articl	e 19 (35 U S C 371(c)(3))
9	\boxtimes	An oath or declaration of the inventor(s) (3		
10		An English language translation of the anr PCT Article 36 (35 U S C. 371(c)(5))		mination Report under
	lterr	s 11 to 20 below concern document(s) or	r information included:	
11		An Information Disclosure Statement under		
12		An assignment document for recording A	separate cover sheet in compliance with	37 CFR 3 28 and 3 31 is included
13	\boxtimes	A Preliminary Amendment		
14		An Application Data Sheet under 37 CFR	1 76	
15		A substitute specification		
16		A power of allorney and/or change of add	ress letter	
17		A computer-readable form of the sequenc	e listing in accordance with PCT Rule 13	ter 2 and 35 U S C 1821 - 1825
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19		A second copy of the English language tra	anslation of the international application u	Inder 35 U S C 154(d)(4)
20	Π	Other items or information: 1) Postcard		

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U S C 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete. including gathering information, preparing, and submitting the completed form to the USPTO Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer. U S. Patent and Trademark Office, U.S. Department of Commerce, P O Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Form PTO-1390 (REV 02-2005) page 2 of 2

DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (Under 37 CFR § 1.63; includes reference to PCT International Applications)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am an original, first and sole/ joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention <u>DEVICES</u>, <u>SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES</u>, the specification of which (check one):

ereto
erete

- was filed on as United States patent application serial number
- was filed on <u>01 March 2006</u> as an international patent application designating the United States that was assigned serial number PCT/<u>IL06/000281</u>

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including, for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below, and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application(s) on which priority is claimed.

Prior Foreign/PC	Γ Application(s):		Priority C	laimed:
Country (or PCT)	Application Number:	Filed (Day/Month/Year)	Yes	No
IL	PCT/IL06/000281	01 March 2006	x	

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in any prior United States application in the manner provided by the first paragraph of

Attomey Docket No.: P-7751-US

Title 35, United States Code, \$112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, \$1.56(a), which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

	-designating U.S.) Applicat		
U.S. Serial No :	Filed (Day/Month/Year)	PCT Application No.	Status (patented, pending abandoned)
/A	01 March 2006	PCT/1L06/000281	Pending
0/656,885	01 March 2005 01 March 2005	<u> </u>	Expired

I hereby appoint Vladimir Sherman, Registration No. 43,116; Allan C. Entis Registration No 52,866; Naim Shichrur Registration No. 56,248 or their duly appointed associate or agent, my attorney(s) and agent(s), with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to file continuation and divisional applications thereof, to receive the Patent, and to transact all business in the Patent and Trademark Office and in the Courts in connection therewith, and specify that all communications about the application are to be directed to the following correspondence address:

EMPK & Shiloh, LLP 116 John St., Suite 1201 New York, NY 10038 Direct all telephone calls to: (212) 608-4141 and all facsimiles at (212) 608-4144

Please associate this application with customer number 56639.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

INVENTOR(S):

Signature:	R.1 'D' Date: <u>30,207</u> dd/mm/yyy	
Full name of inventor: Residence: Citizenship:	 VILCOVSKY, Nissi 21 Mota Gur Street, Tel Aviv 69694, Israel Israel 	
	same as above	

Full Post Office Address:

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 8 September 2006 (08.09.2006)

- (51) International Patent Classification: G09G 5/00 (2006.01) G09G 5/08 (2006.01)
- (21) International Application Number: PCT/IL2006/000281
- (22) International Filing Date: 1 March 2006 (01.03.2006)
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- (30) Priority Data: 60/656,885 1 March 2005 (01.03.2005) US 60/656.884 1 March 2005 (01.03.2005) US
- (71) Applicant and
- (72) Inventor: VILCOVSKY, Nissi [IL/IL]; Mota Gur 21, 69694 Tel Aviv (IL).
- (74) Agent: EITAN LAW GROUP; 11 Hamenofim Street, PO Box 2081, 46120 Herzlia (IL).
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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]



(57) Abstract: Some demonstrative embodiments of the invention include systems, devices and/or methods enabling appearance comparison. The system, according to some demonstrative embodiments, may include at least one interactive imaging and display station. The station may include, for example, a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances appearing in a filed of view in front of the mirror-display device; and/or an image control unit to select the mode of operation of the mirror-display device according to a user command. Other embodiments are described and claimed.

(88) Date of publication of the international search report: 2 August 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette. WO 2006/092793

PCT/IL2006/000281

DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

5 CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application claims priority from United States Provisional Application No. 60/656,884, filed March 1, 2005; and United States Provisional Application No. 60/656,885, filed March 1, 2005, the entire disclosures of both of which are incorporated herein by reference.

10

FIELD OF THE INVENTION

[002] The invention relates generally to imaging and display systems and, more particularly, to interactive displays, e.g., in retail and/or service environments.

15 BACKGROUND OF THE INVENTION

[003] Customers may shop for consumer articles, for example, apparel such as clothes, e.g., shirts, pants, coats and other garments, as well as shoes, glasses, and/or any other items or products, such as cosmetics, furniture and the like. Shopping normally takes place at a shopping facility, for example, retail stores. Prior to making a decision which

20 article to buy a customer may try on various articles (e.g., apparel, cosmetics) and/or pose with other articles (e.g., furniture), and may view for each trial a user-appearance in front of a mirror, which may be located, for example, at a trial area of the retail store. For example, the customer may try on a first article, e.g., a suit, and view for that first trial his/her user-appearance in front of the mirror. Then, the customer may try on a second article, e.g., another suit. The customer may then need to memorize his/her user-appearance from the first trial in order to perform a mental comparison between the first article and the second article, thereby to evaluate which of the two articles might be a

better fit for the customer.

30

[004] Unfortunately, since the customer may try on numerous articles and/or since the second trial may take place a considerable amount of time after the first trial, the customer may not be able to recall his/her appearance for each trial and may therefore be

required to repeatedly retry articles, e.g., items of apparels, previously tried on. This may result in a frustrating and inefficient shopping experience.

SUMMARY OF SOME EMBODIMENTS OF THE INVENTION

5

[005] Some demonstrative embodiments of the invention include devices, systems and/or methods enabling appearance comparison.

[006] According to some demonstrative embodiments of the invention, a system enabling appearance comparison may include at least one interactive imaging and display

- 10 station. The station may include, for example, a mirror display device capable of operating in either or both a mirror or a display mode; an imaging device to capture one or more appearances from a field of view in front of the mirror-display device; and/or an image control unit to select the mode of operation the mirror display device according to a user command.
- 15 [007] According to some demonstrative embodiments of the invention the image control unit may include an input device to receive the user command.

[008] According to some demonstrative embodiments of the invention, the image control unit may include a storage device to store data of one or more images which may correspond to one or more appearances.

- 20 [009] According to some demonstrative embodiments of the invention, the mirrordisplay device may be capable of being partitioned into at least first and second simultaneously-displayable frames. The first frame may be selectably operable, for example, both in a mirror mode and a display mode. The second frame may be operable, for example, in a mirror mode.
- [0010] According to some demonstrative embodiments of the invention, the imaging device may be capable of capturing three-dimensional images of appearances.
 [0011] According to some demonstrative embodiments of the invention, the mirror-

display device may be capable of displaying images of appearances at predefined sequences.

[0012] According to some demonstrative embodiments of the invention, the image control unit may be able to selectively enable a user access to images of appearances authorized to the user, e.g., based on user-identifying data received from the user.

[0013] According to some demonstrative embodiments of the invention, the at least one interactive imaging and display system may include two or more interactive imaging and display stations able to communicate over a network. For example, the two or more stations may be able to communicate between each other data representing images of appearances.

[0014] According to some demonstrative embodiments of the invention, the image 10 control unit may control the mirror-display device to display, e.g., during the display mode, one or more images corresponding to the appearances. The one or more images may include, for example, one or more mirrored appearances.

[0015] According to some demonstrative embodiments of the invention, a method enabling appearance comparison may comprise using a mirror mode of operation of a

15 mirror-display device capable of being selectably operated in either a mirror or a display mode; capturing an image corresponding to an appearance of a first trial in front of the mirror-display device; storing the image of the first trial; selecting the display mode of operation of the mirror-display device; and/or retrieving the image of the first trial and displaying the image on the mirror-display device.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with features and advantages

5 thereof, may best be understood by reference to the following detailed description when read with the accompanied drawings in which:

[0017] Fig. 1 is a schematic illustration of an interactive system enabling appearance comparison in accordance with some demonstrative embodiments of the invention;

[0018] Figs. 2A and 2B are schematic illustrations of two, sequential, stages of
 appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

[0019] Figs. 3A, 3B and 3C are schematic illustrations of three, sequential, stages of appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

15 [0020] Fig. 4 is a schematic flow chart of a method enabling comparison of one or more user-appearances in accordance with some demonstrative embodiments of the invention.

[0021] It will be appreciated that for simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn accurately or to scale. For example,

- 20 the dimensions of some of the elements may be exaggerated relative to other elements for clarity or several physical components included in one element. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements. It will be appreciated that these figures present examples of embodiments of the present invention and are not intended to limit the scope
- 25 of the invention.

DETAILED DESCRIPTION OF SOME DEMONSTRATIVE EMBODIMENTS OF THE INVENTION

- 5 [0022] In the following description, various aspects of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without the specific details presented herein. Furthermore, some features of the invention relying on
- 10 principles and implementations known in the art may be omitted or simplified to avoid obscuring the present invention.

[0023] Some demonstrative embodiments of the invention may include an interactive system enabling a user to compare one or more appearances, for example, to compare between different appearances, e.g., as described in detail below.

- 15 [0024] The term "user-appearance" as used herein may relate to the appearance of a customer while trying a consumer article. The article may include, for example, apparel, such as clothing, shoes, glasses, garments, ties, and the like; an article, e.g., furniture, located in the vicinity of the customer; as well as other items, articles, designs or products such as, for example, cosmetics, headdresses, hair cuts.
- 20 [0025] According to some demonstrative embodiments of the invention, the system may include an imaging device able to capture user-appearances and a mirror-display device, able to operate selectably as a mirror or as a display. When in the mirror mode, the mirror-display device may enable the user to evaluate and/or view a user-appearance of a current trial of a consumer article. When in the display mode, the mirror-display
- 25 device may enable the user to evaluate and/or view one or more user-appearances, e.g., as captured by the imaging device, of a previous trial, e.g., as described in detail below.
 [0026] Reference is made to Fig. 1, which schematically illustrates an interactive

system 100 in accordance with some demonstrative embodiments of the invention.

[0027] According to some demonstrative embodiments of the invention, system 100

30 may include an interactive imaging and display station 110, which may include an image control unit 120, an imaging device 130, and a mirror-display device 140. Image control

unit 120 may include a controller 121, a network interface 122, a storage device 123, an input device 124, all of which elements are described in detail below.

[0028] Aspects of the invention are described herein in the context of demonstrative embodiments of an imaging device, e.g., imaging device 130, a mirror-display device, e.g., mirror-display device 140, and/or an image control unit, e.g., image control unit 120,

e.g., mirror-display device 140, and/or an image control unit, e.g., image control unit 120, being separate units of an appearance comparison system, e.g., system 100. However, it will be appreciated by those skilled in the art that the invention is not limited in this respect, and that according to other embodiments of the invention, the system may include any suitable configuration, combination, and/or arrangement of the imaging device, the mirror-display device, and/or the image control unit. For example, the system may include an integrated module including the mirror-display device, the imaging device and/or the image control unit. For example, the imaging

control unit may be implemented as part of the mirror-display device.
[0029] According to some demonstrative embodiments of the invention, mirror-display
device 140 may be configured and/or may include components and mechanisms allowing mirror-display device 140 to operate selectably in two modes of operation. In a first mode

- of operation (the "mirror-mode"), mirror-display device 140 may operate as a mirror. In a second mode of operation (the "display mode"), mirror-display device 140 may operate as a display. When mirror-display device 140 operates in the mirror-mode, a user 111 of system 100 may evaluate and/or view a user-appearance of a first trial of a consumer article, as may be reflected by mirror-display device 140. Imaging device 130 may capture an image of the user-appearance of the first trial. The captured image may be stored, for example, by storage device 123, e.g., as described below. User 111 may then pose in front of mirror-display device 140 trying a second article, and imaging device 130 may capture a second image of the user-appearance of the second trial. When in the
- display mode, mirror-display 140 may be controlled to display one or more of previously captured images. By virtue of the capability of mirror-display device 140 to operate selectably in the mirror or display mode, user 111 may be able to compare simultaneously or sequentially between the user-appearances of the first and second trials,
- 30 as described in detail below. In some demonstrative embodiments of the invention, e.g., as shown in Figs. 1, 2A, 2B, 3a, and/or 3B, controller 121 may control device 140 to

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display, during the display mode of operation, a mirror-image of the appearances. However, it will be appreciated by those of ordinary skill in the art that the invention is not limited in this respect, and that in other embodiments the controller may control device 140 to display, during the display mode of operation, any other image corresponding to the appearance, e.g., a rotated appearance, a revered appearance, a substantially non-altered, e.g., frontal, appearance, a rendered appearance, and the like, e.g., as described below.

[0030] Device 140 may include any suitable configuration and/or mechanism to enable selectably operating mirror-display device 140 in the first and second modes of operation.

- 10 For example, in one embodiment device 140 may include an array of liquid crystal (LC) elements, which may change their optical attributes such as, e.g., reflectivity, refractive index and the like, depending on, for example, a voltage applied to the liquid crystals. For example, applying a first voltage may result in changing the optical attributes of the liquid crystals such that mirror-display device 140 may operate as a mirror; and a second voltage may result in changing the optical such that
 - mirror-display device 140 may operate as a liquid crystal display. [0031] In another embodiment of the invention, for example, mirror-display device 140 may include a liquid crystal display (LCD) device embedded in a semi-reflective or onedirectional mirror. Accordingly, if the LCD is switched to an inactive mode of operation,
- 20 mirror-display 140 may passively reflect sufficient light incident thereon to enable the user to view user-appearances at reasonable quality and brightness. In contrast, when the LCD is turned to an active mode of operation, mirror-display device 140, images displayed by the LCD device may be viewed by user 111 because they may be significantly brighter than residual reflections from the surface of the mirror-display.
- 25 [0032] According to some demonstrative embodiments of the invention, mirror display device 140 may be implemented by a LCD HD ready mirror TV such as, for example, model No. 32PM8822/10 available from Royal Philips Electronics, e.g., as described at the Internet site <http://www.research.philips.com/newscenter/archive/2003/mirrortv.html>. Such a device may include, for example, a polymer-based organic light-emitting display (OLED).
- 30 Mirror-display device 140 may include any other suitable device implementing any suitable display technology. For example, device 140 may include a nano-emissive

display (NED); a plasma display panel (PDP); a cathode ray tube display (CRT); a Digital Light Processing (DLP) display; a surface conduction electron emitter display (SED); a Tablet screen; a flat-panel SED; an Organic electronic display; electronic paper; a 3-Dimentional display, e.g., a Hologram display; a thin film resistor (TFT) display; an

- 5 optical TFT; a Dot Matrix LED screen; an LCD having CCD capabilities, e.g., such that mirror-display 140 may be capable of performing the functionality of imaging device 130; a paintable LCD; a surface-conduction electron-emitter (SED) display; a high definition television (HDTV) display; a rear projector display device, and the like.
- [0033] According to some demonstrative embodiments of the invention, imaging device 130 may be adapted to capture one or more appearances from a Field-of-View (FOV) in front of mirror-display device 140. The FOV in front of mirror-display device 140 may include, for example, a field, area, scene, zone, and/or region in front of mirrordisplay device 140. For example, the FOV may include at least part of a field, area, scene, zone, and/or region captured by mirror-display device 140 when in the mirror mode.
- 15 [0034] Although the scope of the present invention is not limited in this respect, imaging device 130 may be or may include, for example, a CCD camera, a video camera, a camera and/or camera set-up enabling capturing of 3D-images, e.g., a stereoscopic camera and the like. A stereoscopic camera may be adapted, for example, to capture a 3-D image of the user-appearance. The stereoscopic camera may include, for example, two
- 20 lenses having a distance between each other that may correspond to a distance between two human eyes. Accordingly, the stereo camera may be able to simulate human binocular vision, also known as Stereophotography, thereby being able to capture a 3Dimage.

[0035] According to some demonstrative embodiments of the invention, station 110
may be a stand alone unit, which may be located at an appearance- comparison area of a desired location, for example, an office, a home, or a retail store, e.g., apparel store.
[0036] According to other demonstrative embodiments of the invention, station 110

may be connected, e.g., via network interface 122, to a network, for example, a network 150, thereby enabling communication between station 110 and one or more other stations

30 affiliated with network 150 such as, for example, station 160 and/or station 170.

[0037] According to some demonstrative embodiments of the invention, station 110 may include a network interface 122, which may be adapted to interact with network 150, to send and receive information from other stations in network 150, as described herein. Such information may include but is not limited to data corresponding to images of users

- 5 captured at various stations of system 100, for example, station 160 and/or 170, as well as identifying information of the users to enable secure access to the system, as described in more detail below. Network 150 may include, for example, a local area network (LAN), a wide area network (WAN), a global communication network, e.g., the Internet, a wireless communication network such as, for example, a wireless LAN (WLAN) communication
- 10 network, a Bluetooth network, a wireless virtual private network (VPN), a cellular communication network, for example, a 3rd Generation Partnership Project (3GPP), such as, for example, Frequency Domain Duplexing (FDD) network, a Global System for Mobile communications (GSM) network, a Wideband Code Division Multiple Access (WCDMA) cellular communication network, and the like.
- 15 [0038] According to some demonstrative embodiments of the invention, one or more of stations 160 and 170 may be portable devices. Non-limiting examples of such portable devices may include a mobile telephone, a laptop computer, a notebook computer, a mobile computer, a Personal Communication Systems (PCS) device Personal Digital Assistants (PDA), a wireless communication device, a PDA device which incorporates a
- 20 wireless communication device, a cellular telephone, a wireless telephone, a smart card, a token, a memory card, a memory unit, and the like. In some embodiments of the invention, one or more of stations 160 and 170 may be non-portable devices such as, for example, a desktop computer, a tablet computer, a television set, a server computer, and the like.
- 25 [0039] According to some embodiments of the invention, system 100 may also include a control center 190, which may be connected to stations 110, 160 and/or 170, e.g., via network 150. Control center 190 may receive and store data, which may represent, for example, data and/or images of user-appearances, received from one or more of stations 110, 160 and/or 170.
- 30 [0040] According to some embodiments of the invention, stations 110, 160 and/or 170 may be located at different locations such as, for example, different stores of a retail

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chain. In addition, stations 110, 160 and/or 170 may be located at different locations within a building, e.g., different floors, different sections at the same floor and the like. Such locations may include, for example, clothing stores, shoe stores, points of sale, concept showrooms, exhibitions, shopping malls, eyewear stores, cosmetic stores, sport

- 5 clubs, health institutes, fitness centers, airports, train stations, coffee shops, restaurants, hotels, homes, and the like. One or more of stations 110, 160 and 170 may also be used for interactive billboard signs. For example, imaging device 130 may, for example, capture images which may be displayed on a billboard sign (not shown). System 100 may enable user 111 to choose an image to be displayed on the billboard sign out of a plurality of images of, for example, various previous trials of apparel.
 - [0041] According to some demonstrative embodiments of the invention, images of user appearances may be viewed at different locations. For example, imaging device 130 may capture an image of the first trial. The image may then be sent from network interface 122 via network 150 using signals 151 and 152, for example, to station 160. Accordingly,
- 15 user 111 may be able to view the image of the first user-appearance at station 160. Therefore, user 111 may be able to view, for example, the user-appearance of the first trial in a first store of a retail store chain, e.g., a store associated with station 110; and may compare the user-appearance of the first trial with a user-appearance of a second trial, which may take place at a second store of the same or an affiliated chain, e.g., a
- 20 store associated with station 160; and/or at a different time, e.g., one or more hours, days or weeks after the first trial.

[0042] According to another demonstrative embodiment of the invention, imaging device 130 may capture an image of a user-appearance of a first trial, and send the image via network interface 122 over network 150 to control center 190, where the image may

25 be stored for later retrieval. Accordingly, user 111 may gain access to the images of the first trial by accessing any station, e.g., station 160, connected over network 150 with control center 190.

[0043] According to some demonstrative embodiments of the invention, storage device 123 may include, for example, a hard disk drive, a floppy disk drive, a Compact Disk

30 (CD) drive, a CD-ROM drive, a Digital Versatile Disc (DVD) drive, or other suitable removable or non-removable storage units.

[0044] According to some demonstrative embodiments of the invention, controller 121 may be or may include, for example, a Central Processing Unit (CPU), a Digital Signal Processor (DSP), a microprocessor, a controller, a chip, a microchip, an Integrated Circuit (IC), or any other suitable multi-purpose or specific processor or controller, e.g.,

5 as are known in the art.

[0045] Input device 124 may include, for example, a keyboard; a remote control; a motion sensor; a pointer device such as, for example, a laser pointer; a mouse; a touchpad; a touch screen, which may be embedded, for example, in mirror-display device 140, or may be implemented by any other suitable unit, e.g., separate from device 140; a biometric input device, e.g., a fingerprint scanner, and/or a camera for scanning a face;

10 biometric input device, e.g., a fingerprint scanner, and/or a canter for scanning a need, and/or any other suitable pointing device or input device. Input device 124 may be adapted to receive user-identifying data, for example, to enable, access, e.g., secure access, of user 111 to system 100, as described in detail below.

[0046] According to some demonstrative embodiments of the invention, user 111 may provide user commands to input device 124 for operating the imaging device 130. Input device 124 may include, for example, an interface to enable user 111 of system 100 to define operational parameters of imaging device 130. Controller 121 may receive the inputs from user 111 via signals 131 and control the operation of imaging device 130 accordingly. The user commands may include, for example, commands relating to the

- timing for capturing an image, the positioning of imaging device 130, e.g., according to an automatic tracking algorithm which may follow, for example, the position of user 111, and/or imaging attributes such as focus, camera position, capturing angle, dynamic range and the like. The user commands may also include commands to define image capturing operating modes of imaging device 130 such as, for example, a video capturing mode, a photographic mode and the like. According to some embodiments of the invention,
- imaging device 130 may include a sound input device, for example, a microphone and/or a sound output device, for example, a loudspeaker. Accordingly, imaging device may receive audio signals, e.g., voice signals generated by user 111, which may be recorded and stored, e.g., in storage device 123 and reproduce the audio signals through the sound output device. The sound output device may be able to reproduce any other kind of audio
- 30 output device. The sound output device may be able to reproduce any other kind of signals such as, radio programs, compact disc records and the like.

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[0047] According to some demonstrative embodiments of the invention, controller 121 may, for example, set the mode of operation of mirror-display device 140 according to the command received from user 111. For example, if mirror-display device 140 operates in the mirror mode, the user of system 100 may provide input device with a switching command, e.g., by pressing a designated button at input device 124, for switching mirror-display device 140 to the display mode. Controller 121 may receive the input from input device 124 and may control device 140 to switch to the display mode of operation, e.g., using signals 141.

[0048] According to some demonstrative embodiments of the invention, imaging device 130 may be mounted in various positions such as, for example, on top, below, or on the side of mirror-display device 140, thereby capturing an image of a user-appearance which may be an image of a given trial of apparel, an image of user 111 with various articles, e.g., furniture and/or posing with different garments and the like. In some embodiments of the invention, imaging device 130 may capture a user-appearance as it appears in mirror-display device 140, i.e., a mirror-image of the user-appearance. In other

- embodiments, imaging device 130 may capture the appearance, and controller 121 may generate a mirror-image corresponding to the appearance captured by imaging device 130. For example, storage 123 may store instructions that when executed by controller may result in any suitable method or algorithm of rotating, reversing, and/or mirroring the
- 20 appearance captured by imaging device 130, thereby to generate image data representing rotated, reversed, and/or mirrored image of the image captured by device 130. According to these embodiments, controller 121 may control mirror-display device 140 to display, during the display mode of operation, the rotated, reversed, and/or mirrored image. In other embodiments, controller 121 may control mirror-display device 140 to display, during the display mode of operation, an image corresponding to the image captured by device 130, e.g., a non-mirrored, non-rotated, and/or non-reversed image. In some embodiments, imaging device 130 may not be visible to user 111, may be located behind

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or may include, for example, a LCD-CCD device capable of both displaying and capturing images. For example, in one demonstrative embodiment of the invention, device 140 may include an array, screen or surface, e.g., including liquid crystals, to

display device 140, and/or may be embedded in mirror-display device 140, which may be

perform the mirror-display functionality, e.g., as described above, as well as the imaging functionality of imaging device 130, e.g., device 140 may include a mirror-imaging-display device.

[0049] In some demonstrative embodiments of the invention, one or more of stations

- 5 110, 160 and/or 170 may not include image capturing device 130; and/or one or more of stations 110, 160 and/or 170 may not include mirror-display 140. For example, a first station of system 100 may include only imaging device 130, and may not include, e.g., mirror-display device 140. User 111 may use the first station to capture the image of the first trial of the user-appearance, e.g., without being able to view at the first station the resultant image of the first trial. User 111 may later view the captured image of the first
- 10 resultant image of the first trial. User 111 may later view the captured image of the first trial at another station of system 100, which may include mirror-display device 140. [0050] According to some demonstrative embodiments of the invention, imaging device 130 may be positioned in a manner enabling capturing of an image and/or a sequence of images, videos or the like, of a scene taking place in front of mirror-display
- 15 device 140. Additionally or alternatively, imaging device 130 may positioned in a manner enabling capturing an image reflected from mirror-display device 140. For example, imaging device 130 may be able to capture an image of user 111 posing in front of mirror-display device 140. While posing in front of mirror-display device 140, user 111 may check his appearance of, e.g., a first fitting trial of clothes. According to an input
- 20 provided by user 111 at input device 124, imaging device 130 may capture the image of the user-appearance which may be, for example, a given trial of apparel, e.g., a garment and the like. It may be noted that trials by user 111 may also include user 111 engaging with various subjects, which may be located in the vicinity of user 111 such as, furniture, studio set-up and the like. Accordingly, imaging device 130 may capture images of user-
- 25 appearances of, for example, a first trial, a second trial, etc., and may send the respective captured images to storage device 123 via signals 131 and signals 30. User 111 may be able to retrieve the captured image of, e.g., the first trial, at a later time, e.g., following the second or other subsequent trials, and may compare between the first and second or other trial, e.g., as described below with reference to Figs. 2A, 2B and 2C.
- 30 [0051] According to some demonstrative embodiments of the invention, storage device 123 may be adapted to receive data representing images captured by imaging device 130,

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and to store images of appearances and, more specifically, user-appearances of, for example, given trials of apparel, captured by imaging device 130. Images of given trials of user-appearances may be retrieved from storage device 123, e.g., by controller 121, and displayed by display 140. User 111 may compare between the displayed images, e.g.,

5 as described in detail below.

[0052] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms, requiring and/or verifying user identifying data such as user-ID, password, login-time, bio-metric data and the like to enable secure access to station 110, as described in detail below. For example,

- 10 controller 121 may control mirror-display device 140 to display images corresponding to an identity of user 111, e.g., based on the identity data provided by user 111. For example, user 111 may provide input 124 with user-identifying input, which may include, for example, a biometric input such as face recognition, a hand print, a finger print, an eye print, voice recognition and the like. The user-identifying input may include any other
- 15 suitable input, for example, a credit card, a personal identification number (PIN), a password, a smart card, a customer card, a club card, or the like. Controller 121 check, e.g., based on any suitable method and/or algorithm, whether the user-identifying input provided at input device 124 matches with user-identifying data which may be stored, e.g., in storage device 123 or in control center 190. Software having the capability of verifying a biometric input may be, for example, "Active ID FaceVision technology" ®
- 20 verifying a biometric input may be, for example, "Active ID FaceVision technology of provided by Geometric Inc. If controller 121 matches the input of user 111 with the stored user-identifying data, controller 121 may enable user 111 to access data representing, for example, images of previous user-appearances of user 111.
 [0053] According to some demonstrative embodiments of the invention, storage device
- [0053] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms enabling additional system features such as, for example, rendering virtual effects on mirror-display device 140. For example, controller 121 may be able to render an image at mirror-display device 140 of user-appearances engaged and/or combined with virtual articles such as, for example, clothes, collections, headdresses, hair cuts, furniture and the like. In addition, controller
- 30 121 may be able to render an image at mirror-display device 140 of user-appearances having different body shapes for simulating, e.g., weight loss, weight gain of user 111

and the like. For example, user 111 may choose in a first trial a specific article, such as a suit out of a collection and controller 121 may virtually adjust the collection to an image of user 111 appearing in mirror-display device 140. Controller 121 may store the image of the first trial in storage device 123 and may perform the same step at a second trial. Accordingly, user 111 of system 100 may be able to compare between user-appearances

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of the first and a second trials of the collection. [0054] According to some demonstrative embodiments of the invention, controller 121 may provide, for example, image and/or video browsing capabilities, image and/or video replay functions, which capabilities and functions may be predefined by system 100 or

- may be defined, e.g., on-the-fly, according to one or more user commands received from 10 user 111 via input device 124. For example, controller 121 may be able to retrieve one or more images of previous user-appearances and display the images on mirror-display device 140 at various sequences. For example, images from previous trials may be displayed in a substantially continuous forward, backwards, or mixed, e.g., randomly-
- accessible, sequence, and/or may be a stepwise sequence or in any other sequence. 15 Furthermore, images from previous trials may be displayed simultaneously at mirrordisplay device 140, e.g., as described below. Controller 121 may also be able to delete previously captured user-appearances, limit the amount of data which may be saved in storage device 123 and the like, and may further control a shape, size, color, etc., of the image displayed on mirror-display device 140. 20
- According to some demonstrative embodiments of the invention, user 111 may [0055] use a portable storage device 180 able to store one or more of the captured images. The portable storage device may include any suitable portable storage device, e.g., a smartcard, a disk-on-key device, and the like. User 111 may download, for example,
- images represented by, .e.g., signals 50, of a first trial of user-appearances from storage 25 device 123, e.g., via a storage interface 125 or via any other suitable data connection. User 111 may then upload at a later time the image of, e.g., the first trial, to another location, e.g., a home of user 111, or another station of system 100, e.g., station 170. [0056] In some embodiments of the invention, station 110 may include more than one mirror-display device or may include a mirror-display device 140, which may be
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partitioned simultaneously into two frames as described hereinafter with reference to Figs. 2A and 2B.

[0057] According to some demonstrative embodiments of the invention, controller 121 may record or store, e.g., in storage 123, parameters characterizing user 111. For example,

5 system 100 may include a weighing machine, connected to, e.g., storage device 123 via controller 121. Controller 121 may be able to record, for example, a weight of user 111 during, for example, a trial of an article. Accordingly, user 111 may later retrieve the parameter which may be, for example, the weight of user 111.

[0058] Reference is now made to Figs 2A and 2B, which schematically illustrate stages
of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.

[0059] According to some demonstrative embodiments of the invention, mirror-display device 140 may be partitioned into two frames, wherein one frame may operate as a mirror frame 191 and another frame 192 may operate selectably as a mirror and as a

- display frame. As shown in Fig. 2A, user 111 may pose in front of mirror frame 191 a first trial, which may be captured by imaging device 130 and stored in storage device 123. Henceforward, as indicated in Fig. 2B, user 111 may view simultaneously in mirror frame 192 the image of the user-appearance of the first trial and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), side-by-side with the normal mirror appearance of a second trial,
- 20 network 150 (Fig. 1), side-by-side with the normal mirror appearance of a second that, and compare between the first and the second trial. [0060] Reference is now made to Figs. 3A, 3B and 3C, which schematically illustrate three, sequential, stages of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.
- 25 [0061] As shown in Fig. 3A, the user of system 100 may view a first trial of a userappearance in mirror-display device 140 operating in its mirror mode. Controller 121 may receive, e.g., from input device 124, a user input, which may include a request to use imaging device 130 for capturing a first trial of the user-appearance. As a result, imaging device 130 may capture an image of the first trial of the user-appearance and storage
- 30 device 123 may store the captured image.

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[0062] As shown in Fig. 3B, user 111 may view a second trial of his user-appearance in mirror-display device 140, which may operate in the mirror mode of operation. Then, when user 111 desires to view a previous appearance, e.g., for comparison, controller 121 may receive a user input via input device 124 requesting to view the first trial. At this

- 5 point, as shown in Fig. 3C, controller 121 may change the operational mode of mirrordisplay device 140 to the display mode using signals 141. Controller 121 may also control device 140 to display the first trial. Therefore, by switching between operating modes of mirror-display device 140, user 111 may compare the user-appearance of the second trial with the user-appearance of the first trial and/or any other user-appearances 10 previously stored in storage device 123.
- [0063] Reference is now made to Fig. 4, which schematically illustrates a flow-chart of a method enabling comparing between one or more various appearances in accordance with some demonstrative embodiments of the invention. Although the invention is not limited in this respect, one or more operations of the method of Fig. 4 may be performed
- by one or more elements of system 100 (Fig. 1).
 [0064] As indicated at block 410, the method may include, for example, setting the operating mode of a mirror-display device. For example, user 111 (Fig. 1) may initially set the operating mode of mirror-display device 140 (Fig. 1) to the mirror mode. Alternatively, display 140 (Fig. 1) may be designed to operate in the mirror mode by default whenever a new user logs into system 100 (Fig. 1).
- 20 default whenever a new user logs into system 100 (Fig. 1). [0065] As indicated at block 420, the method may also include, for example, posing in front of the mirror-display device. For example, user 111 (Fig. 1) may pose in front of mirror-display device 140 (Fig. 1) and check the user-appearance of a first trial of, e.g., clothing, shoes and/or any other apparel.
- 25 [0066] As indicated at block 430, the method may also include, for example, capturing an image of the user-appearance of the first trial. For example, user 111 (Fig. 1) may provide user command to device 120 (Fig. 1) commanding imaging device 130 (Fig. 1) to capture an image of the user-appearance of the first trial.
- [0067] As indicated at block 440, the method may also include, for example, posing in
 front of the mirror-display device in a different user-appearance. For example, user 111
 (Fig. 1) may change one or more items of environment such as, for example, furniture

and/or apparel, pose once again in front of mirror-display device 140 which may operate in mirror mode, and view a second user-appearance.

[0068] As indicated at block 450, the method may also include, for example, switching between operating modes of the mirror-display device. For example, user 111 (Fig. 1)

- 5 may switch mirror-display device 140 (Fig. 1) between the mirror and the display mode. Accordingly, user 111 (Fig. 1) may be able to compare between the user-appearance of the first trial, and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), and the user-appearance of the second trial.
- 10 [0069] According to some demonstrative embodiments of the invention, user 111 (Fig. 1) may indicate, and/or station 110 (Fig. 1) may be able to store, e.g., automatically, for each trial parameters, e.g., including shopping parameters, such as, for example, name of store, address of store, price, time and/or date of trial of apparel, name of salesperson, and the like. User 111 (Fig.1) may, for example, store the captured images of user-
- 15 appearances in a removable or portable storage device, e.g., as described above with reference to Fig. 1, and may later review images of user-appearances while being able to ascribe every image to, e.g., a specific store and the like. In addition, user 111 may define, and/or controller 121 (Fig. 1) may be able to generate, and/or store in storage device 123 reminders, for example, alarms about, e.g., discounts, end of season sales and the like.
- 20 [0070] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents may occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

CLAIMS

[0071] What is claimed is:

- 1. A system to enable appearance comparison, the system comprising:
- at least one interactive imaging and display station, the station comprising: a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode;

an imaging device to capture one or more appearances from a field-of-view in front of said mirror-display device; and

an image control unit to select the mode of operation of said mirror-display device according to a user command.

- 2. The system of claim 1, wherein said image control unit includes an input device to receive said user command from a user.
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- 3. The system of claim 1, wherein said image control unit includes a storage device to store one or more images corresponding to said one or more appearances.
- 4. The system of claim 1, wherein said mirror-display device is capable of being partitioned into at least first and second simultaneously-displayable frames, the first frame selectably operable both in a mirror mode and a display mode, and the second frame operable in a mirror mode.
 - 5. The system of claim 1, wherein said imaging device is capable of capturing threedimensional images of said appearances.
 - 6. The system of claim 1, wherein said mirror-display device is capable of displaying images of appearances at predefined sequences.

- 7. The system of claim 1, wherein said image control unit is able to selectively enable a user to access images of appearances authorized to said user, based on user-identifying input received from said user.
- 5 8. The system of claim 1, wherein said at least one interactive imaging and display station comprises two or more interactive imaging and display stations able to communicate over a network.
 - 9. The system of claim 8, wherein said two or more stations are able to communicate between each other data representing images of appearances.
 - 10. The system of claim 1, wherein said image control unit is able to control said mirror display device to display, during said display mode, one or more images corresponding to said appearances.
- 15

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- 11. The system of claim 10, wherein the one or more images comprise one or more mirrored appearances.
- 12. A method to enable appearance comparison, the method comprising:
- using a mirror mode of operation of a mirror-display device capable of being selectably operated in either a mirror mode or a display mode; capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device; storing said image;
 selecting the display mode of operation of said mirror-display device;
 - selecting the display mode of operation of said mirror-display device; retrieving said image and displaying the image on said mirror-display device.



FIG.1









FIG.4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL06/00281

A. CLASSIFICATION OF SUBJECT MATTER IPC: **G09G 5/00**(2006.01),**5/08**(2006.01)

USPC: 345/156-162,204-215

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) U.S. : 345/156-162, 204-215

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

1				
C. DOC	UMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where a	the relevant passages	Relevant to claim No.	
X	US 20030085866 A1 (BIMBER et al) 08 May 2003 Paragraph 0063-0137.	, Figures 1-2	3;	1-12
Further	r documents are listed in the continuation of Box C.	Se Se	e patent family annex.	
"A" documen particulat "E" earlier ap "L" documen establish specified "O" documen "P" documen	special categories of cited documents: at defining the general state of the art which is not considered to be of relevance pplication or patent published on or after the international filing date at which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as) at referring to an oral disclosure, use, exhibition or other means at published prior to the international filing date but later than the late claimed	d "X" d c: "Y" d c: c: b	ter document published after the inter- ate and not in conflict with the applica inciple or theory underlying the inven ocument of particular relevance; the cl onsidered novel or cannot be considered hen the document is taken alone ocument of particular relevance; the cl onsidered to involve an inventive step ombined with one or more other such a eing obvious to a person skilled in the ocument member of the same patent for	tion but cited to understand the tion aimed invention cannot be ed to involve an inventive step aimed invention cannot be when the document is documents, such combination art
Date of the a	ctual completion of the international search	Date of mai	ling of the international search	report
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Ma Cor P.C Ale	ailing address of the ISA/US iil Stop PCT, Attn: ISA/US mmissioner for Patents D. Box 1450 xcandria, Virginia 22313-1450 D. (571) 273-3201	Authorized VIJAY SH Telephone I		

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Attorney Docket No.: P-7751-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	VILCOVSKY, Nissi	Examiner:	Not yet	assigned	
Serial No.:	Not yet assigned	Group Art Unit:	Not yet	assigned	
Filed:	Herewith				
Title:	DEVICES, SYSTEMS DISPLAYING APPEARAN	AND METHODS VCES	S OF	CAPTURING	AND

PRELIMINARY AMENDMENT

Mail Stop Amendment Commissioner for Patents P. O. Box 1450 Alexandria, VA 22313-1450

Sir:

Prior to Examination, kindly amend the above-identified application as follows:

Amendments to the Specification begin on page 2 of this Amendment.

Remarks/Arguments begin on page 3 of this paper.

APPLICANT(S):VILCOVSKY, NissiSERIAL NO.:Not yet assignedFILED:HerewithPage 2

AMENDMENTS TO SPECIFICATION

In the Specification:

On page 1, line 5; please amend the Cross Reference as follows:

-- CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application is a National Phase Application of PCT International Application No. PCT/IL06/000281, International Filing Date March 1, 2006, which claims priority from the benefit of United States Provisional Application No. 60/656,884, filed March 1, 2005; and United States Provisional Application No. 60/656,885, filed March 1, 2005, the entire disclosures of both all_of which are incorporated herein by reference.--

APPLICANT(S): VILCOVSKY, Nissi SERIAL NO.: Not yet assigned FILED: Herewith Page 3

REMARKS

Applicants request entry of the Preliminary Amendment.

Applicant has amended the Cross Reference to properly reflect the claimed priorities of the current filed application. No new mater has been added by this amendment.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below.

No fees are due, however, if any fee is due, the undersigned hereby authorizes the United States Patent and Trademark Office to charge the fees to Deposit Account 50-3400.

Respectfully submitted Nain Shichrur Attorney for Applicant(s) Registration No. 56,248

Dated: August 30, 2007

EMPK & Shiloh, LLP

116 John St., Suite 1201 New York, NY 10038 General Phone: (212) 608-4141 Facsimile: (212) 608-4144
Electronic Patent A	Application Fe	e Transn	nittal		
Application Number:					
Filing Date:					
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES				
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Natl Stage Exam Fee - all other cases	2633	1	100	100	
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Petition:					
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Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
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1		P-7751-US-APP-30AUG07.p	1636404	VOS	24
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	Document De	scription	Start	E	nd
	Transmittal of Nev	Application	1	:	2
	Oath or Declara	ation filed	3		4
	Abstrac	ot	5		6
	Specifica	7	24		
	Claims	25	26		
	Drawing	27	30		
	Documents submitted wi	th 371 Applications	31	31	
	Preliminary Am	32	32		
	Specifica	33	33		
	Applicant Arguments/Remarks	34	34		
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8458	no	2
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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(54) Title: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

100 -110 30 120 140 -121 10 CONTROLLER 141 -122111 NETWORK INTERFACE -123 STORAGE DEVICE -124 INPUT DEVICE 50 -125 PORTABLE STORAGE INTERFACE STORAGE DEVICE ~180 151 150 -190 CONTROL. CENTER NETWORK -160 -170 STATION STATION

(57) Abstract: Some demonstrative embodiments of the invention include systems, devices and/or methods enabling appearance comparison. The system, according to some demonstrative embodiments, may include at least one interactive imaging and display station. The station may include, for example, a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances appearing in a filed of view in front of the mirror-display device; and/or an image control unit to select the mode of operation of the mirror-display device according to a user command. Other embodiments are described and claimed.

> Meta's Exhibit No. 1010 Page 0042

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PCT/IL2006/000281

DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

5 CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application claims priority from United States Provisional Application No. 60/656,884, filed March 1, 2005; and United States Provisional Application No. 60/656,885, filed March 1, 2005, the entire disclosures of both of which are incorporated herein by reference.

10

FIELD OF THE INVENTION

[002] The invention relates generally to imaging and display systems and, more particularly, to interactive displays, e.g., in retail and/or service environments.

15 BACKGROUND OF THE INVENTION

[003] Customers may shop for consumer articles, for example, apparel such as clothes, e.g., shirts, pants, coats and other garments, as well as shoes, glasses, and/or any other items or products, such as cosmetics, furniture and the like. Shopping normally takes place at a shopping facility, for example, retail stores. Prior to making a decision which

article to buy a customer may try on various articles (e.g., apparel, cosmetics) and/or pose with other articles (e.g., furniture), and may view for each trial a user-appearance in front of a mirror, which may be located, for example, at a trial area of the retail store. For example, the customer may try on a first article, e.g., a suit, and view for that first trial his/her user-appearance in front of the mirror. Then, the customer may try on a second article, e.g., another suit. The customer may then need to memorize his/her user-appearance from the first trial in order to perform a mental comparison between the first article and the second article, thereby to evaluate which of the two articles might be a

better fit for the customer.

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[004] Unfortunately, since the customer may try on numerous articles and/or since the second trial may take place a considerable amount of time after the first trial, the customer may not be able to recall his/her appearance for each trial and may therefore be

required to repeatedly retry articles, e.g., items of apparels, previously tried on. This may result in a frustrating and inefficient shopping experience.

SUMMARY OF SOME EMBODIMENTS OF THE INVENTION

5

[005] Some demonstrative embodiments of the invention include devices, systems and/or methods enabling appearance comparison.

[006] According to some demonstrative embodiments of the invention, a system enabling appearance comparison may include at least one interactive imaging and display

- 10 station. The station may include, for example, a mirror display device capable of operating in either or both a mirror or a display mode; an imaging device to capture one or more appearances from a field of view in front of the mirror-display device; and/or an image control unit to select the mode of operation the mirror display device according to a user command.
- 15 [007] According to some demonstrative embodiments of the invention the image control unit may include an input device to receive the user command.

[008] According to some demonstrative embodiments of the invention, the image control unit may include a storage device to store data of one or more images which may correspond to one or more appearances.

- 20 [009] According to some demonstrative embodiments of the invention, the mirrordisplay device may be capable of being partitioned into at least first and second simultaneously-displayable frames. The first frame may be selectably operable, for example, both in a mirror mode and a display mode. The second frame may be operable, for example, in a mirror mode.
- [0010] According to some demonstrative embodiments of the invention, the imaging device may be capable of capturing three-dimensional images of appearances.
 [0011] According to some demonstrative embodiments of the invention, the mirror-display device may be capable of displaying images of appearances at predefined

sequences.

[0012] According to some demonstrative embodiments of the invention, the image control unit may be able to selectively enable a user access to images of appearances authorized to the user, e.g., based on user-identifying data received from the user.

[0013] According to some demonstrative embodiments of the invention, the at least one interactive imaging and display system may include two or more interactive imaging and display stations able to communicate over a network. For example, the two or more stations may be able to communicate between each other data representing images of appearances.

[0014] According to some demonstrative embodiments of the invention, the image
 control unit may control the mirror-display device to display, e.g., during the display
 mode, one or more images corresponding to the appearances. The one or more images
 may include, for example, one or more mirrored appearances.

[0015] According to some demonstrative embodiments of the invention, a method enabling appearance comparison may comprise using a mirror mode of operation of a

15 mirror-display device capable of being selectably operated in either a mirror or a display mode; capturing an image corresponding to an appearance of a first trial in front of the mirror-display device; storing the image of the first trial; selecting the display mode of operation of the mirror-display device; and/or retrieving the image of the first trial and displaying the image on the mirror-display device.

20

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with features and advantages

5 thereof, may best be understood by reference to the following detailed description when read with the accompanied drawings in which:

[0017] Fig. 1 is a schematic illustration of an interactive system enabling appearance comparison in accordance with some demonstrative embodiments of the invention;

[0018] Figs. 2A and 2B are schematic illustrations of two, sequential, stages of 10 appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

[0019] Figs. 3A, 3B and 3C are schematic illustrations of three, sequential, stages of appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

15 [0020] Fig. 4 is a schematic flow chart of a method enabling comparison of one or more user-appearances in accordance with some demonstrative embodiments of the invention.

[0021] It will be appreciated that for simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn accurately or to scale. For example,

- 20 the dimensions of some of the elements may be exaggerated relative to other elements for clarity or several physical components included in one element. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements. It will be appreciated that these figures present examples of embodiments of the present invention and are not intended to limit the scope
- 25 of the invention.

Meta's Exhibit No. 1010 Page 0046

DETAILED DESCRIPTION OF SOME DEMONSTRATIVE EMBODIMENTS OF THE INVENTION

- 5 [0022] In the following description, various aspects of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without the specific details presented herein. Furthermore, some features of the invention relying on
- 10 principles and implementations known in the art may be omitted or simplified to avoid obscuring the present invention.

[0023] Some demonstrative embodiments of the invention may include an interactive system enabling a user to compare one or more appearances, for example, to compare between different appearances, e.g., as described in detail below.

- 15 [0024] The term "user-appearance" as used herein may relate to the appearance of a customer while trying a consumer article. The article may include, for example, apparel, such as clothing, shoes, glasses, garments, ties, and the like; an article, e.g., furniture, located in the vicinity of the customer; as well as other items, articles, designs or products such as, for example, cosmetics, headdresses, hair cuts.
- 20 [0025] According to some demonstrative embodiments of the invention, the system may include an imaging device able to capture user-appearances and a mirror-display device, able to operate selectably as a mirror or as a display. When in the mirror mode, the mirror-display device may enable the user to evaluate and/or view a user-appearance of a current trial of a consumer article. When in the display mode, the mirror-display
- 25 device may enable the user to evaluate and/or view one or more user-appearances, e.g., as captured by the imaging device, of a previous trial, e.g., as described in detail below.
 [0026] Reference is made to Fig. 1, which schematically illustrates an interactive

system 100 in accordance with some demonstrative embodiments of the invention.

[0027] According to some demonstrative embodiments of the invention, system 100

30 may include an interactive imaging and display station 110, which may include an image control unit 120, an imaging device 130, and a mirror-display device 140. Image control

unit 120 may include a controller 121, a network interface 122, a storage device 123, an input device 124, all of which elements are described in detail below.

[0028] Aspects of the invention are described herein in the context of demonstrative embodiments of an imaging device, e.g., imaging device 130, a mirror-display device,

e.g., mirror-display device 140, and/or an image control unit, e.g., image control unit 120, being separate units of an appearance comparison system, e.g., system 100. However, it will be appreciated by those skilled in the art that the invention is not limited in this respect, and that according to other embodiments of the invention, the system may include any suitable configuration, combination, and/or arrangement of the imaging device, the mirror-display device, and/or the image control unit. For example, the system may include an integrated module including the mirror-display device, the imaging device and/or the image control unit. For example, the imaging

control unit may be implemented as part of the mirror-display device. [0029] According to some demonstrative embodiments of the invention, mirror-display

- 15 device 140 may be configured and/or may include components and mechanisms allowing mirror-display device 140 to operate selectably in two modes of operation. In a first mode of operation (the "mirror-mode"), mirror-display device 140 may operate as a mirror. In a second mode of operation (the "display mode"), mirror-display device 140 may operate as a display. When mirror-display device 140 operates in the mirror-mode, a user 111 of system 100 may evaluate and/or view a user-appearance of a first trial of a consumer article, as may be reflected by mirror-display device 140. Imaging device 130 may capture an image of the user-appearance of the first trial. The captured image may be stored, for example, by storage device 123, e.g., as described below. User 111 may then
- 25 may capture a second image of the user-appearance of the second trial. When in the display mode, mirror-display 140 may be controlled to display one or more of previously captured images. By virtue of the capability of mirror-display device 140 to operate selectably in the mirror or display mode, user 111 may be able to compare simultaneously or sequentially between the user-appearances of the first and second trials,

pose in front of mirror-display device 140 trying a second article, and imaging device 130

30 as described in detail below. In some demonstrative embodiments of the invention, e.g., as shown in Figs. 1, 2A, 2B, 3a, and/or 3B, controller 121 may control device 140 to

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display, during the display mode of operation, a mirror-image of the appearances. However, it will be appreciated by those of ordinary skill in the art that the invention is not limited in this respect, and that in other embodiments the controller may control device 140 to display, during the display mode of operation, any other image corresponding to the appearance, e.g., a rotated appearance, a revered appearance, a substantially non-altered, e.g., frontal, appearance, a rendered appearance, and the like, e.g., as described below.

[0030] Device 140 may include any suitable configuration and/or mechanism to enable selectably operating mirror-display device 140 in the first and second modes of operation.

10 For example, in one embodiment device 140 may include an array of liquid crystal (LC) elements, which may change their optical attributes such as, e.g., reflectivity, refractive index and the like, depending on, for example, a voltage applied to the liquid crystals. For example, applying a first voltage may result in changing the optical attributes of the liquid crystals such that mirror-display device 140 may operate as a mirror; and a second voltage may result in changing the optical such that

wondge may result in things of a second provide the invention of the invention, for example, mirror-display device 140 may include a liquid crystal display (LCD) device embedded in a semi-reflective or one-directional mirror. Accordingly, if the LCD is switched to an inactive mode of operation,

- 20 mirror-display 140 may passively reflect sufficient light incident thereon to enable the user to view user-appearances at reasonable quality and brightness. In contrast, when the LCD is turned to an active mode of operation, mirror-display device 140, images displayed by the LCD device may be viewed by user 111 because they may be significantly brighter than residual reflections from the surface of the mirror-display.
- 25 [0032] According to some demonstrative embodiments of the invention, mirror display device 140 may be implemented by a LCD HD ready mirror TV such as, for example, model No. 32PM8822/10 available from Royal Philips Electronics, e.g., as described at the Internet site <http://www.research.philips.com/newscenter/archive/2003/mirrortv.html>. Such a device may include, for example, a polymer-based organic light-emitting display (OLED).
- 30 Mirror-display device 140 may include any other suitable device implementing any suitable display technology. For example, device 140 may include a nano-emissive

display (NED); a plasma display panel (PDP); a cathode ray tube display (CRT); a Digital Light Processing (DLP) display; a surface conduction electron emitter display (SED); a Tablet screen; a flat-panel SED; an Organic electronic display; electronic paper; a 3-Dimentional display, e.g., a Hologram display; a thin film resistor (TFT) display; an

- 5 optical TFT; a Dot Matrix LED screen; an LCD having CCD capabilities, e.g., such that mirror-display 140 may be capable of performing the functionality of imaging device 130; a paintable LCD; a surface-conduction electron-emitter (SED) display; a high definition television (HDTV) display; a rear projector display device, and the like.
- [0033] According to some demonstrative embodiments of the invention, imaging device 130 may be adapted to capture one or more appearances from a Field-of-View (FOV) in front of mirror-display device 140. The FOV in front of mirror-display device 140 may include, for example, a field, area, scene, zone, and/or region in front of mirrordisplay device 140. For example, the FOV may include at least part of a field, area, scene, zone, and/or region captured by mirror-display device 140 when in the mirror mode.
- 15 [0034] Although the scope of the present invention is not limited in this respect, imaging device 130 may be or may include, for example, a CCD camera, a video camera, a camera and/or camera set-up enabling capturing of 3D-images, e.g., a stereoscopic camera and the like. A stereoscopic camera may be adapted, for example, to capture a 3-D image of the user-appearance. The stereoscopic camera may include, for example, two
- 20 lenses having a distance between each other that may correspond to a distance between two human eyes. Accordingly, the stereo camera may be able to simulate human binocular vision, also known as Stereophotography, thereby being able to capture a 3Dimage.

[0035] According to some demonstrative embodiments of the invention, station 110
 may be a stand alone unit, which may be located at an appearance- comparison area of a desired location, for example, an office, a home, or a retail store, e.g., apparel store.

[0036] According to other demonstrative embodiments of the invention, station 110 may be connected, e.g., via network interface 122, to a network, for example, a network 150, thereby enabling communication between station 110 and one or more other stations

30 affiliated with network 150 such as, for example, station 160 and/or station 170.

[0037] According to some demonstrative embodiments of the invention, station 110 may include a network interface 122, which may be adapted to interact with network 150, to send and receive information from other stations in network 150, as described herein. Such information may include but is not limited to data corresponding to images of users

- 5 captured at various stations of system 100, for example, station 160 and/or 170, as well as identifying information of the users to enable secure access to the system, as described in more detail below. Network 150 may include, for example, a local area network (LAN), a wide area network (WAN), a global communication network, e.g., the Internet, a wireless communication network such as, for example, a wireless LAN (WLAN) communication
- 10 network, a Bluetooth network, a wireless virtual private network (VPN), a cellular communication network, for example, a 3rd Generation Partnership Project (3GPP), such as, for example, Frequency Domain Duplexing (FDD) network, a Global System for Mobile communications (GSM) network, a Wideband Code Division Multiple Access (WCDMA) cellular communication network, and the like.
- 15 [0038] According to some demonstrative embodiments of the invention, one or more of stations 160 and 170 may be portable devices. Non-limiting examples of such portable devices may include a mobile telephone, a laptop computer, a notebook computer, a mobile computer, a Personal Communication Systems (PCS) device Personal Digital Assistants (PDA), a wireless communication device, a PDA device which incorporates a
- 20 wireless communication device, a cellular telephone, a wireless telephone, a smart card, a token, a memory card, a memory unit, and the like. In some embodiments of the invention, one or more of stations 160 and 170 may be non-portable devices such as, for example, a desktop computer, a tablet computer, a television set, a server computer, and the like.
- 25 [0039] According to some embodiments of the invention, system 100 may also include a control center 190, which may be connected to stations 110, 160 and/or 170, e.g., via network 150. Control center 190 may receive and store data, which may represent, for example, data and/or images of user-appearances, received from one or more of stations 110, 160 and/or 170.
- 30 [0040] According to some embodiments of the invention, stations 110, 160 and/or 170 may be located at different locations such as, for example, different stores of a retail

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chain. In addition, stations 110, 160 and/or 170 may be located at different locations within a building, e.g., different floors, different sections at the same floor and the like. Such locations may include, for example, clothing stores, shoe stores, points of sale, concept showrooms, exhibitions, shopping malls, eyewear stores, cosmetic stores, sport

5 clubs, health institutes, fitness centers, airports, train stations, coffee shops, restaurants, hotels, homes, and the like. One or more of stations 110, 160 and 170 may also be used for interactive billboard signs. For example, imaging device 130 may, for example, capture images which may be displayed on a billboard sign (not shown). System 100 may enable user 111 to choose an image to be displayed on the billboard sign out of a plurality of images of, for example, various previous trials of apparel.

[0041] According to some demonstrative embodiments of the invention, images of user appearances may be viewed at different locations. For example, imaging device 130 may capture an image of the first trial. The image may then be sent from network interface 122 via network 150 using signals 151 and 152, for example, to station 160. Accordingly,

- 15 user 111 may be able to view the image of the first user-appearance at station 160. Therefore, user 111 may be able to view, for example, the user-appearance of the first trial in a first store of a retail store chain, e.g., a store associated with station 110; and may compare the user-appearance of the first trial with a user-appearance of a second trial, which may take place at a second store of the same or an affiliated chain, e.g., a
- 20 store associated with station 160; and/or at a different time, e.g., one or more hours, days or weeks after the first trial.

[0042] According to another demonstrative embodiment of the invention, imaging device 130 may capture an image of a user-appearance of a first trial, and send the image via network interface 122 over network 150 to control center 190, where the image may

25 be stored for later retrieval. Accordingly, user 111 may gain access to the images of the first trial by accessing any station, e.g., station 160, connected over network 150 with control center 190.

[0043] According to some demonstrative embodiments of the invention, storage device 123 may include, for example, a hard disk drive, a floppy disk drive, a Compact Disk

30 (CD) drive, a CD-ROM drive, a Digital Versatile Disc (DVD) drive, or other suitable removable or non-removable storage units.

[0044] According to some demonstrative embodiments of the invention, controller 121 may be or may include, for example, a Central Processing Unit (CPU), a Digital Signal Processor (DSP), a microprocessor, a controller, a chip, a microchip, an Integrated Circuit (IC), or any other suitable multi-purpose or specific processor or controller, e.g.,

5 as are known in the art.

[0045] Input device 124 may include, for example, a keyboard; a remote control; a motion sensor; a pointer device such as, for example, a laser pointer; a mouse; a touchpad; a touch screen, which may be embedded, for example, in mirror-display device 140, or may be implemented by any other suitable unit, e.g., separate from device 140; a biometric input device, e.g., a fingerprint scanner, and/or a camera for scanning a face;

- 10 biometric input device, e.g., a fingerprint scanner, and/or a cantera for scanning a face, and/or any other suitable pointing device or input device. Input device 124 may be adapted to receive user-identifying data, for example, to enable, access, e.g., secure access, of user 111 to system 100, as described in detail below.
- [0046] According to some demonstrative embodiments of the invention, user 111 may 15 provide user commands to input device 124 for operating the imaging device 130. Input device 124 may include, for example, an interface to enable user 111 of system 100 to define operational parameters of imaging device 130. Controller 121 may receive the inputs from user 111 via signals 131 and control the operation of imaging device 130 accordingly. The user commands may include, for example, commands relating to the
- timing for capturing an image, the positioning of imaging device 130, e.g., according to an automatic tracking algorithm which may follow, for example, the position of user 111, and/or imaging attributes such as focus, camera position, capturing angle, dynamic range and the like. The user commands may also include commands to define image capturing operating modes of imaging device 130 such as, for example, a video capturing mode, a photographic mode and the like. According to some embodiments of the invention, imaging device 130 may include a sound input device, for example, a microphone and/or a sound output device, for example, a loudspeaker. Accordingly, imaging device may
- receive audio signals, e.g., voice signals generated by user 111, which may be recorded and stored, e.g., in storage device 123 and reproduce the audio signals through the sound output device. The sound output device may be able to reproduce any other kind of audio signals such as, radio programs, compact disc records and the like.

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[0047] According to some demonstrative embodiments of the invention, controller 121 may, for example, set the mode of operation of mirror-display device 140 according to the command received from user 111. For example, if mirror-display device 140 operates in the mirror mode, the user of system 100 may provide input device with a switching command, e.g., by pressing a designated button at input device 124, for switching mirror-

display device 140 to the display mode. Controller 121 may receive the input from input device 124 and may control device 140 to switch to the display mode of operation, e.g., using signals 141.

[0048] According to some demonstrative embodiments of the invention, imaging device 130 may be mounted in various positions such as, for example, on top, below, or on the side of mirror-display device 140, thereby capturing an image of a user-appearance which may be an image of a given trial of apparel, an image of user 111 with various articles, e.g., furniture and/or posing with different garments and the like. In some embodiments of the invention, imaging device 130 may capture a user-appearance as it appears in mirror-display device 140, i.e., a mirror-image of the user-appearance. In other embodiments, imaging device 130 may capture the appearance, and controller 121 may generate a mirror-image corresponding to the appearance captured by imaging device 130. For example, storage 123 may store instructions that when executed by controller may

20 appearance captured by imaging device 130, thereby to generate image data representing rotated, reversed, and/or mirrored image of the image captured by device 130. According to these embodiments, controller 121 may control mirror-display device 140 to display, during the display mode of operation, the rotated, reversed, and/or mirrored image. In other embodiments, controller 121 may control mirror-display device 140 to display,

result in any suitable method or algorithm of rotating, reversing, and/or mirroring the

during the display mode of operation, an image corresponding to the image captured by device 130, e.g., a non-mirrored, non-rotated, and/or non-reversed image. In some embodiments, imaging device 130 may not be visible to user 111, may be located behind display device 140, and/or may be embedded in mirror-display device 140, which may be or may include, for example, a LCD-CCD device capable of both displaying and capturing images. For example, in one demonstrative embodiment of the invention, device 140 may include an array, screen or surface, e.g., including liquid crystals, to

perform the mirror-display functionality, e.g., as described above, as well as the imaging functionality of imaging device 130, e.g., device 140 may include a mirror-imaging-display device.

[0049] In some demonstrative embodiments of the invention, one or more of stations

- 5 110, 160 and/or 170 may not include image capturing device 130; and/or one or more of stations 110, 160 and/or 170 may not include mirror-display 140. For example, a first station of system 100 may include only imaging device 130, and may not include, e.g., mirror-display device 140. User 111 may use the first station to capture the image of the first trial of the user-appearance, e.g., without being able to view at the first station the resultant image of the first trial. User 111 may later view the captured image of the first
- 10 resultant image of the first trial. User 111 may later view the captured image of the first trial at another station of system 100, which may include mirror-display device 140. [0050] According to some demonstrative embodiments of the invention, imaging device 130 may be positioned in a manner enabling capturing of an image and/or a sequence of images, videos or the like, of a scene taking place in front of mirror-display
- 15 device 140. Additionally or alternatively, imaging device 130 may positioned in a manner enabling capturing an image reflected from mirror-display device 140. For example, imaging device 130 may be able to capture an image of user 111 posing in front of mirror-display device 140. While posing in front of mirror-display device 140, user 111 may check his appearance of, e.g., a first fitting trial of clothes. According to an input
- 20 provided by user 111 at input device 124, imaging device 130 may capture the image of the user-appearance which may be, for example, a given trial of apparel, e.g., a garment and the like. It may be noted that trials by user 111 may also include user 111 engaging with various subjects, which may be located in the vicinity of user 111 such as, furniture, studio set-up and the like. Accordingly, imaging device 130 may capture images of user-
- 25 appearances of, for example, a first trial, a second trial, etc., and may send the respective captured images to storage device 123 via signals 131 and signals 30. User 111 may be able to retrieve the captured image of, e.g., the first trial, at a later time, e.g., following the second or other subsequent trials, and may compare between the first and second or other trial, e.g., as described below with reference to Figs. 2A, 2B and 2C.
- 30 [0051] According to some demonstrative embodiments of the invention, storage device 123 may be adapted to receive data representing images captured by imaging device 130,

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and to store images of appearances and, more specifically, user-appearances of, for example, given trials of apparel, captured by imaging device 130. Images of given trials of user-appearances may be retrieved from storage device 123, e.g., by controller 121, and displayed by display 140. User 111 may compare between the displayed images, e.g.,

5 as described in detail below.

[0052] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms, requiring and/or verifying user identifying data such as user-ID, password, login-time, bio-metric data and the like to enable secure access to station 110, as described in detail below. For example, controller 121 may control mirror-display device 140 to display images corresponding to

- 10 controller 121 may control mirror-display device 140 to display images corresponding to an identity of user 111, e.g., based on the identity data provided by user 111. For example, user 111 may provide input 124 with user-identifying input, which may include, for example, a biometric input such as face recognition, a hand print, a finger print, an eye print, voice recognition and the like. The user-identifying input may include any other
- 15 suitable input, for example, a credit card, a personal identification number (PIN), a password, a smart card, a customer card, a club card, or the like. Controller 121 check, e.g., based on any suitable method and/or algorithm, whether the user-identifying input provided at input device 124 matches with user-identifying data which may be stored, e.g., in storage device 123 or in control center 190. Software having the capability of verifying a biometric input may be, for example, "Active ID FaceVision technology" ® provided by Geometric Inc. If controller 121 matches the input of user 111 with the stored user-identifying data, controller 121 may enable user 111 to access data

representing, for example, images of previous user-appearances of user 111.

- [0053] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms enabling additional system features such as, for example, rendering virtual effects on mirror-display device 140. For example, controller 121 may be able to render an image at mirror-display device 140 of user-appearances engaged and/or combined with virtual articles such as, for example, clothes, collections, headdresses, hair cuts, furniture and the like. In addition, controller
- 30 121 may be able to render an image at mirror-display device 140 of user-appearances having different body shapes for simulating, e.g., weight loss, weight gain of user 111

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and the like. For example, user 111 may choose in a first trial a specific article, such as a suit out of a collection and controller 121 may virtually adjust the collection to an image of user 111 appearing in mirror-display device 140. Controller 121 may store the image of the first trial in storage device 123 and may perform the same step at a second trial. Accordingly, user 111 of system 100 may be able to compare between user-appearances

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of the first and a second trials of the collection. [0054] According to some demonstrative embodiments of the invention, controller 121 may provide, for example, image and/or video browsing capabilities, image and/or video replay functions, which capabilities and functions may be predefined by system 100 or

- 10 may be defined, e.g., on-the-fly, according to one or more user commands received from user 111 via input device 124. For example, controller 121 may be able to retrieve one or more images of previous user-appearances and display the images on mirror-display device 140 at various sequences. For example, images from previous trials may be displayed in a substantially continuous forward, backwards, or mixed, e.g., randomly-
- 15 accessible, sequence, and/or may be a stepwise sequence or in any other sequence. Furthermore, images from previous trials may be displayed simultaneously at mirrordisplay device 140, e.g., as described below. Controller 121 may also be able to delete previously captured user-appearances, limit the amount of data which may be saved in storage device 123 and the like, and may further control a shape, size, color, etc., of the image displayed on mirror-display device 140.
- [0055] According to some demonstrative embodiments of the invention, user 111 may use a portable storage device 180 able to store one or more of the captured images. The portable storage device may include any suitable portable storage device, e.g., a smartcard, a disk-on-key device, and the like. User 111 may download, for example,
- 25 images represented by, .e.g., signals 50, of a first trial of user-appearances from storage device 123, e.g., via a storage interface 125 or via any other suitable data connection. User 111 may then upload at a later time the image of, e.g., the first trial, to another location, e.g., a home of user 111, or another station of system 100, e.g., station 170. [0056] In some embodiments of the invention, station 110 may include more than one
- 30 mirror-display device or may include a mirror-display device 140, which may be

partitioned simultaneously into two frames as described hereinafter with reference to Figs. 2A and 2B.

[0057] According to some demonstrative embodiments of the invention, controller 121 may record or store, e.g., in storage 123, parameters characterizing user 111. For example,

5 system 100 may include a weighing machine, connected to, e.g., storage device 123 via controller 121. Controller 121 may be able to record, for example, a weight of user 111 during, for example, a trial of an article. Accordingly, user 111 may later retrieve the parameter which may be, for example, the weight of user 111.

[0058] Reference is now made to Figs 2A and 2B, which schematically illustrate stages
of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.

[0059] According to some demonstrative embodiments of the invention, mirror-display device 140 may be partitioned into two frames, wherein one frame may operate as a mirror frame 191 and another frame 192 may operate selectably as a mirror and as a

- display frame. As shown in Fig. 2A, user 111 may pose in front of mirror frame 191 a first trial, which may be captured by imaging device 130 and stored in storage device 123. Henceforward, as indicated in Fig. 2B, user 111 may view simultaneously in mirror frame 192 the image of the user-appearance of the first trial and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), side-by-side with the normal mirror appearance of a second trial,
- and compare between the first and the second trial. [0060] Reference is now made to Figs. 3A, 3B and 3C, which schematically illustrate three, sequential, stages of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.
- 25 [0061] As shown in Fig. 3A, the user of system 100 may view a first trial of a userappearance in mirror-display device 140 operating in its mirror mode. Controller 121 may receive, e.g., from input device 124, a user input, which may include a request to use imaging device 130 for capturing a first trial of the user-appearance. As a result, imaging device 130 may capture an image of the first trial of the user-appearance and storage
- 30 device 123 may store the captured image.

[0062] As shown in Fig. 3B, user 111 may view a second trial of his user-appearance in mirror-display device 140, which may operate in the mirror mode of operation. Then, when user 111 desires to view a previous appearance, e.g., for comparison, controller 121 may receive a user input via input device 124 requesting to view the first trial. At this

- 5 point, as shown in Fig. 3C, controller 121 may change the operational mode of mirrordisplay device 140 to the display mode using signals 141. Controller 121 may also control device 140 to display the first trial. Therefore, by switching between operating modes of mirror-display device 140, user 111 may compare the user-appearance of the second trial with the user-appearance of the first trial and/or any other user-appearances 10 previously stored in storage device 123.
- [0063] Reference is now made to Fig. 4, which schematically illustrates a flow-chart of a method enabling comparing between one or more various appearances in accordance with some demonstrative embodiments of the invention. Although the invention is not limited in this respect, one or more operations of the method of Fig. 4 may be performed
- 15 by one or more elements of system 100 (Fig. 1). [0064] As indicated at block 410, the method may include, for example, setting the operating mode of a mirror-display device. For example, user 111 (Fig. 1) may initially set the operating mode of mirror-display device 140 (Fig. 1) to the mirror mode. Alternatively, display 140 (Fig. 1) may be designed to operate in the mirror mode by
- 20 default whenever a new user logs into system 100 (Fig. 1). [0065] As indicated at block 420, the method may also include, for example, posing in front of the mirror-display device. For example, user 111 (Fig. 1) may pose in front of mirror-display device 140 (Fig. 1) and check the user-appearance of a first trial of, e.g., clothing, shoes and/or any other apparel.
- 25 [0066] As indicated at block 430, the method may also include, for example, capturing an image of the user-appearance of the first trial. For example, user 111 (Fig. 1) may provide user command to device 120 (Fig. 1) commanding imaging device 130 (Fig. 1) to capture an image of the user-appearance of the first trial.
- [0067] As indicated at block 440, the method may also include, for example, posing in
 front of the mirror-display device in a different user-appearance. For example, user 111
 (Fig. 1) may change one or more items of environment such as, for example, furniture

and/or apparel, pose once again in front of mirror-display device 140 which may operate in mirror mode, and view a second user-appearance.

[0068] As indicated at block 450, the method may also include, for example, switching between operating modes of the mirror-display device. For example, user 111 (Fig. 1)

- 5 may switch mirror-display device 140 (Fig. 1) between the mirror and the display mode. Accordingly, user 111 (Fig. 1) may be able to compare between the user-appearance of the first trial, and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), and the user-appearance of the second trial.
- 10 [0069] According to some demonstrative embodiments of the invention, user 111 (Fig. 1) may indicate, and/or station 110 (Fig. 1) may be able to store, e.g., automatically, for each trial parameters, e.g., including shopping parameters, such as, for example, name of store, address of store, price, time and/or date of trial of apparel, name of salesperson, and the like. User 111 (Fig.1) may, for example, store the captured images of user-
- 15 appearances in a removable or portable storage device, e.g., as described above with reference to Fig. 1, and may later review images of user-appearances while being able to ascribe every image to, e.g., a specific store and the like. In addition, user 111 may define, and/or controller 121 (Fig. 1) may be able to generate, and/or store in storage device 123 reminders, for example, alarms about, e.g., discounts, end of season sales and the like.
- 20 [0070] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents may occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

CLAIMS

[0071] What is claimed is:

- 1. A system to enable appearance comparison, the system comprising:
- at least one interactive imaging and display station, the station comprising: a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode;

an imaging device to capture one or more appearances from a field-of-view in front of said mirror-display device; and

an image control unit to select the mode of operation of said mirror-display device according to a user command.

- 2. The system of claim 1, wherein said image control unit includes an input device to receive said user command from a user.
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- 3. The system of claim 1, wherein said image control unit includes a storage device to store one or more images corresponding to said one or more appearances.
- 4. The system of claim 1, wherein said mirror-display device is capable of being partitioned into at least first and second simultaneously-displayable frames, the first frame selectably operable both in a mirror mode and a display mode, and the second frame operable in a mirror mode.
 - 5. The system of claim 1, wherein said imaging device is capable of capturing threedimensional images of said appearances.
 - 6. The system of claim 1, wherein said mirror-display device is capable of displaying images of appearances at predefined sequences.

- 7. The system of claim 1, wherein said image control unit is able to selectively enable a user to access images of appearances authorized to said user, based on user-identifying input received from said user.
- 5 8. The system of claim 1, wherein said at least one interactive imaging and display station comprises two or more interactive imaging and display stations able to communicate over a network.
 - 9. The system of claim 8, wherein said two or more stations are able to communicate between each other data representing images of appearances.
 - 10. The system of claim 1, wherein said image control unit is able to control said mirror display device to display, during said display mode, one or more images corresponding to said appearances.
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- 11. The system of claim 10, wherein the one or more images comprise one or more mirrored appearances.
- 12. A method to enable appearance comparison, the method comprising:
- using a mirror mode of operation of a mirror-display device capable of being selectably operated in either a mirror mode or a display mode; capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device; storing said image;
 selecting the display mode of operation of said mirror-display device;
 - selecting the display mode of operation of said mirror-display device; retrieving said image and displaying the image on said mirror-display device.

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FIG.1

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FIG.4

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(57) Abstract: Some demonstrative embodiments of the invention include systems, devices and/or methods enabling appearance comparison. The system, according to some demonstrative embodiments, may include at least one interactive imaging and display station. The station may include, for example, a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances appearing in a filed of view in front of the mirror-display device; and/or an image control unit to select the mode of operation of the mirror-display device according to a user command. Other embodiments are described and claimed.

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APPLICATION NUMBER: 60/656,885 FILING DATE: March 01, 2005

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US60/656,885*

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This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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P-7751-USP

Fitting System Using Memorable Interactive Mirror Abstract

A special fitting system that includes also "Memorable Smart Interactive Mirror", that allow people to see there previous fittings\Measurements tries-on front of the mirror (or mirror like) Fig1. The system can recognize the people with various ways, and it includes a system that saves ,memories and record the fitting tries-on of each and every person.

A person tries on a product that can be a fashion product, eyewear or any product that people using a mirror in order to see if they like it in front of a mirror, or mirror like, this system can apply also in an environment that only using a camera in the fitting process.

The system can be used also as a "Body changes" monitor, in Sport clubs, Weight centers or for other health applications

The system can be stand alone or in a Network of devices, that connected to each other in the shop, and can be connected to the all other shops of the company, also it can be connected to a public network.

It possible to apply a module that have the ability also to simulate a virtual fittings or virtual body changes to the user.

Inventor – Nissi Vilcovsky (TLV Israel) Assignee – Nissi Vilcovsky (TLV Israel)

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The System Components and description

The System is assembly of the following components

The Main unit - Fig main1

A Mirror or Mirror LCD or other (Appendix 1) in any size disposed on a shop, showroom, exhibition or any point of sale, or in any public place (appendix 2), The Mirror or LCD Mirror (appendix 1) connected to an unseen or seen camera or cameras (Appendix 3,

FIG 2), In order to record the fittings tries of the user.

This unit is including Recognition system, and software.

This unit can also reply the previous fitting tries.

In one shop or other (appendix 2) can be many Main units.

It is also possible to put any array of main units in various ways- example Fig array1

Recognition System.

A recognition system that is connected to the main unit \or in the area of the device (from appendix 1) preferably Biometric (Appendix 4) recognize the customer.

Software and Processing unit

Software that manage the recognition, the recording process ,and the database. It is saving and memorize each customer \potential customer fittings on a private file \files (appendix 5)

It is possible to modify the amount of saved data that we want for every client

<u>Control</u>

Also it is possible to stop/reply/pause/play at any time with a sensor or remote control (appendix 7)

<u>Reply Unit - fig replay1</u>

After the customer finished fittings\Measurements tries-on he can reply his previous fittings. -examples fig 2, fig 3.

He stand in front of a Mirror or in front other media (appendix 10) that includes a recognition system with one of the technologies (appendix 4).

After he his recognized by the system. he can see his previous tries on the Mirror or other (appendix 10), He can browse his previous fittings, and see pictures or movies of his previous fittings.

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The user can see the reply in the real size, or in deferent size

Recognition System

A recognition system that is connected to the Replay unit \or in the area of the device (preferably Biometric (Appendix 4) recognize the customer.

Software and Processing unit

The Main unit can be also a reply unit, but also possible to connect many replay units.

A processing unit with Software (a group of applications) that will organize the data of the owner/users

It can be embedded or connected directly, or connected by any kind of network to a central system.

The system will process the recognition (with a device from appendix 4), then it will record the images of the user \ customer

The replay unit use a Software and processing unit that manage the recognition and access the database, in order to show the customer his previous fittings.

The software and the database can be stores in other units as well, and the Replay unit will connect to the main database with a networks (appendix 8)

Also it is possible to stop/reply/pause/play at any time with a sensor or remote control (appendix 7)

The reply unit can be be put in a shop or other (appendix 6)

It will process the communication and request from out of the place (appendix 2) It is possible to modify the amount of saved data that we want for every client It is possible to define to delete the history after a time period

If the customer connects to the system, he can modify this parameters as well It is possible to define whether we want to save snapshots, photos, movies, voice.

It have calendar where you can store info and reminders alarms

If there is no recognition system, it will handle the recording and replay of the stored data, on demand

It is possible to combine all the "PALM Pilot" functions in the system, and to enable each user to use them separately.

The system can have also a video capacity, the customer can record directly from the ty (if embedded) The system can have also the ability to record and play music

It can also estimates of the head or body position of users, to the application program. It can also have a tracking system, that can allow the cameras to move whenever the user. moves.(to follow his pattern)

It can have the ability also to simulate a virtual try-ons to the user, using his captured

It is possible to combined a manipulation system that will change also colors, shapes of the user or his surroundings one the capture info.

Control

Also it is possible to stop/reply/pause/play at any time with a sensor or remote control

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General .

The System can be stand alone or connected to a network (appendix 8), and it gives the possibility to send an email or SMS with the fitting history directory from the Main or reply units (The customer will have to provide the relevant details)

Also it gives the possibility to download it to a Personal memory card or other media (appendix 9) or to Print it

The customer can connect and download his fittings to any kind media (appendix 9), and he can show his fittings anywhere by connect the media (Appendix 9)

Also he can connect to the company website or database and from anywhere using any kind of networks (Appendix 8) and he can browse his fittings history.

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The system also can provide a private PIN, in order to access the company system from anywhere.

The retail / shop /brand that use this system can put a Replay or Main unit in any public place (appendix 2), the customers can stand in front of the device anywhere and they can see there previous fitting tries, this feature is in order to strength the communication of the shop / brand with his customers \ potential customers.

The customer can also see in his house in front of a Mirror /LCD Mirror (appendix 6) the previous tries, he can connect his system to the shop / brand with VPN or via public network.

The system can have a units that only Shows the previous fittings, and not record them this units can be a LCD, Mirror LCD or other (Appendix 10) FIG

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Appendix 1 – The Devices that capture the fittings

Mirror in any size with a Video camera \ Cameras - FIG 1A

Mirror LCD\TV (example - Phillips) in any size with a Camera \cameras - FIG 1A

Mirror LCD Combined with See-Through Mirrors with a Camera \cameras - FIG 1A

Mirror LCD \TV Combined with Mirrors with a Camera \cameras - FIG 1B

See-Through Mirrors with a Camera \cameras (Can be part of a regular Mirror) - FIG 1B LCD Screen in any size with camera \ cameras - FIG 1C

Paint able LCD - (Example - Phillips) in any size with Camera \ Cameras

TV in any size with Camera \Cameras - FIG 1E

Set of Cameras, or a Camera - FIG 1F

LCD with CCD capacities -

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Dot Matrix led screens (example - Para light)

The Cameras also can be out of the devices, in any location in that can capture the customer Image FIG 1G

The following screens can contain also Microphone, Radio, TV Tuner

All this devices can combine Touch screen components or parts All the devices can contain speakers

All Devices can be combination of the technologies (can combine Mirrors LCD TV, and Mirror etc)

More info about Mirror LCD \Mirror TV :

http://www.research.philips.com/technologies/display/mrrordisp/mirrortv/

It can be also Plasma screens, Plasma Mirror screens, Plasma tv's, in any of this variation

The Display can be based on the following technologies :

OLED,NED PDP, CRT, DLP, SED, Tablet screens, Flatpanel SED, Organic EL, Paperlike screen, A 3D Holograma, , 3D Display (Philips 3-D research, seereal technology), TFT, OTFT

HDTV, Rear projection TV



Appendix 2 - Where the system can be applied

A Shop

A Shop that is part of chain

Point of sale

Show room

Concept Showroom Exhibition

D

Presentation

Public areas like Airports, Shoping malls, streets as interactive advertisement Any shop that people need a mirror in order to look at there fitting tries.

Fashion shops, Eyewear shops, Cosmetic shops and point of sale, shoe shop etc Hotels

Restaurants and bars, coffee shops

Sports clubs

Weight clubs

Health institutes

Everywhere people using Mirrors.

Appendix 3 – The Cameras

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A camera – means any kind of Video camera, or a set of cameras or stereo cameras that will be connected directly or indirectly to the processing unit (In the main or in the Replay unit)

A camera or set of cameras that is on top\side\bottom of the device (from appendix 1) example -FIG 1A

A camera or set of cameras that is embedded or inside the device (from appendix 1) FIG 1B

A camera or set of Cameras that are in the area of the device (from appendix 1) A set of cameras that is independed from the device, FIG 1F

A camera or set of cameras that is on top\side\bottom of the device (from appendix 1) combine with external cameras FIG 1G

A camera or set of cameras that is embedded or inside the device (from appendix 1) combine with external cameras FIG 1G

It can also capture the image of the mirror when someone stands in front of it, in order to replay it later.

The cameras will capture the user in front of the device (appendix 1).

It can also capture the image of the mirror when someone stands in front of it, in order to replay it later.

The cameras can observe the user from the same optical axis as used by the display (device -appendix 1)

The cameras can have the ability to move. It can be 3D Cameras, Stereo cameras.



Appendix 4 – Recognition

Face Biometric \Non Biometric recognition - FIG 2A

3D Facial recognition - example - Active ID FaceVision® technology

Hand Biometric \Non Biometric recognition - FIG 2B

Finger print Biometric \Non Biometric recognition - FIG 2C

Voice recognition – FIG 2D

Voice recognition input of code- FIG 2D

Credit Card- FIG 2E

Personal pin or other alphanumeric recognition that will click in the system -FIG 2F Customer Card or smart card or chip that the brand will provide - FIG 2F

Any "customer club" card or smart card or chip - FIG 2F

Eye\Eye Pupil Biometric \Non Biometric recognition 2H

read/write RF Transmitters receivers (example - EM Microelectronic-US)

Appendix 5 – Software and processing unit

A processing unit with Software that will organize the data of the users/customers/potential customers.

It can be embedded or connected directly, or connected by any kind of network to a central system.

The system will process the recognition (with a device from appendix 4), then it will record the fittings of the customer \potential customer

It will process the viewing of the previous fittings, in the shop or in other (appendix 2) It will process the communication and request from out of the shop (appendix 2)

It is possible to modify the amount of saved data that we want for every client

It is possible to define to delete the history after a time period

If the customer connects to the system, he can modify this parameters as well

It is possible to define whether we want to save snapshots, photos, movies, voice .

The system can have also the ability to record and play music

It can also estimate the head or body position of users, to the application program.

It can also have a tracking system, that can allow the cameras to move whenever the user moves.(to follow his pattern)

It can weight the user (if weight detectors applied) and store the info

Meta's Exhibit No. 1010

Page 0081



Appendix 6 – Where the customer can reply his previous fittings A Shop A Shop that is part of chain Point of sale Show room Concept Showroom Exhibition Presentation Public areas like Airports, hoping malls, etc Streets as interactive advertisement Other public advertisement that will include this system capabilities Any shop that people need a mirror in order to look at there fitting tries. Fashion shops, Eyewear shops, Cosmetic shops and point of sale, shoe shop etc In his house or other houses that will be connected to the system. Hotels Restaurants and bars, coffee shops Sports clubs Weight clubs Health institutes Everywhere people using mirrors

Appendix 7 - Ways to control the replay of previous fittings

With buttons - FIG 7A

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With Keyboards or mouse or pen - FIG 7B

With remote control \ wireless or that connected to the system -FIG 7C

Voice commands Or recognition – FIG 7D

Movement, with movement sensors - FIG 7E

Movement with weight sensors - FIG 7F

Face related movement with face recognition -FIG 7G

Touch screens with or with out external device - FIG 7H With laser markers

RF Transmitters \receivers

Meta's Exhibit No. 1010 Page 0083

Appendix 8 – Network

LAN- with any infrastructure

Wireless WAN

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WAN- with any infrastructure

VPN - with any infrastructure

Wireless VPN

Wireless VPN that uses satellite connection, or radio connection or RF Any Wireless technology

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Public Networks -- with any infrastructure

Internet- with any infrastructure

Private commercial networks- with any infrastructure. Blue tooth

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Satellite Network

Modems- with any infrastructure

Dial in system - with any infrastructure

Appendix 9 - Devices that the customer can connect

Hard Disk Memory Card Wireless personal device Personal computer Portable personal computer Any kind of magneto optic device CDR, CDRW, DVD, DVDRW Any kind of external device that can connect and download

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<u>Appendix 10 – Replay unit - The devices that can show the previous fittings</u>

Mirror LCD in any size with a Camera \cameras LCD Screen in any size with camera \ cameras Paintable LCD in any size with Camera \ Cameras TV in any size with Camera \Cameras Mirror LCD in any size without a Camera \ cameras LCD Screen in any size without camera \ cameras Paintable LCD in any size without Camera \ Cameras TV in any size without Camera \ Cameras Dot Matrix led screens (Para light) A Projector from any king that project to any kind of surfate \ wall LCD with CCD capacities A 3D Holograma Dot Matrix led screens (example - Para light) It can be also Plasma screens , Plasma Mirror screens , Plasma tv's , in any of this

It can be also Plasma screens, Plasma Mirror screens, Plasma tv's, in any of this variation

The Display can be based on the following technologies : OLED, NED PDP, CRT, DLP, SED, Tablet screens, Flatpanel SED, Organic EL, Paperlike screen, A 3D Holograma, , 3D Display (Philips 3-D research, secreal technology), TFT, OTFT HDTV, Rear projection TV

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FIG 1E









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INVENTOR(S) Residence n Name (first and middle [if any]) Family Name or Sumäme (City and either State or Foreign Country) Si VILCOVSKI Tel Aviv, Israel Si VILCOVSKI Tel Aviv, Israel dditional Inventors are being named on the ^ separately numbered sheets attached hereto TITLE OF THE INVENTION (280 characters max) Memorable Interactive Mirror Memorable Interactive Mirror tall correspondence to: CORRESPONDENCE ADDRESS ustomer Number 49443 Type Customer Number here Trim of Individual Name ress Suite 1001 Ress State New York State 212-632-3480 Fax 212-632-3480 Fax 100 Cockefeller Plaza ress Suite 1001 New York State 212-CO(s), Number Specification Number of Pages 112 CD(s), Number Drawing(s) Number of Sheets 32 Q Other (specify) postcard Application Data Sheet. See 37 CFR 1.76 Placeton Size Fee: If the specelistorian and rawings exceed 100 sheets of p
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GNATURE Caleb Pollack /PED or PRINTED NAME Caleb Pollack ELEPHONE 212-632-3480 Docket Number: P-7752-USP
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Abstract

Signature Mirror

A special "Memorable smart Interactive Mirror, that allow people to see there previous views in front of it.

The system can recognize the people in various ways, and it includes Software that "memories" (store) the history of each and every person.

A person stands in front of the mirror, and he can choose what to be capture into the mirror memory, or he can program it for automation recording.

After the images/voices are capture, he can replay it \part of it, any time.

The system can be stand alone or in a Network of devices. It can be in any size, and shape, and from the outside it looks like a mirror.

It possible to apply a module that have the ability also to simulate a virtual fittings or virtual body changes to the user.

Inventor – Nissi Vilcovsky (TLV Israel) Assignee – Nissi Vilcovsky (TLV Israel)

The System Components and description

The System is assembly of the following components

<u> The Main unit – Fig main1</u>

A Mirror LCD TV or other (Appendix 1) can be disposed at home, shops, showroom, exhibition or any point of sale, or in any public place (appendix 2), The Mirror LCD (appendix 1) connected to an unseen or seen camera or cameras (Appendix 3), In order to record whatever one choose.

All the images are stored in the unit, and can be shown on the unit in any time as a replay.

This unit is including Recognition system, and software.

Recognition System

A recognition system that is connected to the main unit \or in the area of the device (from appendix 1) preferably Biometric (Appendix 4) recognize the customer \owner.

Software and Processing unit

Software that manage the recognition, the recording process ,and the database. It is saving recording and memorize each customer \person on a file \files (appendix 5) It is possible to modify the amount of saved data and what and when we want to record. And it can organize the data in deferent ways (albums, movies, etc)

<u>Control</u>

Control \ Remote control to stop/reply/pause/play at any time with a sensor or remote control (appendix 7)

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<u>General</u>

The System can be stand alone or connected to a network (appendix 8), and it gives the possibility to send an Email or SMS with any captured info (photos, movies, voice) (of course have network card, and video in out, and all other relevant connections) Browse the Internet.

It can also give you reminds on screen on a certain hours \days.

Also it gives the possibility to download it to a Personal memory card or other media (appendix 9) or to Print it

The recognition system can provide access to each person data, in order to allow maximum privacy.

Also it is possible to define, family areas, where a family \ member of the family will store there photo \ movies\ voice history.

The system can be also without any recognition, it can be just a recordable by demand.

The system is expandable, and you can had more devices (appendix 9) in order to expand the storage, or to provide more functions.

The system can be portable, or not portable.

It can show the user the reply in the real size, or in deferent size.

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Appendix 1 – The Devices

Mirror LCD (Example - Phillips) in any size with a Video Camera \cameras Mirror LCD Combined with See-Through Mirrors with a Camera \cameras LCD Screen in any size with camera \ cameras Mirror LCD TV in any size with a Video Camera \cameras Mirror LCD TV Combined with See-Through Mirrors with a Camera \cameras Mirror LCD TV Combined with Mirrors with a Camera \cameras Mirror LCD with CCD capacities Dot Matrix led screens (example - Para light) The following screens can contain also Microphone, Radio, TV Tuner All this devices can combine Touch screen components or parts All the devices can contain speakers All Devices can be combination of the technologies (can combine Mirrors LCD TV, and Mirror.etc) More info about Mirror LCD \Mirror TV : http://www.research.philips.com/technologies/display/mrrordisp/mirrortv/

It can be also Plasma screens, Plasma Mirror screens, Plasma tv's, in any of this variation

The Display can be based on the following technologies : OLED,NED PDP, CRT, DLP, SED, Tablet screens, Flatpanel SED, Organic EL, Paperlike screen, A 3D Holograma, , 3D Display (Philips 3-D research, seereal

technology),TFT ,OTFT HDTV, Rear projection TV.

Appendix 2 – Where the systemi can be applied

At home A Shop A Shop that is part of chain Point of sale Show room Concept Showroom Exhibition Presentation Hotels\Hotel chains Public areas like Airports,Shoping malls, streets as interactive advertisement Any shop that people need a mirror in order to look at there fitting tries. Fashion shops, Eyewear shops, Cosmetic shops and point of sale, shoe shop etc Anywhere people use mirrors

.

Appendix 3 – The Cameras

A camera – means any kind of Video camera, or a set of cameras or stereo cameras that will be connected directly or indirectly to the processing unit (In the main or in the Replay unit)

A camera or set of cameras that is on top\side\bottom of the device (from appendix 1) A camera or set of cameras that is embedded or inside the device (from appendix 1)

A camera or set of Cameras that are in the area of the device (from appendix 1)

A set of cameras that is independed from the device,

A camera or set of cameras that is on top\side\buttom of the device (from appendix 1) combine with external cameras

A camera or set of cameras that is embedded or inside the device (from appendix 1) combine with external cameras

The cameras will capture the user in front of the device (appendix 1). It can also capture the image of the mirror when someone stands in front of it, in order to 1. (1. j. j. d. replay it later.

The cameras can observe the user from the same optical axis as used by the display (device -appendix 1)

The cameras can have the ability to move. It can be 3D Cameras, Stereo cameras,

Appendix 4 - Recognition

Face Biometric \Non Biometric recognition - FIG 2A Hand Biometric Non Biometric recognition - FIG 2B Finger print Biometric Won Biometric recognition - FIG 2C Voice recognition - FIG 2D Voice recognition input of code- FIG 2D

Credit Card- FIG 2E

Personal pin or other alphanumeric recognition that will click in the system Customer Card or smart card or chip that the brand will provide - FIG 2F Any "customer club" card or smart card or chip - FIG 2F Eye \Eye Pupil Biometric \Non Biometric recognition 2H

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Appendix 5 – Software system

A processing unit with Software (a group of applications) that will organize the data of the owner\users

It can be embedded or connected directly, or connected by any kind of network to a central system.

The system will process the recognition (with a device from appendix 4), then it will record the images of the owner \ customer

It will process the viewing of the stored images, in the house or in other (appendix 2) It will process the communication and request from out of the place (appendix 2)

It is possible to modify the amount of saved data that we want for every client

It is possible to define to delete the history after a time period If the customer connects to the system, he can modify this parameters as well

It is possible to define whether we want to save snapshots, photos, movies, voice.

It have calendar where you can store info and reminders alarms

If the is no recognition system, it will handle the recording and replay of the stored data on demand

It is possible to combine all the "PALM Pilot" functions in the system, and to enable each user to use them separately.

The system can have also a video capacity, the customer can record directly from the tv (if embedded)

The system can have also the ability to record and play music

It can also estimates of the head or body position of users, to the application program.

It can also have a tracking system, that can allow the cameras to move whenever the user moves.(to follow his pattern)

It is possible to program when to capture or replay for automation

It can have the ability also to simulate a virtual images of the user, using his captured

face\body details, with other images

It is possible to combined a manipulation system that will change also colors, shapes etc. It can weight the user (if weight detectors applied) and store the info

Appendix 7 - Ways to control the replay

. .

With on side or panel buttons - FIG 7A With Keyboards or mouse that connected \or wireless - FIG 7B With remote control \ wireless or that connected to the system -FIG 7C Voice commands Or recognition - FIG 7D Movement, with movement sensors - FIG 7E Movement with weight sensors - FIG 7F Face related movement with face recognition -FIG 7G Touch screens with or with out external device - FIG7H

Appendix 8 - Network

LAN, Wireless WAN WAN VPN -Wireless VPN Wireless VPN that uses satellite connection, or radio connection or RF Any Wireless technology Public Networks Internet Private commercial networks Blue tooth Satellite Network Modems Dial in system – any kind

.....

Appendix 9 – Devices that the customer can connect

Memory Card

Wireless personal device A Secondary Hard Disk (or more the one)

Personal computer

Portable personal computer

Any kind of magneto optic device CDR, CDRW, DVD, DVDRW

Any kind of external device that can connect and download · · · ·

This devices can come also as part of the system

HDTV.

Appendix 10 – Replay unit - The devices that can show the previous fittings

.

Mirror TV in any size with a Camera \cameras Mirror LCD in any size with a Camera \cameras LCD Screen in any size with camera \ cameras Paintable LCD in any size with Camera \ Cameras . . . TV in any size with Camera \Cameras Mirror LCD in any size without a Camera \cameras LCD Screen in any size without camera \ cameras Paintable LCD in any size without Camera \ Cameras TV in any size without Camera \Cameras

A Projector from any king that project to any kind of surfate \ wall LCD with CCD capacities

It can be also Plasma screens, Plasma Mirror screens, Plasma tv's, in any of this variation The Display can be based on the following technologies : OLED, NED PDP, CRT, DLP, SED, Tablet screens, Flatpanel SED, Organic EL, Paperlike screen, A 3D Holograma, 3D Display (Philips 3-D research, seereal technology),TFT,OTFT

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FIG 1E
















































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