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# **ACTIVE MERCHANDISE DISPLAY FOR DISPLAYING AN ITEM OF MERCHANDISE**

## **FIELD OF THE INVENTION**

[0001] Embodiments of the present invention relate generally to merchandise display devices, systems, and methods for displaying an item of merchandise.

## **BACKGROUND OF THE INVENTION**

[0002] Retailers routinely display electronic items of merchandise in a display area for customers to examine and interact with while making a decision whether to purchase the item. In most instances, the item is mounted on a merchandise display, for example a display stand or display fixture. The merchandise display may also include physical security, such as a mechanical tether, and/or electronic security, such as a sensor and alarm, to prevent or at least deter theft of the merchandise. In other instances, the retailer desires to display the item of merchandise without the item being physically or electronically secured to a merchandise security device. Regardless, some electronic items of merchandise are displayed in a powered and operational mode so that the customer experience is enhanced by allowing, and even encouraging, the customer to experiment with the different features and capabilities of the merchandise.

[0003] Electronic items of merchandise are oftentimes displayed for sale in the common display area of a retail store. Sometimes, however, it is desired to display a particularly popular, or “hot,” item of merchandise in a point-of-purchase (POP) product display at an isolated location within a retail store. Similarly, it is sometimes desired to display an item of merchandise, and in particular a new item of merchandise or a new model of an item of merchandise, at a trade show or convention, such as the well-known International Consumer Electronics Show (CES). At other times, it is desirable to display a new item of merchandise or a new model of an item of merchandise, at a product release or product launch event. At any of these temporary display locations and/or events, it would be advantageous to highlight the item of merchandise with an unusual,

unique, attention-grabbing merchandise display that will attract and interest individuals passing by the display. At present, only the standard, conventional types of merchandise displays are available for displaying an item of merchandise at isolated locations and/or special events. Unfortunately, the existing standard, conventional types of merchandise displays do not draw the attention of individuals passing by the display that is needed to effectively highlight and spotlight such merchandise.

#### BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0004] FIG. 1A is a perspective view of an embodiment of an active merchandise display for displaying an item of merchandise according to the present invention with the display shown in a first configuration or state in which the merchandise is hidden from view.

[0005] FIG. 1B is a perspective view of the active merchandise display of FIG. 1A with the display shown in a second configuration or state in which the item of merchandise is presented to an individual for viewing, examination, operation and/or interaction with the merchandise.

[0006] FIG. 2A is a perspective view of another embodiment of an active merchandise display for displaying an item of merchandise according to the present invention with the display shown in a first configuration or state in which the merchandise is hidden from view.

[0007] FIG. 2B is a perspective view of the active merchandise display of FIG. 2A with the display shown in a second configuration or state in which the item of merchandise is presented to an individual for viewing, examination, operation and/or interaction with the merchandise.

#### DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0008] Referring now to the accompanying drawing figures wherein like reference numerals denote like elements throughout the various views, one or more embodiments

of a merchandise display device, system and method for displaying an item of merchandise at an isolated location and/or a special event in manner that highlights the merchandise are shown. Exemplary embodiments of the present invention include a merchandise display device, system and method for displaying an item of merchandise in an unusual, unique and attention-grabbing manner at an isolated location and/or a special event. The merchandise display device includes a sensor for detecting the presence of an individual passing by the display. When the presence of an individual is detected, the sensor activates the merchandise display to transition, transform or otherwise change from a configuration or state in which the merchandise is hidden from view to a configuration or state in which the merchandise is presented to the individual for viewing, examination, operation and/or interaction with the merchandise. A merchandise display device, system and method according to embodiments of the invention are suitable for use with the display of any item of merchandise, and is well-suited for displaying portable computing devices, such as mobile telephones (e.g., Smartphones), personal computers (e.g., tablet, laptop, etc.), wearable wireless devices (e.g., GALAXY WEAR™, APPLE WATCH™, etc.) and digital cameras, in a merchandise display area at an isolated location, such as a point-of-purchase (POP) product display in a retail store, or at a special event, such as a trade show or a new product launch.

[0009] FIG. 1A and FIG. 1B illustrate an embodiment of an active merchandise display, indicated generally by reference character 10, configured in accordance with the present invention. Similarly, FIG 2A and FIG. 2B illustrate another embodiment of an active merchandise display, indicated generally by reference character 50, configured in accordance with the present invention. By way of example and not limitation, the item of merchandise M shown herein in FIG. 1B and FIG. 2B is a portable computing device, and more particularly, is a new type, model and/or brand of a mobile (e.g., cellular) telephone, commonly referred to as a Smartphone. However, as will be readily understood and appreciated by those skilled in the art, the invention is applicable for use with any item of merchandise, but is best suited for use with a new, improved or unique item of merchandise. Other examples of an item of merchandise M that may typically be

used with the active merchandise display 10, 50 include a personal computer, a wearable wireless device (e.g., Smartwatch), a digital camera, a Personal Digital Assistant (PDA), a Global Positioning System (GPS) and the like. Most, but not necessarily all, such new, improved or unique items of merchandise M are capable of voice and/or data communications utilizing a communications network and/or a global computer network, such as the Internet. As used herein, the term “active” with reference to the merchandise display 10, 50 is intended to mean that the display transitions, transforms or otherwise changes from a configuration or state in which the item of merchandise is at least partially hidden from view to a configuration or state in which the merchandise is presented for viewing, examination, operation and/or interaction with an individual, as will be described in greater detail hereinafter.

[0010] As shown in FIG. 1A, the active merchandise display 10 is initially in a first configuration or state in which the item of merchandise M (FIG. 1B) is hidden from view. In one embodiment, the active merchandise display 10 is configured to be disguised as an object other than a conventional merchandise display device. By way of example and not limitation, the active merchandise display 10 may be configured as a mechanical flower 20, as shown and described herein with reference to FIG. 1A and FIG. 1B. In this manner, the active merchandise display 10 by itself has an aesthetic appearance intended to draw the interest and/or attention of an individual passing by the display. If desired, the active merchandise display 10 may be configured with a unique or unusual shape, design, appearance or construction that attracts the attention and/or interest of an individual passing by the display. At the same time, the active merchandise display 10 comprises at least some of the functional components of a standard, conventional type of a merchandise display. As shown, the active merchandise display 10 comprises a display base 12, an upwardly extending display stand 14, and an electrical power and/or security cable 16 that connects the display base to an external source of electrical power and/or a central alarm. In addition, the merchandise display 10 may comprise a sensor for detecting when the merchandise M has been separated from the display.

[0011] The display base 12, the display stand 14 and the electrical power and/or security cable 16 may function in the same manner as a standard, conventional type of merchandise display. For example, the display base 12 may house an electrical circuit for providing electrical power at a predetermined voltage and/or current to the item of merchandise M. The display base 12 may also house an alarm circuit for actuating an audible and/or visible alarm in response to an indication from a sensor that the item of merchandise M has been removed, or separated, from the merchandise display 10 in an unauthorized manner. The display stand 14 may extend upwardly from the display base 12 sufficiently to elevate the item of merchandise M to a height that is comfortable for an individual passing by the display to view, examine, operate and/or interact with the merchandise. The display stand 14 may also contain one or more electrical conductors for delivering electrical power to the item of merchandise M from an external source of electrical power via the electrical and/or security cable 16 and the display base 12. The electrical and/or security cable 16 may contain one or more conductors for delivering electrical power from the external source of electrical power to the electrical circuit housed within the display base 12. In addition, the electrical power and/or security cable 16 may provide mechanical security for the merchandise display 10 and the item of merchandise M.

[0012] Regardless, the active merchandise display 10 is configured for being positioned in an area that includes at least one display surface, such as a table, shelf, countertop, or the like, for supporting the display and displaying the item of merchandise M. As previously mentioned, the display area is, for example, an isolated location in a retail store, such as a point-of-purchase (POP) product display, or in another example, a special event location, such as a trade show or a new product launch. The active merchandise display 10 is positioned on the display surface of the display area with the mechanical flower 20 in a first configuration or state shown in FIG. 1A. In the first configuration or state, the item of merchandise M is disposed on the active merchandise display 10, but is hidden from view within the mechanical flower 20. In particular, the item of merchandise M is disposed within a plurality of closed petals 22 of the

mechanical flower 20. As an individual approaches or passes by the active merchandise display 10, the mechanical flower 20 transitions, transforms or otherwise changes from the first configuration or state shown in FIG. 1A to the second configuration or state shown in FIG. 1B. In particular, the plurality of petals 22 of the mechanical flower 20 open to reveal and present the item of merchandise to the individual. The unusual, unique and attention-grabbing transformation of the mechanical flower 20 of the active merchandise display 10 draws the attention and interest of the individual passing by the display, and thereby encourages the individual to view, examine, operate and/or interact with the merchandise.

[0013] If desired, the transformation of the petals 22 of the mechanical flower 20 from the closed configuration to the open configuration may also cause the item of merchandise M to be changed from an “inactive display mode” to an “active display mode” wherein the merchandise is powered on and operational for the purpose of demonstrating the functions and capabilities of that particular item of merchandise. In addition, or in the alternative, the item of merchandise M may be displayed in the first configuration and/or in the second configuration in conjunction with an audio and/or video customer presentation for marketing and/or demonstrating the merchandise in the display area, commonly referred to as a “demonstration video.” The demonstration video may be “looped,” meaning that it is run and repeated continuously with only a short interval of time between repetitions. Alternatively, the demonstration video may be “triggered,” meaning that it is initiated by the transition of the mechanical flower 20 of the active merchandise display 10 from the first configuration to the second configuration. Displaying the item of merchandise M in a continuous active display mode requires the internal battery of the merchandise to constantly attempt to remain fully charged. Furthermore, repeatedly running the demonstration video in a looped manner utilizes a significant amount of electrical power, which is not only expensive, but contrary to desire of most retailers to “be green.” In order to reduce the consumption of electrical power, the item of merchandise M may be setup in a default “idle” or “sleep” mode in which the screen display and/or features of the merchandise are turned off, or

alternatively, limited in function and capability.

[0014] FIG. 2A shows another embodiment of an active merchandise display 50 according to the present invention in a first configuration or state in which an item of merchandise M (FIG. 2B) is initially hidden from view. FIG. 2B shows the active merchandise display 50 is transformed, transitioned or otherwise changed from the first configuration or state into a second configuration or state in which the item of merchandise M is revealed and presented to an individual for viewing, examination, operation and/or interaction with the merchandise, as previously described with reference to FIG. 1B. The active merchandise display 50 comprises a display base 52 and, as shown in FIG. 2B, the item of merchandise M (e.g., a Smartphone) is disposed on a movable display stand 54 of the active merchandise display 50. If desired, display stand 54 may include a platform 55, such as a generally planar plate, table or the like, for supporting the item of merchandise M in a convenient position for an individual to view, operate, examine and/or interact with the merchandise. The display stand 54 and the item of merchandise M are initially hidden from view within the active merchandise display 50, as previously described with reference to FIG. 1A. In the exemplary embodiment shown and described herein, the active merchandise display 50 further comprises at least one, and sometimes, a pair of movable covers 56A, 56B that initially overlies the base 52 (FIG. 2A). As shown in FIG. 2B, a mechanism 58 is disposed within the base 52 beneath the covers 56A, 56B. By way of example only and not limitation, mechanism 58 comprises electronics and a gearbox housing a series of motors, gears, actuators, etc. operable for transitioning the active merchandise display 50 from the first configuration or state into the second configuration or state.

[0015] In particular, with reference to the embodiment of FIG. 2A and FIG. 2B, the mechanism 58 operates to raise the display stand 54 and the covers 56A, 56B upwardly from the display base 52. The mechanism 58 then operates to move the covers 56A, 56B outwardly from the display base 52 and the display stand 54 to the positions shown in FIG. 2B. The mechanism 58 next operates to raise the display stand 54, including the platform 55 and the item of merchandise M to the position shown in FIG. 2B. However,

the mechanism 58 may operate in a number of different ways and in a variety of different manners in order to transition, transform or otherwise change the active merchandise display 50 from a first configuration or state in which the item of merchandise is hidden to a second configuration or state in which the merchandise is revealed and presented to an individual for viewing, examining, operating and/or interacting with the merchandise. It should be noted that in the exemplary embodiment depicted in FIG. 2A and FIG. 2B, the item of merchandise M is not secured or tethered to the display stand 54. However, if desired, the item of merchandise M and/or the active merchandise display 50 may be provided with a proximity sensor, for example near field communication (NFC), that activates an audible and/or visible alarm in the event that the merchandise is removed or separated from the display stand 54 in an unauthorized manner.

[0016] By way of example only and not limitation, the exemplary embodiment of the active merchandise display 50 depicted in FIG. 2A and FIG. 2B is intended to simulate a spacecraft or satellite, represented by display base 52 and covers 56A, 56B, deploying from a first configuration or state in which a communications antenna, represented by platform 55 and item of merchandise M, is stowed to a second configuration or state in which the communications antenna is deployed. Obviously, active display merchandise display 50 can be configured to represent different objects operating in different scenarios. For example, a safe with a combination lock that spins and/or a door that opens when activated to the second configuration or state. However, it is intended that the operation of the active merchandise display 50 transitioning, transforming or otherwise changing from the first configuration or state into the second configuration or state involve movement that will attract the attention and/or interest of an individual passing by the display. If desired, another sensory effect, such as a visible light, smoke, a smell, a sound, a vibration or the like may accompany the movement of the active merchandise display 50 as a means for further attracting the attention and/or interest of an individual passing by the display. Preferably, however, the movement and/or other sensory effect ceases once the item of merchandise M is revealed and positioned to be viewed, examined, operated and/or interacted with by the individual so as to enhance the

customer experience with the merchandise.

[0017] In any event, the active merchandise display 10, 50 may further comprise at least one presence sensor 30 and associated electronics disposed within the display base 12, 52. The sensor 30 and associated electronics are operable for detecting the presence of an individual approaching or passing by the active merchandise display 10, 50. In particular, the presence sensor 30 detects that an object is within a predetermined range of the active merchandise display 10, 50 and the electronics associated with the sensor determine whether the object is an individual approaching or passing by the display. In one embodiment, the sensor 30 may itself be disposed at least partially within the active merchandise display 10, 50 and operably coupled to the electronics. In another embodiment, the sensor 30 may be disposed external to the active merchandise display 10, 50 and be operably coupled to the electronics disposed within or external to the display base 12, 52. In any instance, the sensor 30 may be in electrical communication with the electronics, for example by one or more electrical conductors (i.e., hard-wired). Alternatively, the sensor 30 may be in wireless communication with the electronics, for example by Infrared (IR) or Radio Frequency (RF), such as Bluetooth, signals. In addition, the electronics may be disposed within the active merchandise display 10, 50 within the sensor 30, or elsewhere. For example, the electronics may be disposed within a central control device, such as a personal computer, laptop or other computing device (not shown), that monitors one or more of the sensors 30 associated with a corresponding one or more active merchandise displays 10, 50 and, if desired, also controls the display of the item of merchandise M, as will be described. Regardless, the electronics processes data from the sensor 30, determines whether an individual is approaching or passing by the active merchandise display 10, 50, and activates the display to transition, transform or otherwise change from the first configuration or state to the second configuration or state. In addition, the sensor 30 may communicate with the item of merchandise M to change its operating status from “sleep” mode to an “operational” and “active display” mode in which a demonstration video is initiated, as previously described.

[0018] In the exemplary embodiments depicted herein, the presence sensor 30 is

disposed at least partially within the display base 12, 52 of the active merchandise display 10, 50 and is operably coupled to the electronics associated with the sensor. In one embodiment, the sensor 30 may be an optical sensor configured to detect and capture images of objects within a predetermined field-of-view FOV from the sensor. By way of example and not limitation, the optical sensor may be a video camera. The images of the objects may be captured as bitmap images or raster images consisting of pixels. Alternatively, the images may be captured as vector images consisting of nodes based on points, lines, curves and/or shapes defined by a mathematical expression. Regardless, the optical sensor 30 communicates image data relating to the objects to the electronics associated with the sensor. The electronics in turn processes the image data relating to the objects to determine whether a “new” object has moved into the range of the presence sensor 30 and is approaching or passing by the active merchandise display 10, 50.

[0019] In another embodiment, the sensor 30 may be a proximity sensor, for example an Infrared (IR) sensor, such as Passive Infrared (PIR) transceiver configured to transmit and receive light energy within a predetermined range of distance from the sensor. The Infrared (IR) transceiver operates essentially the same as the optical sensor previously described to detect and capture motion data relating to the objects within a field-of-view FOV of the sensor, and to communicate the motion data relating to the objects to the electronics associated with the sensor. The electronics in turn processes the motion data relating to the objects to determine whether a “new” object has moved into the range of the presence sensor 30 and is approaching or passing by the active merchandise display 10, 50.

[0020] In yet another embodiment, the proximity sensor 30 may be a Radio Frequency (RF) transceiver configured to transmit and receive radio frequency energy within a predetermined range of distance from the sensor. The Radio Frequency (RF) transceiver operates essentially the same as the Infrared (IR) transceiver previously described to detect and capture motion data relating to the objects within a field-of-view FOV of the sensor, and to communicate the motion data relating to the objects to the electronics associated with the sensor. The electronics in turn processes the motion data

relating to the objects to determine whether a “new” object has moved into the range of the presence sensor 30 and is approaching or passing by the active merchandise display 10, 50. By way of example and not limitation, the Radio frequency (RF) transceiver of the presence sensor 30 may utilize the concept of “damping effect” to identify objects (e.g., individuals) that are approaching or passing the active merchandise display 10, 50 within the field-of-view FOV of the Radio frequency (RF) sensor.

[0021] In yet another embodiment, the proximity sensor 30 may be an ultrasonic sensor and transducer configured to transmit and receive sound energy (e.g., ultrasound waves) and to convert the returned sound energy into electrical signals within a predetermined range of distance from the sensor. The ultrasonic sensor and transducer operates essentially the same as the Radio Frequency (RF) transceiver previously described to detect and capture motion data relating to the objects within a field-of-view FOV of the sensor, and to communicate the motion data relating to the objects to the electronics associated with the sensor. The electronics in turn processes the motion data relating to the objects to determine whether a “new” object has moved into the range of the presence sensor 30 and is approaching or passing by the active merchandise display 10, 50.

[0022] In yet another embodiment, the proximity sensor 30 may be a capacitive sensor configured to detect electrical energy in the form of a conductive object having a dielectric different than air within a predetermined range of distance from the sensor. The capacitive sensor utilizes capacitive sensing technology based on capacitive coupling to detect and capture motion data relating to the object within a field-of-view FOV of the sensor, and to communicate the motion data relating to the objects to the electronics associated with the sensor. The electronics in turn processes the motion data relating to the objects to determine whether a “new” object has moved into the range of the presence sensor 30 and is approaching or passing by the active merchandise display 10, 50.

[0023] In yet another embodiment, the presence sensor 30 may be a wireless signal sensor in the form of a receiver or antenna configured to detect a wireless signal of a

portable, wireless computing device having a wireless media access control (MAC) address that is not associated with an item of merchandise M being displayed in the display area within a predetermined range of distance from an active merchandise display 10, 50. As such, the wireless signal sensor may detect and capture the wireless signal of an individual's own mobile telephone when the individual is within a predetermined distance of the active merchandise display 10, 50, and therefore, is likely to be approaching or passing by the display. The wireless signal sensor then communicates a control command to the electronics associated with the presence sensor 30, and the electronics in turn processes the control command to determine whether an individual is approaching or passing by the active merchandise display 10, 50.

[0024] In yet another embodiment, the presence sensor 30 may be operable to detect and capture data relating to the presence of an individual within a predetermined range of distance from the active merchandise display 10, 50. By way of example and not limitation, the presence sensor 30 may be a pressure mat that is positioned on the floor in front of the active merchandise display 10, 50 displaying the item of merchandise M. When a customer steps onto the pressure mat, the presence sensor 30 communicates a control command to the electronics associated with the sensor. The electronics in turn processes the control command from the presence sensor 30 to determine whether an individual the customer has remained there for a sufficient period of time to indicate this approaching or passing by the active merchandise display 10, 50. As will be readily understood and appreciated by those skilled in the art, the presence sensor 30 may be configured to detect and capture a change in any property or condition that could be indicative or suggestive of the presence of an individual within the predetermined range of distance of the sensor. By way of example and not limitation, the presence sensor 30 could be configured to detect and capture a change in a magnetic field, such as is utilized in near field communication (NFC), an electric field, a pressure field, a light field (e.g. a shadow), a sound field or the like.

[0025] In any event, the electronics associated with the presence sensor 30 communicates, either electrically via one or more conductors or wirelessly, or both, with

the active merchandise display 10, 50 and, if desired, with the item of merchandise M, that an individual is approaching or passing by the display. In one embodiment, the electronics associated with the presence sensor 30 are hard-wired via electrical conductors disposed within a security cable to an electronic circuit disposed within a security sensor attached to the item of merchandise M. In turn, the security sensor is electrically coupled to the item of merchandise M via electrical conductors disposed within a power adapter cord connected to a power input port provided on the merchandise. In this manner, the electronics associated with the presence sensor 30 is able to inform the security sensor that an individual is approaching or passing by the item of merchandise M and may examine, operate and/or interact with the merchandise being displayed on the active merchandise display 10, 50. For example, the security sensor of the active merchandise display 10, 50 may communicate with the item of merchandise M through a USB connector of a power adapter cord for powering the merchandise by “tickling” a pin on the connector. Alternatively, the security sensor, or the electronics associated with the presence sensor 30, could communicate with the item of merchandise M via Bluetooth, wireless signal (e.g., Wi-Fi), near field communication (NFC), or any other suitable means of communication.

[0026] Regardless, upon receiving an indication from the presence sensor 30 that an individual is approaching or passing by the active merchandise display 10, 50, the operating system of the item of merchandise M wakes the merchandise out of “sleep” mode into an operational and active display mode. For example, the operating system of a Smartphone may cause the screen display of the Smartphone to return to normal or high brightness level, and if desired, to initiate a demonstration video describing and demonstrating the features, functions and capabilities of the Smartphone. At the same time, the operating system may activate the wireless communications capability of the Smartphone so that the customer can experience the full power, functionality and speed of the Smartphone utilizing the wireless network in the display area without undue interference or competition with any other wireless-enabled merchandise being displayed in the display area. In addition, the electronics associated with the presence sensor 30, a

security sensor associated with the item of merchandise M, or the merchandise itself could be configured to transmit a signal, such as a notification indicator (e.g., sound or flashing light), E-mail, text, voicemail, or the like, to a sales associate that an individual is approaching, passing by or interacting with the item of merchandise so that the sales associate can come to the active merchandise display 10, 50 to offer assistance to the individual, or alternatively, to determine whether a threat of a theft exists.

[0027] The foregoing has described one or more embodiments of a merchandise display device, system and method for displaying an item of merchandise at an isolated location and/or at a special event in an unusual, unique and attention-grabbing manner. In exemplary embodiments, an active merchandise display transitions, transforms or otherwise changes from a first configuration or state in which the item of merchandise is hidden from view to a second configuration or state in which the merchandise is presented for viewing, examination, operation and/or interaction with the merchandise. The active merchandise display may include a presence sensor for detecting the presence of an individual approaching or passing by the display. Embodiments of a merchandise display device, system and method have been shown and described herein for purposes of illustrating and enabling the best mode of the invention. Those of ordinary skill in the art, however, will readily understand and appreciate that numerous variations and modifications of the invention may be made without departing from the spirit and intended broad scope of the invention. Accordingly, all such variations and modifications are intended to be encompassed by the appended claims.

That which is claimed is:

1. A merchandise display device for displaying an item of merchandise, comprising:

an active merchandise display operable for transitioning, transforming or otherwise changing from a first configuration or state in which the item of merchandise is hidden from view to a second configuration or state in which the item of merchandise is presented for viewing, examining, operating and/or interacting with the item of merchandise;

a presence sensor operable for detecting the presence of an individual approaching or passing by the active merchandise display; and

electronics associated with the presence sensor and in communication with the active merchandise display to initiate operation of the active merchandise display from the first configuration or state to the second configuration or state.

2. The merchandise display device of Claim 1, wherein the presence sensor is an optical sensor configured to detect and capture an image of an object within a predetermined field-of-view of the optical sensor.

3. The merchandise display device of Claim 2, wherein the optical sensor is a video camera.

4. The merchandise display device of Claim 2, wherein the image of the object is captured as a bitmap image or a raster image consisting of pixels.

5. The merchandise display device of Claim 2, wherein the image of the object is captured as a vector image consisting of one or more nodes based on points, lines, curves and/or shapes defined by a mathematical expression.

6. The merchandise display device of Claim 1, wherein the presence sensor is a proximity sensor.

7. The merchandise display device of Claim 6, wherein the proximity sensor comprises an Infrared (IR) sensor configured to detect and capture motion data relating to an object within a predetermined field-of-view of the IR sensor.

8. The merchandise display device of Claim 7, wherein the Infrared (IR) sensor is a Passive Infrared (PIR) transceiver configured to transmit and receive light energy within a predetermined range of distance from the PIR transceiver and to communicate the motion data relating to the object to the electronics associated with the presence sensor.

9. The merchandise display device of Claim 6, wherein the proximity sensor comprises a Radio Frequency (RF) transceiver configured to transmit and receive radio frequency energy within a predetermined range of distance from the RF transceiver.

10. The merchandise display device of Claim 9, wherein the Radio Frequency (RF) transceiver is configured to detect and capture motion data relating to an object within a field-of-view of the RF transceiver sensor and to communicate the motion data relating to the object to the electronics associated with the presence sensor.

11. The merchandise display device of Claim 10, wherein the Radio Frequency (RF) transceiver utilizes a damping effect to identify an object that is approaching or passing by the active merchandise display in the field-of-view of the RF transceiver.

12. The merchandise display device of Claim 6, wherein the proximity sensor comprises an ultrasonic sensor and transducer configured to transmit and receive sound energy and to convert the returned sound energy into an electrical signal within a predetermined range of distance from the ultrasonic sensor.

13. The merchandise display device of Claim 12, wherein the ultrasonic sensor and transducer operates to detect and capture motion data relating to an object within a field-of-view of the ultrasonic sensor and to communicate the motion data

relating to the object to the electronics associated with the presence sensor.

14. The merchandise display device of Claim 6, wherein the proximity sensor comprises a capacitive sensor configured to detect electrical energy in the form of a conductive object having a dielectric different than air within a predetermined range of distance from the capacitive sensor.

15. The merchandise display device of Claim 14, wherein the capacitive sensor utilizes capacitive sensing technology based on capacitive coupling to detect and capture motion data relating to the object within a field-of-view of the capacitive sensor and to communicate the motion data relating to the object to the electronics associated with the presence sensor.

16. The merchandise display device of Claim 1, wherein the presence sensor is a wireless signal sensor configured to detect a wireless signal of a portable, wireless computing device having a wireless media access control (MAC) address that is not associated with the item of merchandise being displayed on the active merchandise display.

17. The merchandise display device of Claim 16, wherein the wireless signal sensor detects and captures a wireless signal of a mobile telephone that is within a predetermined distance of the active merchandise display and communicates a control command to the electronics associated with the presence sensor.

18. The merchandise display device of Claim 1, wherein the presence sensor is configured to detect and capture data relating to the presence of an individual approaching or passing by the active merchandise display within a predetermined range of distance from the active merchandise display and to communicate a control command to the electronics associated with the presence to initiate operation of the active merchandise display and/or the item of merchandise.

19. The merchandise display device of Claim 1, wherein the presence sensor

and/or the electronics associated with the presence sensor is configured to communicate with the operating system of the item of merchandise to activate the operating system of the item of merchandise from a sleep mode to an active display mode.

20. The merchandise display device of Claim 19, wherein the operating system of the item of merchandise is configured to initiate a demonstration video relating to the item of merchandise on a display screen of the item of merchandise.

21. The merchandise display device of Claim 19, wherein the operating system of the item of merchandise is configured to activate a wireless communications capability of the item of merchandise.

22. The merchandise display device of Claim 1, wherein the presence sensor, the electronics associated with the presence sensor, and/or the item of merchandise is configured to transmit a notification indicator to a sales associate that an individual is approaching or passing by the active merchandise display.

23. The merchandise display device of Claim 1, wherein the active merchandise display comprises a display base and a display stand, and wherein the item of merchandise is disposed on the display stand.

24. The merchandise display device of Claim 23, wherein the display stand is movable from the first configuration or state to the second configuration or state.

25. The merchandise display device of Claim 24, wherein the active merchandise display further comprises at least one cover disposed on the display base.

26. The merchandise display device of Claim 25, wherein the at least one cover is movable from the first configuration or state to the second configuration or state.

27. The merchandise display device of Claim 26, wherein the active merchandise display further comprises a mechanism operable for moving the display stand and/or the at least one cover from the first configuration or state to the second

configuration or state.

28. A merchandise display system for displaying an item of merchandise, comprising:

an item of merchandise;

an active merchandise display for displaying the item of merchandise, the active merchandise display being operable for moving from a first configuration in which the item of merchandise is hidden from view to a second configuration in which the item of merchandise is revealed and presented to an individual;

a presence sensor operably coupled with the active merchandise display; and

electronics associated with the presence sensor and operably coupled with and in communication with the presence sensor and the active merchandise display;

wherein the presence sensor is configured to detect and capture data relating to the presence of an individual within a predetermined range of distance from the presence sensor;

wherein the electronics is configured to process the data relating to the presence of the individual; and

wherein the presence sensor and/or the electronics associated with the presence sensor is configured to communicate with the active merchandise display to initiate operation of the active merchandise display from the first configuration or state to the second configuration or state.

29. A method of displaying an item of merchandise on a merchandise display device, comprising:

providing an active merchandise display operable for transitioning from a first configuration in which the item of merchandise is hidden from view to a second configuration in which the item of merchandise is not hidden from view;

providing a presence sensor configured for detecting the presence of an individual within a predetermined range of distance from the presence sensor;

detecting and capturing data relating to the presence of the individual;

providing electronics associated with the presence sensor and operable for

processing the data relating to the presence of the individual;

processing the data relating to the presence of the individual to determine when the individual is approaching or passing by the active merchandise display; and

communicating with the active merchandise display from the presence sensor and/or the electronics associated with the presence sensor to initiate the transition of the active merchandise display from the first configuration to the second configuration and/or activating an operating system of the item of merchandise.

## ABSTRACT

Embodiments of the present invention are directed to a merchandise display device, system and method for displaying an item of merchandise. For example, an active merchandise display may be operable to transition, transform or otherwise change from a first configuration or state in which the item of merchandise is hidden from view into a second configuration or state in which the merchandise is presented for viewing, examining, operating and/or interacting with the merchandise. The active merchandise display may include a presence sensor operable for detecting and capturing data relating to the presence of an individual approaching or passing by the display and associated electronics for processing the data relating to the presence of the individual to determine whether to initiate operation of the active merchandise display. The presence sensor and/or the electronics associated with the sensor may communicate with the item of merchandise to activate an operating system of the merchandise from a sleep mode to an operational and active display mode.