UMBRELLA SYSTEMS AND METHODS FOR EMPLOYING SENSORS

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Abstract

Various embodiments of umbrella systems employing sensors and methods related to such systems are disclosed. One embodiment, among others, comprises an umbrella system, comprising a handle assembly, comprising a handle assembly remote control and a transducer assembly configured to communicate a control signal from the handle assembly remote control to an electronic device.
Activate Programming of Remote Control

Direct Input Signal at Sensor

Receive Input Signal

Program Control Signal

Indicate Completion of Remote Control Programming

FIG. 4
UMBRELLA SYSTEMS AND METHODS FOR EMPLOYING SENSORS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to copending U.S. provisional application entitled, "UMBRELLA SYSTEMS AND METHODS FOR EMPLOYING SENSORS" having Ser. No. 60/878,547, filed Jan. 4, 2007, which is entirely incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present disclosure generally relates to the field of umbrella systems and, in particular, to umbrella systems employing sensors.

BACKGROUND

[0003] There exist many examples where individuals are concerned about their personal safety and security. Such concerns include protection from both environmental elements (e.g., sun, rain, sleet, and hail) and personal threats (e.g., assault, robbery, and car jacking). One solution is to provide ready access to potentially secure areas (e.g., car, home and garage). Inclement weather, however, increases a person's vulnerability by delaying entry into these safe areas.

[0004] Umbrellas can be used to provide protection from adverse weather conditions. But because the umbrella occupies one hand, a person's ability to quickly enter secure areas may be restricted. Moreover, when also carrying another item such as a package, grocery bag, suitcase, briefcase or handbag, the ability to access keys to open doors becomes severely hampered. Thus, a need exists to reduce one's exposure to environmental and personal threats by minimizing the delay in entering secure areas.

SUMMARY

[0005] Embodiments of the present disclosure provide umbrella systems employing sensors and methods related to such systems.

[0006] Briefly described, one embodiment, among others, comprises an umbrella system, comprising a handle assembly, comprising a handle assembly remote control and a transducer assembly configured to communicate a control signal from the handle assembly remote control to an electronic device. Another embodiment, among others, comprises an umbrella handle assembly, comprising means for remotely controlling an electronic device and means for communicating a control signal from the controlling means to the electronic device.

[0007] Other systems, apparatus, methods, features, and advantages of the present disclosure will be or become apparent to one with skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional systems, apparatus, methods, features, and advantages be included within this description, be within the scope of the present disclosure, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF FIGURES

[0008] Many aspects of the disclosure can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

[0009] FIG. 1 is a schematic diagram of an embodiment of an umbrella system.

[0010] FIG. 2 includes schematic diagrams that illustrate embodiments of the handle assembly for the umbrella system of FIG. 1.

[0011] FIG. 3 is a schematic diagram of a remote control that can be implemented in the handle assembly of FIG. 2.

[0012] FIG. 4 is a flow diagram that illustrates a method for programming the handle assemblies of FIG. 2.

[0013] FIGS. 5A-5B are schematic diagrams that illustrate embodiments of detachable handle assemblies for the umbrella system of FIG. 1.

[0014] FIG. 6 is a schematic diagram that illustrates another embodiment of detachable handle assemblies for the umbrella system of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] Disclosed herein are various embodiments of umbrella systems employing sensors and methods related to such systems. Reference will now be made in detail to the description of the embodiments as illustrated in the drawings, wherein like reference numbers indicate like parts throughout the several views.

[0016] FIG. 1 is a schematic diagram of an embodiment of an umbrella system 100. The umbrella system includes a center shaft 110, which is the main support. At the top of the center shaft 110 is attached a plurality of pivotally disposed main ribs 130 for supporting a flexible cover 120 (shown partially cut away). The cover 120 may be formed of natural and/or synthetic fabric, plastic, rubber-coated fabric, or similar materials known in the art for providing protection from the elements. While the embodiment shown in FIG. 1 has a cover 120 of circular geometry, other geometric configurations (e.g., octagonal, hexagonal, square and oval) can be used.

[0017] The main ribs 130 are under, and attached to, the cover 120, and when fully expanded, stretch the cover 120 to its operational, open, configuration. The flexible main ribs 130 are supported by a plurality of spreaders 140, which are pivotally disposed about the center shaft 120. The spreaders 140 are each pivotally attached to a respective main rib 130 at a point between the rib ends. One skilled in the art would understand that the umbrella system 100 could include collapsible center shaft 110, main ribs 130, and spreaders 140 for compact storage.

[0018] At the bottom of the center shaft 110 is attached a handle assembly 150 for gripping and supporting the umbrella system 100. FIG. 2 includes schematic diagrams that illustrate embodiments of the handle assembly 150 for the umbrella system 100. In these illustrated embodiments, the handle assembly 150 includes an open button 210 to allow extending and expanding the umbrella cover 120 during bad weather. While FIG. 2 shows the open button 210 included in the handle assembly 150, it should be understood that in other embodiments, the center shaft 110 could include open button 210.

[0019] The handle assembly 150 includes a programmable remote control (not shown) for controlling electronic devices such as, but not limited to, home and vehicle security systems.
door locks, automated trunk openers, and garage door openers. Examples of programmable remote controls that can be implemented in the handle assembly 150 are discussed in “METHOD AND APPARATUS FOR REMOTE CONTROL,” U.S. Pat. No. 7,227,444, and “PROGRAMMABLE A UNIVERSAL REMOTE CONTROL,” U.S. Pat. No. 7,106,209, which are entirely incorporated herein by reference.

FIG. 3 is a schematic diagram of a remote control 300 that can be implemented in the handle assembly 150. One skilled in the art would understand that remote controls 300 typically include a power supply 310, a control unit 320, and a transmitter 330 and/or receiver 340. The transmitter 330 and receiver 340 may be combined into a transceiver. In addition, remote control 300 may be configured to control one or more electronic devices.

The transmitter 330 and/or receiver 340 of remote control 300 communicate signals through a transducer assembly 230. Transducer assembly 230 includes sensors and/or transducers such as, but not limited to, infrared diodes, antennas and/or other components suitable for infrared (IR), radio frequency (RF), WiFi, WiMax, Ultra-Wide Band (UWB), Bluetooth, or other suitable communication technologies. In the embodiments of FIG. 2, the transducer assembly 230 is located at the free end of the handle assembly 150. It is understood that the transducer assembly 230 may be located at alternative locations of the handle assembly such as, but not limited to, elbow 250 or spine 260.

Programming of a handle assembly remote control can be accomplished using programming button 220 and transducer assembly 230. Once programming is complete, control button 240 can be used to operate the remote control. Additional programming and/or control buttons can be included in handle assembly 150 to allow control of a plurality of separate electronic devices. In one embodiment, including a handle assembly remote control suitable for control of a plurality of electronic devices, the handle assembly 150 may have one programming button 220 and a plurality of control buttons 240, where each control button 240 can be programmed to control a single electronic device.

An indication light (e.g., LED) may also be included in the handle assembly 150 to provide an external indication from the remote control. In a preferred embodiment, indication lights are incorporated into programming and control buttons, 220 and 240 respectively. In addition, the handle assembly 150 may be designed with the open button 210, programming button(s) 220, control button(s) 240 and indication light(s) located in positions other than those indicated in FIG. 2.

The transducer assembly 230 may receive an input signal from a separate remote control device, associated with an electronic device, for programming the handle assembly remote control. Similarly, transducer assembly 230 can transmit a signal for controlling the electronic device. The transducer assembly 230 may communicate with the electronic device and its separate remote control device using infrared (IR), radio frequency (RF), WiFi, WiMax, Ultra-Wide Band (UWB), Bluetooth, or other suitable communication technologies.

FIG. 4 is a flow diagram 400 that illustrates a method for programming the handle assemblies of FIG. 2. To begin, in step 410 the handle assembly remote control is activated for programming. In one embodiment, pressing the programming button 220 activates the handle assembly remote control for programming. In a preferred embodiment, an indication light in programming button 220 flashes to acknowledge that the handle assembly remote control is ready to proceed with programming. In another embodiment including a handle assembly remote control suitable for control of a plurality of electronic devices, programming may be activated by pressing a common programming button 220 and then selecting one of a plurality of control buttons 240 to program by pressing the selected control button 240.

The input signal is then directed toward transducer assembly 230 using the separate remote control device for the electronic device in step 420. The input signal is received by transducer assembly 230 and sent to the handle assembly remote control in step 430. The input signal can be used to define a control signal of the handle assembly remote control. In one embodiment, the control signal is the same as the input signal. In step 440, the control signal is programmed by the handle assembly remote control. Once programming is complete, the handle assembly remote control indicates that it is ready for use in step 450. In a preferred embodiment, an indication light in control button 240 flashes to acknowledge that the handle assembly remote control completed programming and is ready for use. In other embodiments including a plurality of control buttons 240, an indication light in the selected control button 240 flashes.

After programming is complete, the handle assembly remote control will cause the transducer assembly 230 to transmit the control signal when control button 240 is pressed. Where multiple control buttons are included on the handle assembly, the handle assembly remote control will cause the transducer assembly 230 to transmit the control signal associated with pressed control button 240. One skilled in the art would understand that other methods of programming or selecting control signals could be used to set up the handle assembly remote control.

In an alternate embodiment, the handle assembly includes a voice activation system (not shown). The voice activation system is configured to recognize phrases. Recognition of a phrase will cause the transducer assembly 230 to transmit a control signal associated with that phrase, as discussed above in connection with the remote control assembly. Examples of voice activation systems that can be implemented in the handle assembly 150 are discussed in “VOICE RECOGNITION PERIPHERAL DEVICE,” U.S. Pat. No. 6,852,676, and “SYSTEM AND METHOD FOR TELEPHONIC SWITCHING AND SIGNALING BASED ON VOICE RECOGNITION,” U.S. Pat. No. 6,999,564, which are entirely incorporated herein by reference.

FIGS. 5A-5B are schematic diagrams that illustrate embodiments of detachable handle assemblies for the umbrella system of FIG. 1. In the embodiment illustrated in FIG. 5A, handle assembly 550 is detachably connected to the center shaft 110. The handle assembly 550 can be detachably connected using connections such as, but not limited to, bayonet, threaded, compression, or spring release connections.

FIG. 5A illustrates the handle assembly 550, including open button 210, programming button 220, and control button 240, detached from the center shaft 110. A clip 510 can be attached to the handle assembly 550. In addition, the detachable handle assembly 550 includes a handle assembly remote control and transducer assembly 230. A clip 510 may be included to allow the detached handle assembly 550 to be clipped onto a belt, handbag, briefcase, suitcase, or other location. In other embodiments, the center shaft 110 can include the open button 210.
FIG. 5B illustrates an embodiment of a handle assembly 550 comprised of two portions, 550A and 550B, such that portion 550B is detachably connected to portion 550A. Portion 550A is attached to center shaft 110 and includes open button 210. In this embodiment, portion 550B is shown detached from portion 550A and includes programming button 220 and control button 240. The detached portion 550B of the handle assembly 550 also includes the handle assembly remote control and transducer assembly 230. In addition, clip 510 may be included on portion 550B of the handle assembly 550.

FIG. 6 is a schematic diagram that illustrates another embodiment of detachable handle assemblies for the umbrella system of FIG. 1. In the illustrated embodiment, handle assembly 650 comprised of two portions, 650A and 650B, such that portion 650B is detachably connected to portion 650A. Portion 650A is attached to center shaft 110 and includes open button 210. In this embodiment, portion 650B is shown detached from portion 650A and includes programming button 220 and control button 240. The detached portion 650B of the handle assembly 650 also includes the handle assembly remote control and transducer assembly 230. Handle assembly portion 650A can include an ejection button 660 to assist in the detachment of portion 650B.

It should be emphasized that the above-described embodiments of the present disclosure, particularly, any “preferred” embodiments, are merely possible examples of implementations, merely set forth for a clear understanding of the principles of the disclosure. Many variations and modifications may be made to the above-described embodiment(s) of without departing substantially from the spirit and principles of the disclosure. All such modifications and variations are intended to be included herein within the scope of this disclosure.

What is claimed:
1. An umbrella system, comprising:
   a handle assembly, comprising:
   a handle assembly remote control; and
   a transducer assembly configured to communicate a control signal from the handle assembly remote control to an electronic device.
2. The system of claim 1, wherein the transducer assembly is configured to receive an input signal from a separate remote control associated with the electronic device, wherein the input signal is used for programming the handle assembly remote control.
3. The system of claim 2, wherein the input signal defines the control signal.
4. The system of claim 1, wherein the transducer assembly communicates the control signal using infrared.
5. The system of claim 1, wherein the transducer assembly communicates the control signal using radio frequency.
6. The system of claim 1, wherein the transducer assembly is configured to communicate a control signal from a handle assembly voice activation device to an electronic device, the handle assembly voice activation device configured to recognize at least one phrase associated with at least one control signal.
7. The system of claim 1, further comprising a center shaft, wherein the handle assembly is detachably connected to the center shaft.
8. The system of claim 7, wherein the handle assembly further comprises a button to control opening the umbrella system.
9. The system of claim 7, wherein the center shaft comprises a button to control opening the umbrella system.
10. The system of claim 7, wherein the handle assembly further comprises a clip.
11. The system of claim 1, further comprising a center shaft, wherein the handle assembly further comprises a first portion attached to the center shaft and a second portion detachably connected to the first portion.
12. The system of claim 11, wherein the button to control opening the umbrella system is located on first portion of the handle assembly.
13. The system of claim 11, wherein the button to control opening the umbrella system is located on second portion of the handle assembly.
14. The system of claim 11, wherein the handle assembly further comprises a clip, wherein the clip is located on the second portion of the handle assembly.
15. An umbrella handle assembly, comprising:
   means for remotely controlling an electronic device; and
   means for communicating a control signal from the controlling means to the electronic device.
16. The assembly of claim 15, further comprising means for receiving an input signal from a separate remote control associated with the electronic device, wherein the input signal is used for programming the handle assembly remote control.
17. The assembly of claim 15, further comprising means for activating programming of the handle assembly remote control.
18. The assembly of claim 15, further comprising means for indicating when programming of the handle assembly remote control is complete.
19. The assembly of claim 15, further comprising means for detachably connecting the handle assembly to an umbrella.
20. The assembly of claim 19, further comprising means for opening the umbrella.

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