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United States Patent	12385297
Kind Code	B2
Date of Patent	August 12, 2025
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System and method for an applique with deployable handle

Abstract

A vehicular exterior door handle assembly includes a base portion configured to mount at a vehicle door. A handle portion includes a grasping portion and is movable relative to the base portion between a recessed position, where the grasping portion is recessed at the base portion, and a deployed position, where the grasping portion protrudes outward to be graspable by the user. A deployment mechanism is operable to move the handle portion between the recessed and deployed positions. A control module, based on a user input, actuates a latch mechanism to unlock the vehicle door. The deployment mechanism, responsive to the control module unlocking the vehicle door, moves the handle portion from the recessed position to the deployed position. With the handle portion in the deployed position and the vehicle door unlocked, the handle portion is graspable by the user to open the vehicle door.

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Appl. No.: **18/169917**

Filed: **February 16, 2023**

Prior Publication Data

Document Identifier	Publication Date
US 20230258030 A1	Aug. 17, 2023

Related U.S. Application Data

us-provisional-application US 63310716 20220216

Publication Classification

Int. Cl.: **E05B85/10** (20140101); **B60J5/04** (20060101); **B60R13/04** (20060101); **B60R25/23** (20130101); **E05B85/14** (20140101)

U.S. Cl.:

CPC **E05B85/107** (20130101); **B60J5/04** (20130101); **B60R13/04** (20130101); **B60R25/23** (20130101); **E05B85/14** (20130101);

Field of Classification Search

CPC: E05B (85/107); E05B (85/14); E05B (79/06); B60J (5/04); B60R (13/04); B60R (25/23)

USPC: 292/336.3

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Background/Summary

CROSS REFERENCE TO RELATED APPLICATION (1) The present application claims the filing benefits of U.S. provisional application Ser. No. 63/310,716, filed Feb. 16, 2022, which is hereby incorporated herein by reference in its entirety.

FIELD OF THE INVENTION
(1) The present invention relates to handles for vehicles and, more particularly, to an exterior handle for opening a side door and/or liftgate of a vehicle.
BACKGROUND OF THE INVENTION
(2) A door handle for a vehicle door typically includes a handle portion that is pivotable relative to a base portion, whereby pivotal movement of the handle portion actuates a latch mechanism to open the door. Typically, a door handle is a pull strap handle with a strap handle portion that protrudes outwardly from the side of the vehicle for grasping by the person opening the door of the vehicle. Alternately, paddle type door handle assemblies are known, where a paddle portion is pivotally mounted to a base portion and is pulled generally outwardly and upwardly to open the vehicle door.
(3) A primary concern for outside handles for closure panels for vehicles is that one must be able to open the door in freezing conditions while also providing some object (e.g., handle) for the user to grab and thus manually manipulate the position of the door between open and closed positions.

Handle-less designs are known, however molded features in a frame of the closure panel can be expensive to manufacture and can detract from a desired streamlined look of the vehicle. Further, aerodynamic concerns, as well as sealing concerns (providing for a mode of failure for infiltration of foreign debris and moisture into the interior of a door panel), are disadvantages of today's handle designs in which the handle is mounted in an aperture in the door panel skin.

SUMMARY OF THE INVENTION

(4) A vehicular exterior door handle assembly includes a base portion configured to mount at a door of a vehicle equipped with the vehicular exterior door handle assembly. The base portion is mounted along an outer surface of the door or an outer surface or portion of a support structure or frame of the door. A handle portion includes a grasping portion and is movable relative to the base portion between a recessed position, where the grasping portion of the handle portion is at least partially recessed at the base portion, and a deployed position, where the grasping portion of the handle portion protrudes outward from the base portion so as to be graspable by the user. A deployment mechanism is coupled to the handle portion and operable to move the handle portion between the recessed position and the deployed position. A control module includes electronic circuitry and is disposed remote from the vehicular exterior door handle assembly and is configured to control a latch mechanism of the door. The control module, based on a user input, actuates the latch mechanism of the door to unlock the door. The deployment mechanism, responsive to the control module actuating the latch mechanism to unlock the door, is electrically operated to move the handle portion from the recessed position to the deployed position. With the handle portion in the deployed position and the door unlocked, the handle portion is graspable by the user to open the door.

(5) These and other objects, advantages, purposes and features of the present invention will become apparent upon review of the following specification in conjunction with the drawings.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIGS. **1**A and **1**B are perspective views of a vehicle equipped with a deployable handle assembly;

(2) FIG. **1**C is a block diagram of the vehicle door showing the handle assembly, a control system, a latch assembly, and power door actuation system;

(3) FIG. **2** is a plan view of the handle assembly of FIG. **1**A disposed at a B-pillar of the vehicle and with the handle in the extended position;

(4) FIGS. **3**A and **3**B are side views of the handle assembly as the handle moves between the recessed position and the extended position;

(5) FIG. **4** is a perspective view of the handle assembly disposed in the recessed position;

(6) FIGS. **5**A and **5**B are plan views of a vehicle door with the belt line and window of the vehicle door aligned with the edges of the handle assembly; and

(7) FIGS. **6**-**8** are flow diagrams depicting example methods of operating the handle assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

(8) Referring to FIGS. **1**A and **1**C, a side view of a vehicle **1** is shown partially cut away to include closure panels **14**, such as a front driver-side door **14** and a rear driver-side door **14**, which may provide access to an interior portion or passenger compartment **15** of the vehicle **1**. The front driver-side door **14** includes a user interface assembly **10** for locking and unlocking of a mechanically-activated latch mechanism **21**′ (e.g., FIG. **1**C) mounted within the door **14**. The door **14** may be configured as having an outer sheet metal panel connected to an inner sheet metal panel to define a cavity or compartment or interior portion **34**′ therebetween. The compartment **34**′ of the door **14** may accommodate or house one or more door components or systems, such as a window

regulator, a door module, a power side door actuator, a door latch, and the like. The outer sheet metal panel of the door **14** may be painted to provide a Class-A surface (i.e., a physical surface of the vehicle that is intended to be directly viewed and/or touched by users of the vehicle), and the door **14** may not include an aperture or opening or interruption in the outer sheet or visible outer surface. For example, an aperture in the outer surface of a vehicle door may typically be required for a door handle to be mounted within the aperture.

(9) As discussed further below, a handle assembly **30** including a base portion or applique **31** and a handle portion **104** pivotably mounted to the base portion **31** is mounted to an exterior surface or mounting region **27** of the door. The handle portion **104** is movable or pivotable relative to the base portion **31** between a recessed or retracted position, where the handle portion **104** is at least partially recessed at the base portion **31** and may be substantially flush with the base portion **31** and/or an outer surface of the door, and an extended or deployed position, where the handle portion **104** is moved from the recessed position outward from the door to be graspable by the user. When the latch mechanism **21′** is unlocked or released so that the door **14** can be opened, the handle portion **104** is extended or deployed from the base portion **31** to the extended position so that the user may grasp the handle portion **104** and open the door. Thus, the handle assembly **30** is mountable to the vehicle door **14** without requiring an aperture formed through the outer surface of the door to accommodate the handle portion **104**. The base portion **31** may be mounted to the exterior surface **27** of the door in any suitable manner, such as via an adhesive or glue disposed between the base portion and the exterior surface **27** of the door **14**, or via fasteners, such as screws or snap-attaching fasteners or plastic press-fit fasteners, that attach the base portion to the door panel. Optionally, the handle assembly **30** may comprise a magnetic material and the base portion **31** may be magnetically mounted to the exterior surface of the door **14**.

(10) That is, the base portion or applique **31** may be mounted at (such as snap attached at) the mounting region **27** of the outer panel of the vehicle door **14**, such as at the B-pillar of the vehicle door **14**. With the applique **31** attached to the mounting region **27** of the outer panel of the vehicle door **14** and with the handle portion **104** movably disposed at the base portion **31**, an outer surface of the handle portion **104** (and optionally a portion of the applique **31**) provides a Class-A surface at the mounting region **27** of the door **14**. For example, the base portion or applique may comprise a plastic or polymeric element and may be attached (via one or more fasteners) to the metal or plastic frame of the B-pillar of the door to provide the outer surface or Class-A surface at the B-pillar of the door. The outer surface of the handle portion **104**, with the handle portion in the recessed position relative to the base portion **31**, may be substantially aligned or flush or co-planar with the outer surface of the vehicle door **14** (the Class-A surface of the door) at or near or surrounding the mounting region **27**. Further, a portion of the applique **31** may be substantially aligned or flush or co-planar with the outer surface of the vehicle door **14** at or near or surrounding the mounting region **27**.

(11) The handle assembly **30** may comprise any suitable type of handle assembly, and may include or incorporate aspects of the door handle assemblies described in U.S. Pat. Nos. 8,786,401; 6,977,619; 7,407,203; 6,349,450; 6,550,103; 6,907,643; 8,801,245 and/or 8,333,492, and/or U.S. Publication Nos. US-2022-0018168; US-2022-0282534; US-2022-0341226; US-2010-0088855; US-2010-0007463 and/or US-2020/0102773, and/or U.S. provisional patent applications, Ser. No. 63/369,781, filed Jul. 29, 2022; Ser. No. 63/373,870, filed Aug. 30, 2022, and/or Ser. No. 63/480,141, filed Jan. 17, 2023, which are all hereby incorporated herein by reference in their entireties. The handle may comprise a strap type handle, a paddle type handle, or other type of vehicle door handle assembly. Furthermore, aspects of the handle assembly **30** may be suitable for use with a liftgate handle assembly for a liftgate or tailgate of a vehicle.

(12) Operation of the user interface **10** functions to release or unlock the latch mechanism **21′** of the door **14** for movement of the door **14** relative to a body **24** of the vehicle **1** about hinges **16′**, **18′** (FIG. **1**C). The door **14** is movable between a closed position, where the door **14** is substantially

flush with the body **24** of the vehicle **1**, and an opened position, where the door **14** is pivoted relative to the body **24** of the vehicle **1** and away from the side of the vehicle to allow access to the interior **15** of the vehicle **1**. A similar user interface (not shown) may be provided on the rear door **14** and interconnected to another latch mechanism (not shown) provided for locking and unlocking the rear door **14**, or the liftgate of the vehicle. Optionally, the user interface **10** for opening the vehicle door **14** may be positioned on the B pillar **22**. As discussed further below, the latch mechanism **21**′ may include an electrically operable actuator for controlling the locking and unlocking functions in association with a keyless entry system. The vehicle **1** also includes an A-pillar **20**, the B-pillar **22** and a roof portion **26**.

(13) That is, the vehicle door **14** includes the latch mechanism **21**′ that controls locking and unlocking of the vehicle door **14**. When the vehicle door **14** is closed and the latch mechanism **21**′ is locked or secured, the user is unable to move the vehicle door **14** from the closed position toward the opened position. When the vehicle door **14** is closed and the latch mechanism **21**′ is unlocked or released, the user (or an electrically operable actuator) is able to move the vehicle door **14** between the closed position and the opened position. The user interface **10** is disposed at or near the vehicle door **14** (such as at an outer surface of the door or a B-pillar of the vehicle) and may transmit a signal to the latch mechanism **21**′ to lock and unlock the vehicle door **14** based on a user input. For example, and as described further below, the user interface **10** may comprise a keypad configured to receive an alphanumeric code from a user and transmit the locking or unlocking signal based on the alphanumeric code or a touch sensitive surface comprising a capacitive sensor configured to transmit the signal in response to detecting presence of the user's hand at the user interface **10**.

(14) Further, and as shown in FIGS. **1**A, **1**B, and **2**, the handle assembly **30** is positioned at the mounting region or exterior surface **27** of the closure panel **14** and/or other vehicle surface(s) adjacent to the closure panel **14**. For example, the handle assembly **30** may be disposed at the exterior surface **27** of the door **14** at a position corresponding to a traditional door handle assembly, or at the exterior surface **27** at the B-pillar **22**. The handle assembly **30** may include the base portion or applique **31** (e.g., a Class-A surface) applied to the mounting region **27** (e.g., of the closure panel **14** and/or other portions of the vehicle **1**, such as the B pillar **22**). The handle **104** is coupled to the applique **31** and is graspable by the user to move the door **14** between the closed position and the opened position. Thus, the handle **104** is attached or coupled to the door **14** via the applique **31** and may be pivotable relative to the applique **31** between the recessed or retracted position and the extended or presented position. With the applique **31** applied to the exterior surface **27** of the vehicle, the handle **104** is coupled to the door **14** without need for an aperture formed through the door **14** to accommodate the handle **104** (such as to couple the handle to the latch mechanism, as in a typical vehicular door). In other words, the handle **104** of the handle assembly **30** does not project through any aperture at the mounting region **27**, and the handle **104** is a component of the applique **31** that is applied to the mounting region or exterior surface **27**. For example, the handle **104** may be pivotably coupled to the applique **31** by a hinge **107** of the applique **31**.

(15) In other words, because the latch mechanism **21** of the door may be locked and unlocked or secured and released, via the user interface **10** (which may communicate with the latch mechanism **21** via a wired or wireless connection), the door **14** may be moved between the closed position and the opened position by the user grasping the handle portion **104** of the handle assembly **30** coupled to the applique **31** that is disposed at the outer surface of the door **14** and without a portion of the handle **104** or applique **31** protruding through the outer surface of the door **14**. Thus, the door **14** may be manufactured without an aperture for accommodating the handle **104**, and the applique may be attached at the outer surface or side of the door. Further, and as discussed further below, the handle **104** of the handle assembly **30** is movable or pivotable relative to the applique **31** between the retracted position (where an outer surface of the handle **104** may correspond to or be substantially flush with an outer surface of the applique **31** and/or an outer surface of the vehicle

door **14**) and the extended position (where the user may grasp the handle **104** to move the door **14** between the closed position and the opened position).
(16) Referring to FIGS. **1**A, **1**C, **2**, and **4**, an actuator **100** (e.g., an electrically operable motor) may be actuated to operate a control link **102** (e.g., a push rod). The actuator **100** may be electrically operated or controlled via an electronic control module **52**′, as discussed further below. The control link **102** is connected to the deployable handle **104**, which is incorporated as part of the applique **31** (e.g., a Class-A surface) applied to the exterior surface **27** of the closure panel **14** and/or other portion of the vehicle **1**. When the actuator **100** is electrically operated, the actuator **100** moves the control link **102** to push or pivot the handle **104** from the retracted or non-use position (e.g., where an outer surface of the handle **104** is substantially flush with a surface **27***a* of the applique **31**) to the deployed or extended or use position (e.g., where the handle **104** is pivoted from the retracted position away from the applique **31** and the side of the vehicle to be at least partially spaced from the surface **27***a* of the applique **31** and graspable or grippable by a user to open the door).
(17) That is, the actuator **100** is coupled to the handle **104** of the handle assembly **30** via the control link or push rod **102** for moving the handle **104** between the non-use position and the use position. When operated to move the handle **104** from the non-use position toward the use position (such as in response to the latch mechanism **21**′ releasing or unlocking the vehicle door **14**), the actuator **100** extends the control link **102** toward the handle **104** and the handle **104** pivots outward from the applique **31** based on movement of the control link **102**.
(18) As shown in FIG. **1**C, the control link **102** is coupled to the actuator **100** within an interior of the body **24** of the vehicle **1** and the control link **102** extends from inside the body **24** of the vehicle **1** and through an aperture **105** in the surface **27** toward the handle **104** that is situated with the applique **31** mounted on the exterior surface **27**. Optionally, the control link **102** is coupled to the actuator **100** within the interior portion **34**′ of the door **14** and extends from inside the body of the door **14** and through the aperture **105** in the surface **27** to connect the actuator **100** with the handle **104** that is situated with the applique **31** mounted on the exterior surface **27**. As such, the handle **104** (i.e., the structure having a body for grasping by a user of the vehicle **1**) does not project into the interior portion of the body **24** or the interior portion **34**′ of the door **14**. Rather, the control link **102** penetrates the surface **27** in order to couple the exterior mounted handle **104** with the interior mounted actuator **100**. Thus, the control link **102** is not accessible by the user for use in manually opening the door **14** (i.e., facilitating the movement of the door **12** by the user about the hinges **16**′, **18**′), and the handle **104** is accessible for grasping by the user when manually opening the door **14**.
(19) Referring to FIGS. **1**B and **1**C, a power door actuation system **20**′ includes an electrically operable swing door presenter mechanism or power swing door actuator **32**′. The power swing door actuator **32**′ includes a powered door presenter assembly **22**′ that includes an electric motor **24**′, a reduction gear train **26**′, a slip clutch **28**′, and a drive mechanism **30**′. The powered door presenter assembly **22**′ is mounted within the interior chamber **34**′ of the door **14** and is electrically operable to move the door **14** relative to the body **24** of the vehicle **1** when the latch mechanism **21** is released or unlocked. The presenter assembly **22**′ may also include a connector mechanism **36**′ configured to connect an extensible member of the drive mechanism **30**′ to a portion of the vehicle body **24**. In some examples, the connector mechanism **36**′ of the presenter assembly **22**′ is spaced from or not engaged with or disconnected from a portion of the vehicle body **24** and, when the presenter assembly **22**′ is electrically operated, the connector mechanism **36**′ is configured to urge or push the door **14** from the closed position, where the door **14** is substantially flush with the vehicle body **24**, to a presented position, where the door **14** is moved toward the opened position so that a gap separates the vehicle body **24** and a door edge **114**′ of the door **14** (such as a gap of 20 millimetres or more, 70 millimeters or more, 100 millimeters or more, and the like). Thus, with the door **14** in the presented position, the user may manually move the door further from the closed position to the opened position. The presenter assembly **22**′ further includes a support structure, such as an actuator housing **38**′, configured to be secured to the door **14** within the interior chamber

34′ and configured to enclose the electric motor **24**′, the reduction gear train **26**′, the slip clutch **28**′, and the drive mechanism **30**′ therein.

(20) Optionally, the power swing door actuator **32**′ may be operable to move the door from the closed or presented position to the opened position to provide a power open function of the door. For example, in response to receiving the user input at the user interface **10** to release the latch mechanism **21**′, the control module **52**′ may operate the power door actuator **32**′ to move the door from the closed position to the opened position so that the user may enter the vehicle. Optionally, the handle assembly **30** may move the handle **104** from the recessed position to the deployed position in the event that the power swing door actuator **32**′ fails to move the door from the closed position to the opened position. In other words, the handle assembly **30** may provide a manual backup for opening the door when the actuator **32**′ does not open the door.

(21) The handle assembly **30** may incorporate components and functionality of the user interface assembly **10**. In other words, the vehicle **1** could have a separate user interface assembly **10** and a separate handle assembly **30**, such that the user interface assembly **10** is used to open or unlock the door **14** (e.g., to request opening of the latch assembly **21**′) and the handle assembly **30** is used by the operator to physically open the door **14** by way of the deployed handle **104**, once the latch mechanism **21**′ is unlatched/unlocked. That is, the user interface assembly **10** may be operable to unlock or unlatch the door **14** and the handle assembly **30** may be operable to provide a grasping point for the user to grasp and manually open the door **14**.

(22) Referring to FIGS. **1**A, **1**B, **1**C, and **4**, the user interface **10** for the electronic latch system **21**′ in the closure panel **14** of the vehicle **1** is shown. The user interface assembly **10** includes a cover **10***a*, such as a bezel, defining a vehicle surface, such as a Class-A surface, and includes a force-based sensor that is actuated responsive to a force applied to the Class-A surface. In other words, the cover or bezel **10***a* of the user interface assembly **10** defines a Class-A surface of the vehicle and includes the sensor that may be actuated in response to a user input at the Class-A surface. For example, the sensor may include a force-based sensor that changes an electrical property, such as an increase in conductance or capacitance, in response to application of a physical force. Optionally, the sensor may be a capacitive switch that senses the presence of a nearby object by a change in capacitance or disruption in an emitted electromagnetic field.

(23) An outer surface of the applique **31** and handle **104** may comprise a Class-A surface of the vehicle **1**. Further, the applique **31** may include one or more sensors, such as force-based sensors or buttons **80**. In the illustrated example, the Class-A surface of the cover **10***a* and the applique **31** presents an uninterrupted surface, which may be smooth for example, at least in a touch-sensitive region around the force-based sensor (e.g., the buttons **80** at the applique **31**), and may be free of any through openings and/or gaps for independently moveable portions, such as the moveable body of a switch. Thus, the user interface **10** and/or the handle assembly **30** may provide respective Class-A surfaces (including, for example, the applique **31** with buttons **80**).

(24) In the illustrated example of FIG. **4**, the handle assembly **30** and applique **31** includes a cover plate **120** that is positioned around the deployable handle **104**. As shown, the handle assembly **30** includes a capacitive touch keypad unit (e.g., at the applique **31**) including one or more buttons **80** on the applique **31**. The one or more buttons **80** may be coupled to one or more light sources, such as light emitting diodes (LEDs) for illuminating the buttons. For example, the one or more LEDs may be disposed behind the applique **31** for backlighting icons at the applique **31** and corresponding to the respective buttons **80**. The buttons **80** may include capacitive and/or resistive sensors **82** that, when the respective button **80** receives an input from a user, send signals to the control system **52**′ in order to instruct the operation of the deployable handle **104**.

(25) The one or more buttons **80**, when actuated by the user, may control operation of any suitable function of the door or handle assembly **30**. Further, the function of the button **80** may be marked on the applique **31**. For example, the one or more buttons **80** may correspond to a Lock node (that when actuated by the user may lock the latch mechanism), a Release node (that when actuated by

the user may release the latch mechanism and/or deploy the handle **104**), and a wake-up switch (that when actuated by the user may control operation of the light sources that illuminate or backlight the one or more buttons). As such, the one or more buttons **80** (positioned on the applique **31**) may incorporate a button mechanism or switch **82**, such as a capacitive or resistive switch **82**. The one or more buttons **80** may include alphanumeric icons or indications (e.g., a keypad with numbers zero through nine) to assist in entering an access code at the handle assembly **30**. Optionally, the one or more buttons **80** may include Lock/Release capacitive type user-input interfaces a force-based user-input interface wake-up switch. That is, one or more buttons **80** may include capacitive switches **82** (e.g., one or more buttons that control the lock and unlock function of the door and/or handle assembly) and one or more buttons **80** may include force-based switches **82** (e.g., one or more buttons that wake-up or illuminate the handle assembly).

(26) For example, the one or more buttons **80** of the applique **31** may include a touch-sensitive region configured to deflect and/or to deform in response to a force applied thereto, for example, by being pushed by a user's fingertip. Optionally, the surface **27***a* of the applique **31** surrounding the handle **104** may include a tactile feature (e.g., the button **80**) disposed on the surface **27***a*, where the tactile feature can be formed to the configuration of braille, a raised or embossed logo, a symbol, text, a depression, or a protuberance, for indicating to a user either visually or tactilely the location of the force sensor/switch **82** disposed behind the surface **27***a*. As a result of the deflection or flexing of the touch-sensitive region, the force-based sensor **82** disposed beneath the surface **27***a* may register the touch. The force-based sensor **82** may be disposed adjacent a back side, opposite the Class-A surface **27***a*. The force-based sensor **82** may be configured to detect an application force on the touch sensitive region. Furthermore, a larger adjacent region surrounding the touch sensitive region may receive the application force and cause a deflection or flexing of the touch sensitive region of the surface **27***a*. Thus, a larger detection zone is possible to receive the force input or application force as compared with a physical switch, without accommodating a moveable body of the switch over the larger region. The one or more force-based sensors **82** may provide several advantages. For example, the one or more force-based sensors **82** may be actuated by a gloved hand and are not prone to false signals such as those caused by exposure to moisture or other environmental factors. The force-based sensor **82**, instead, may rely on mechanical pressure to eliminate accidental activation.

(27) Further, the user interface **10** and the handle assembly **30** may be provided collectively as an electronic applique assembly, which may be known as an eApplique or smart applique assembly (which may include the applique **31** and the control unit **52**′ with its own embedded control logic). A control strategy or control algorithm operated by the control system **52**′ (for the user interface **10** and/or the handle assembly **30**) may be applied to our utilized by any HMI interface such as the one or more buttons **80** and one or more switches **82** (e.g., mechanical or electrical, such as capacitive or strain sensors), a keypad, a near-field communication (NFC) reader or sensor or transmitter, a camera, a radar, a gesture sensor, and the like).

(28) Referring to FIGS. **3**A and **3**B, the handle assembly **30** includes the hinge or pivot **70** with ramp elements **72**. Optionally, the ramp elements **72** may be formed on the handle **104** at or near the hinge or pivot **70** and the ramp elements **72** may be disposed on a body **74** of the applique **31**. That is, the hinge or pivot **70** with the ramp element **72** is coupled to the body **74** of the applique **31** and the handle **104** is coupled to the pivot **70**. The ramp element **72** may comprise an angle that is sufficient to impart rotation of the handle **104** about the pivot **70** when the push rod **102** engages the ramp element **72** and moves along the ramp element **72**. The pivot **70** may also be referred to as the hinge **107** (e.g., FIG. **2**).

(29) The push rod or control link **102** may includes one of the ramps **72** and the control link ramp **72** engages or mates with the ramp **72** positioned on the body **74** of the applique **31**. The control link ramp **72** has an angle configured to impart rotation of the handle **104** about the pivot **70** when the control link **102** is moved by the actuator **100** to engage the pivot **70**. That is, the push rod **102**

may have a corresponding ramp interface or element **72** at the end of the push rod **102** that engages the ramp element **72** at the pivot **70** so that, when the actuator **100** is actuated to move the handle **104** between the retracted position and the extended position, the push rod **102** is moved along the pivot **70** and engagement of the ramped interfaces pivots the handle **104** about pivot **70** relative to the applique **31**.

(30) Thus, the handle assembly **30** for the closure panel **14** of the vehicle **1** may include the body **74** including the applique **31** for mounting on the external surface **27** of the vehicle **1** associated with the closure panel **14**. The applique **31** includes the surface **27***a* spaced apart from the exterior surface **27** by the thickness T of the body **74**. The deployable handle **104** is mounted on the surface **27***a* by the pivot **70**, such that the deployable handle **104** is moveable between the retracted position and the deployed position. The control link **102** is coupled to the handle **104** and coupled to the actuator **100**. The actuator **100** is positioned behind the exterior surface **27** (e.g., on a backside of the exterior surface). When the actuator **100** is actuated, the actuator **100** moves the handle **104** between the retracted position and the deployed position.

(31) Optionally, the pivot **70** includes the hinge **107** and may be formed as part of the body **74** of the applique **31**. Optionally, the applique **31** includes at least one button **80** having the button or switch or sensor mechanism **82**, such that when activated by the button **80**, the button mechanism **82** provides a signal for controlling the actuator **100**. Optionally, the control link **102** passes through the aperture **105** in the exterior surface **27** (FIG. **1**C) to engage the pivot **70**. Optionally, the control link **102** passes through an aperture in the exterior surface of the closure panel **14** and the actuator **100** is positioned in the interior **34**′ of the closure panel **14**. Optionally, the control link **102** passes through an aperture in the exterior surface of the B-pillar **22** and the actuator **100** is positioned in an interior of the body **24** of the vehicle **1**. Optionally, the body **74** of the applique **31** is a plastic material.

(32) As shown in FIGS. **5**A and **5**B, the handle assembly **30** includes the handle **104** that is provided as part of the applique **31**, which may benefit from the interfaces between the windows of the vehicle **1** and the vehicle belt line **133** (i.e., the edge or body line between the vehicle door and the vehicle window) to hide the handle **104**. Advantageously, only one new line going across the handle **104** is used. For example, a gap or interface **135** provided between the handle **104** and the applique **31** may be aligned with the belt line **133**, as shown in FIG. **5**A. That is, the belt line **133** and gap or interface **135** between the handle **104** and applique **31** may be aligned. The belt line **133** may be adjusted (i.e., the shape of the door panel or window may be adjusted) to align the belt line **133** and gap **135**, or the handle assembly **30** may be positioned to align the gap **135** with the belt line **133**. Further, since the handle **104** in the applique **31** is provided in a compact packaging area, the motor **100** may be placed in the cavity **34**′ of the vehicle door **14**. The control link or linkage mechanism **102** then connects the handle **104** to the motor **100** in the vehicle door cavity **34**′. As such, no additional apertures need to be formed at the mounting region **27** of the door **14** in order to accommodate the handle **104** itself.

(33) Referring to FIG. **6**, a method **600** for moving the deployable handle **104** of the handle assembly **30** for the closure panel **14** of the vehicle **1** includes, at operation **602**, receiving a signal for deploying the deployable handle **104**, where the deployable handle **104** is mounted on the surface **27***a* of the applique **31** of the handle assembly **30** by the pivot **70**, such that the deployable handle **104** is spaced apart from the exterior surface **27** of the vehicle **1** by the thickness T of the body **74**. The signal may be responsive to the latch mechanism **21**′ being unlocked or released via the user input at the user interface **10**. The method **600** includes, at operation **604**, operating the actuator **100** to control the control link **102** connected to the deployable handle **104**. The control link **102** passes through the aperture **105** of the exterior surface **27**. The method **600** includes, at operation **606**, moving the deployable handle **104** between the deployed position and the retracted position by manipulation of the control link **102** by the actuator **100**.

(34) Referring to FIG. **7**, a system or process or method **700** for assembling the handle assembly **30**

configured for attachment at the vehicle door **14** includes, at operation **702**, providing an applique **31** that is mountable at the exterior or outer surface of the door **14**. At operation **704**, the method **700** includes pivotably attaching the movable handle **104** at the applique **31**. At operation **706**, the method **700** includes disposing the actuator **100** or electrically operable motor at an interior portion of the vehicle body, such as within the interior compartment of the door **14**. At operation **708**, the method **700** includes mechanically coupling the actuator **100** and the movable handle **104** (e.g., via the push rod **102**) so that, when the actuator **100** is electrically operated, the handle moves between the retracted position and the extended position.

(35) Referring to FIG. **8**, a system or process or method **800** for assembling the handle assembly **30** at the vehicle door **14** includes, at operation **802**, providing the vehicle door **14**. At operation **804**, the method **800** includes mounting the movable handle **104** on the exterior surface of the door **14** without positioning the handle **104** at an aperture through the exterior surface of the door **14**, such as via the applique **31**. At operation **806**, the method **800** includes disposing the actuator or electrically operable motor **100** behind the exterior surface of the door **14**, such as within the interior portion of the door panel. At operation **808**, the method **800** includes mechanically coupling the actuator **100** and the movable handle **104** (e.g., via the push rod **102**) so that, when the actuator **100** is electrically operated, the handle **104** moves between the retracted position and the extended position.

(36) As shown in FIG. **1**C, the electronic control system or module **52′** is in communication with the electric motor **24′** for providing electric control signals thereto. That is, the control module **52′** is electrically coupled to the electric motor **24′** for controlling operation of the electric motor **24′**, such as to move the door **14** from the closed position to the presented position. The electronic control module **52′** may be in communication with the user interface assembly/system **10** for receiving control signals thereto, for example the control signals from the user interface assembly **10** may command the electronic control module **52′** to control actuation system **20′**. The electronic control module **52′** may include a microprocessor **54′** and a memory **56′** having executable computer readable instructions stored thereon for execution by the microprocessor **54′**. The electronic control module **52′** may include hardware and/or software components. The electronic control module **52′** may be integrated into, or directly connected to, the actuator housing **38′**, or may be a remotely located device within the door chamber **34′**, or may be integrated into the latch assembly **21′** that latches the door **14** to the body **24** (e.g., such as using a ratchet, pawl and striker arrangement).

(37) Optionally, the electric motor **24′** may include one or more Hall effect sensors for monitoring a position and speed of the vehicle door **14** during movement of the vehicle door **14** between the open position and the closed position. For example, one or more Hall effect sensors may be provided and positioned to send signals to the electronic control module **52′** that are indicative of rotational movement or position of the electric motor **24′** and/or indicative of the rotational speed of the electric motor **24′**. For example, rotational movement or position and/or rotational speed of the electric motor **24′** may be determined based on counting signals from the Hall effect sensor detecting a target on a motor output shaft of the electric motor **24′**.

(38) Where the sensed motor speed is greater than a threshold speed and where the current being supplied to the motor **24′** (e.g., as detected by a current sensor or sensing circuitry) registers a significant change in the current draw, the electronic control module **52′** may determine that the user is manually moving door **14** while the electric motor **24′** is also operating. The electronic control module **52′** may then send a signal to the electric motor **24′** to stop the motor **24′** and may disengage the slip clutch **28′** to facilitate manual override movement.

(39) When the electronic control module **52′** is in a power open or power close mode (i.e., the electric motor is electrically operated to move the door between the open position and the closed position) and the one or more Hall effect sensors indicate that a speed of the electric motor **24′** is less than a threshold speed (e.g., zero) and a current spike is registered either directly or indirectly

by the microprocessor **54′** and/or any current sensing circuitry, the electronic control module **52′** may determine that an obstacle is in the way of the vehicle door **14**. If the system determines that an obstacle is blocking the door, the electronic control system **52′** may take any suitable action, such as sending a signal to turn off the electric motor **24′**. As such, the electronic control module **52′** receives feedback from the one or more Hall effect sensors to ensure that contact with an obstacle has not occurred during movement of vehicle door **14** between the closed position and the opened position or the presented or partially-open position. Other position sensing techniques to determine that the door **14** is being moved, either by the electrical motor **24′** and/or a manual user control (e.g., via the deployed handle **104** of the handle assembly **30**) are also possible.

(40) Optionally, Hall effect sensors may be used for monitoring a position and/or movement speed of the handle **104** during movement of the handle **104** between the retracted position and the deployed position. As such, the position sensors could be used by the control system **52′** to instruct the operation of the actuator **100** accordingly.

(41) As shown in FIG. **1**C, the electronic control module **52′** may be in communication with a remote key fob **60′** and/or with an external door-mounted switch **62′** for receiving a request from a user to open or close the vehicle door **14**. The external door-mounted switch **62′** may comprise a contact-based switch, such as a piezoelectric switch. Optionally, the external door-mounted switch **62′** comprises a contactless switch, such as a capacitive sensor. Thus, the electronic control module **52′** receives a command signal from a remote key fob via a key fob sensor **60′** and/or a door switch **62′** to initiate an opening or closing of the vehicle door **14**. Upon receiving a command, the electronic control module **52′** proceeds to provide a signal to the electric motor **24′**, such as in the form of a pulse width modulated voltage for speed control, to actuate the motor **24′** and initiate pivotal movement of the vehicle door **14**. While providing the signal, the electronic control module **52′** also obtains feedback from the Hall effect sensors of the electric motor **24′** to determine whether contact between the door **14** and an obstacle has occurred. If contact with an obstacle has not occurred, the motor **24′** will continue to generate a rotational force to actuate the spindle drive mechanism **30′**. Once the vehicle door **14** is moved to a desired position (e.g., the closed position, the opened position, the presented position, a partially opened position, and the like), the motor **24′** is turned off and self-locking gearing associated with the gearbox **26′** causes the vehicle door **14** to be held at the desired position, thereby providing an automatic door checking function. While the vehicle door **14** is locked at the desired position, if a user applies a manual force on the door to try to move the vehicle door **14** toward a different operating position, the electric motor **24′** and the gearbox **26′** may resist the user's manual force to retain the vehicle door **14** in the locked position (thereby replicating a door check function). If the user continues to apply the manual force (e.g., for a threshold period of time), or if the user applies a significant enough manual force (e.g., a force above a threshold level of force), the electric motor **24′** and the gearbox **26′** may release and allow the door **14** to move according to the user's manual force toward the newly desired position. Once the vehicle door **14** is stopped at the new position (e.g., the door closes or the door reaches a fully opened position), the electronic control module **52′** may provide the required power to the electric motor **24′** to hold the door **14** in the new position. If the user provides a sufficiently large motion input to the vehicle door **14** (e.g., such as when the user wants to close the door), the electronic control module **52′** may sense or recognize this motion via the Hall effect pulses and proceed to execute a full closing operation for the vehicle door **14**.

(42) The remote key fob **60′** and/or the external door-mounted switch **62′** may be used to activate the actuator **100** and thus facilitate deployment of the handle **104** by operating the control link **102** (via the actuator **100**). In other words, in response to a user input at the key fob **60′** and/or the external door-mounted switch **62′**, the actuator **100** may be electrically operated to move the handle **104** relative to the applique **31** between the retracted position and the extended position. For example, a first input at the key fob **60′** and/or door-mounted switch **62′** may operate the electric motor **24′** to move the vehicle door **14** and a second input at the key fob **60′** and/or door-mounted

switch **62′** may operate the actuator **100** to move the handle **104**.
(43) The electronic control module **52′** may receive an input from a proximity sensor, such as a radar sensor **64′** positioned on a portion of a vehicle door **14**, such as on a door mirror or the like. The radar sensor **64′** may be configured to detect if an obstacle, such as another car, tree, or post, is near or in close proximity to the vehicle door **14**. If the radar sensor **64′** detects that an obstacle is present while the electric motor **24′** is being operated to move the vehicle door **14**, the radar sensor **64′** may send a signal to the electronic control module **52′** and the electronic control module **52′** may turn off the electric motor **24′** to stop movement of the vehicle door **14**, thereby preventing the vehicle door **14** from hitting the obstacle. This provides a non-contact obstacle avoidance system. Optionally, the radar sensor **64′** may detect the obstacle before the electric motor **24′** is operated to open the door **14** and, in response to detecting presence of the obstacle in the swing path of the door **14**, the electronic control module **52′** may not begin operating the electric motor **24′** to open the door **14**. Moreover, based on detection of the obstacle by the radar sensor **64′**, the electronic control module **52′** may adjust operation of the electric motor **24′** to adjust the swing path of the door **14** to avoid contact with the obstacle. That is, the electric motor **24′** may be operated to open the door **14** only as much as the door **14** may open without contacting the detected obstacle.
(44) Optionally, a contact obstacle avoidance system, such as a pinch detection system, may include a contact sensor **66′** mounted to the door **14**, such as in association with a molding component of the door **14**. The contact sensor **66′** may be operable to detect or determine presence of an obstacle, such as a user's finger or hand, in a gap between the vehicle body **24** and the door **14**. Based on detection of the obstacle in the gap between the vehicle body **24** and the vehicle door **14**, the contact sensor **66′** sends a signal to the electronic control module **52′** and the electronic control module **52′** may stop or limit operation of the motor **24′** during a door close operation to avoid closing the vehicle door **14** with the obstacle present in the gap between the door and body.
(45) Optionally, the radar sensor **64′** may be positioned at or near the applique **31** and/or the handle **104** to determine presence of obstacles at or near the handle **104** and in the path of motion of the handle **104**. If an obstacle is detected at or near the handle **104**, operation of the actuator **100** may be limited in deploying the handle **104**, such as to prevent the handle **104** from deploying or to limit deployment of the handle **104** and avoid contact with the detected obstacle.
(46) Furthermore, the contact sensor **66′** may be positioned at or near the applique **31** and/or the handle **104** to determine presence of obstacles between the handle **104** and the applique **31** when the handle **104** is in the extended position. Thus, if an obstacle is detected between the deployed handle **104** and the applique **31**, operation of the actuator **100** to move the handle **104** toward the retracted position may be limited to avoid pinching or trapping the obstacle between the handle **104** and the applique **31**.
(47) As shown in FIG. **1**C, the power door actuation system **20′** and latch assembly **21′** may include a latch mechanism **70′**, a latch release mechanism **72′**, and a power-operated release actuator, such as an electric power release motor **74′**. The control module **52′** may communicate with the electric power release motor **74′** to act as a latch controller for controlling operation of the latch assembly **21′**. Optionally, the latch assembly **21′** may include a dedicated latch controller **40**. The control module **52′** may thus comprise an integrated configuration, where the control module **52′** controls operation of the presenter assembly **22′** for moving the door **14** relative to the vehicle body **24**, and the control module **52′** controls operation of the latch assembly **21′** for locking and unlocking the door **14** to allow or prevent the door **14** from moving from the closed position relative to the vehicle body **24**. Optionally, the vehicle may include a pair of distinct controllers, with the control module **52′** associated with and controlling operation of the presenter assembly **22′**, and the latch controller **40** associated with and controlling operation of the latch assembly **21′**. The key fob sensor **60′** and/or the door switch **62′** may be used to authenticate the user and control the power release (and power lock) function.
(48) Although shown and described as being a generally vertically oriented handle portion that

moves laterally from the side of the vehicle, it is envisioned that the handle of the extendable flush door handle assembly may be oriented in any manner. For example, the handle may be oriented so that it is either vertical, horizontal, or diagonal with respect to the ground. Also, although shown and described as an exterior door handle for opening a side door or rear door or lift gate of a vehicle from exterior the vehicle, it is envisioned that the extendable flush door handle assembly may be suitable for use as an interior handle for opening a side door or rear door or liftgate of a vehicle from inside the vehicle.

(49) Optionally, the door handle assembly may include a light module or lighting element, such as for illuminating the applique or the movable handle portion or the inner portion of the door handle portion, so that the user can readily see and discern the door handle when approaching the vehicle in low lighting conditions. The lighting element may comprise a strip light or pocket light or the like, and the door handle assembly may include a ground illumination light and/or other light or lighting element, such as a projection light or the like, such as by utilizing aspects of the door handle assemblies and lighting systems described in U.S. Pat. Nos. 11,441,338; 8,786,401; 8,801,245; 5,371,659; 5,497,305; 5,669,699; 5,823,654; 6,349,450 and/or 6,550,103, and/or U.S. Patent Pub. Nos. US-2023-0001849 and/or US-2021-0332619, which are all hereby incorporated herein by reference in their entireties.

(50) Optionally, the door handle assembly or module or the user interface may include or may be associated with an antenna for receiving signals from or communicating with a remote device. For example, the antenna (such as, for example, an antenna of the types described in U.S. Pat. No. 6,977,619 and/or U.S. Publication Nos. US-2021-0370877 and/or US-2010-0007463, which are hereby incorporated herein by reference in their entireties) may communicate a signal to the door locking system via a wire connection or the like, or wirelessly, such as via a radio frequency signal or via an infrared signal or via other wireless signaling means. For example, the handle assembly may include an antenna or sensor (such as an antenna and/or capacitive sensor) at the handle portion and/or may include a passive entry device or element. The antenna or sensor and/or passive entry device may receive a signal from a transmitting device (such as from a key fob or the like carried by the driver of the vehicle) and/or may sense or detect the presence of or proximity of a person or person's hand at or near the door handle, and may generate an output signal indicative of such detection. The actuator may be responsive to the antenna and/or sensor and/or device to impart an outward movement of the door handle portion so that the user can grasp the handle portion to open the door of the vehicle.

(51) Such connections can include cables, wires, fiber optic cables or the like. The communication to the locking system may be via a vehicle bus or multiplex system, such as a LIN (Local Interconnect Network) or CAN (Car or Controlled Area Network) system, such as described in U.S. Pat. Nos. 6,291,905; 6,396,408 and/or 6,477,464, which are all hereby incorporated herein by reference in their entireties. The vehicle door may then be unlocked and/or the illumination source or sources may be activated as a person carrying a remote signaling device approaches the door handle. Optionally, other systems may be activated in response to the remote signaling device, such as vehicle lighting systems, such as interior lights, security lights or the like (such as security lights of the types disclosed in U.S. Pat. Nos. 6,280,069; 6,276,821; 6,176,602; 6,152,590; 6,149,287; 6,139,172; 6,086,229; 5,938,321; 5,671,996; 5,497,305; 6,416,208 and/or 6,568,839, all of which are hereby incorporated herein by reference in their entireties), or the vehicle ignition, or any other desired system.

(52) In the preceding description, for purposes of explanation, numerous details are set forth in order to provide a thorough understanding of the embodiments. However, it will be apparent to one skilled in the art that these specific details may not be required. In other instances, well-known structures are shown in block diagram form in order not to obscure the understanding. For example, specific details are not provided as to whether some of the embodiments described herein are implemented as a software routine running on a processor via a memory, hardware circuit,

firmware, or a combination thereof.
(53) Changes and modifications to the specifically described embodiments may be carried out without departing from the principles of the present invention, which is intended to be limited only by the scope of the appended claims as interpreted according to the principles of patent law.

Claims

1. A vehicular exterior door handle assembly, the vehicular exterior door handle assembly comprising: a base portion configured to mount at a vehicle door; wherein the base portion, when mounted at the vehicle door, is disposed along an outer surface of a frame of the vehicle door; a handle portion including a grasping portion; wherein the handle portion is movable relative to the base portion between (i) a recessed position, where the grasping portion of the handle portion is at least partially recessed at the base portion, and (ii) a deployed position, where the grasping portion of the handle portion protrudes outward from the base portion so as to be graspable by a user; wherein, with the base portion mounted at the vehicle door and with the handle portion in the recessed position, (i) the handle portion is outboard of the outer surface of the frame of the vehicle door and (ii) no portion of the handle portion extends inboard of an innermost part of the base portion toward the outer surface of the frame of the vehicle door; wherein, with the base portion mounted at the vehicle door and with the handle portion in the recessed position, an outer surface of the base portion and an outer surface of the handle portion are exposed at and establish respective Class-A surfaces at the vehicle door, and wherein the outer surface of the base portion and the outer surface of the handle portion are flush with a Class-A surface of the vehicle door adjacent the vehicular exterior door handle assembly; a deployment mechanism, wherein the deployment mechanism, with the base portion mounted at the vehicle door, is coupled to the handle portion and operable to move the handle portion between the recessed position and the deployed position; a control module comprising electronic circuitry is disposed remote from the vehicular exterior door handle assembly, wherein the control module is configured to control a latch mechanism of the vehicle door; wherein the control module, based on a user input, actuates the latch mechanism of the vehicle door to unlock the vehicle door; wherein the deployment mechanism, with the base portion mounted at the vehicle door, and responsive to the control module actuating the latch mechanism to unlock the vehicle door, is electrically operated to move the handle portion from the recessed position to the deployed position; and wherein, with the handle portion in the deployed position and the door unlocked, the handle portion is graspable by the user to open the vehicle door.
2. The vehicular exterior door handle assembly of claim 1, wherein the deployment mechanism comprises an electrically operable actuator and a control link, and wherein the control link, with the base portion mounted at the vehicle door, is mechanically coupled to the handle portion, and wherein the electrically operable actuator, when the deployment mechanism is operated to move the handle portion between the recessed position and the deployed position, is electrically operated to move the control link relative to the electrically operable actuator between a retracted position and an extended position.
3. The vehicular exterior door handle assembly of claim 2, wherein the handle portion, when the control link is in the retracted position, is in the recessed position, and wherein the handle portion, when the control link is moved from the retracted position toward the extended position, moves from the recessed position toward the deployed position.
4. The vehicular exterior door handle assembly of claim 2, wherein the electrically operable actuator is disposed at an interior portion of the vehicle door.
5. The vehicular exterior door handle assembly of claim 4, wherein the control link, with the base portion mounted at the vehicle door, extends through an aperture formed in the outer surface of the frame of the vehicle door to engage the handle portion.

6. The vehicular exterior door handle assembly of claim 2, wherein, with the base portion mounted at the vehicle door, the electrically operable actuator and the control link are accommodated by the base portion at the vehicle door.
7. The vehicular exterior door handle assembly of claim 1, wherein the handle portion is pivotably mounted at the base portion, and wherein the handle portion is pivotable relative to the base portion between the recessed position and the deployed position.
8. The vehicular exterior door handle assembly of claim 7, wherein the handle portion is pivotably mounted at the base portion via a pivot element, and wherein the deployment mechanism, with the base portion mounted at the vehicle door, engages the pivot element to move the handle portion between the recessed position and the deployed position.
9. The vehicular exterior door handle assembly of claim 8, wherein the pivot element comprises a ramped interface, and wherein the deployment mechanism comprises a corresponding ramped interface, and wherein, when the deployment mechanism is operated to move the handle portion between the recessed position and the deployed position, the ramped interface of the deployment mechanism moves along the ramped interface of the pivot element to pivot the handle portion relative to the base portion between the recessed position and the deployed position.
10. The vehicular exterior door handle assembly of claim 1, wherein the base portion comprises an applique configured to mount at the vehicle door.
11. The vehicular exterior door handle assembly of claim 1, wherein the base portion comprises an applique configured to mount along a B-pillar of the frame of the vehicle door.
12. The vehicular exterior door handle assembly of claim 1, wherein the user input comprises a signal from a remote device of the user.
13. The vehicular exterior door handle assembly of claim 1, wherein the user input is received at a user interface disposed at the vehicle door.
14. The vehicular exterior door handle assembly of claim 13, wherein the user interface is disposed at the vehicle door and remote from the base portion.
15. The vehicular exterior door handle assembly of claim 13, wherein the user interface is disposed at the base portion.
16. The vehicular exterior door handle assembly of claim 1, wherein the handle portion, with the base portion mounted at the vehicle door and with the handle portion in the recessed position, does not penetrate the outer surface of the frame of the vehicle door and no portion of the handle portion is disposed inboard of the outer surface of the frame of the vehicle door with the handle portion in the recessed position.
17. A vehicular exterior door handle assembly, the vehicular exterior door handle assembly comprising: a base portion configured to mount at a frame of a B-pillar of a vehicle door, wherein the base portion comprises an applique; a handle portion including a grasping portion; wherein the handle portion is movable relative to the base portion between (i) a recessed position, where the grasping portion of the handle portion is at least partially recessed at the base portion, and (ii) a deployed position, where the grasping portion of the handle portion protrudes outward from the base portion so as to be graspable by a user; wherein the handle portion is pivotably mounted at the base portion, and wherein the handle portion is pivotable relative to the base portion between the recessed position and the deployed position; wherein, with the base portion mounted at the frame of the B-pillar of the vehicle door and with the handle portion in the recessed position, (i) the handle portion is outboard of the frame of the B-pillar of the vehicle door and (ii) no portion of the handle portion extends inboard of an innermost part of the base portion toward the frame of the B-pillar of the vehicle door; wherein, with the base portion mounted at the frame of the B-pillar of the vehicle door and with the handle portion in the recessed position, an outer surface of the applique and an outer surface of the handle portion are exposed at and establish respective Class-A surfaces at the B-pillar of the vehicle door, and wherein the outer surface of the applique and the outer surface of the handle portion are flush with a Class-A surface of the B-pillar of the vehicle door adjacent the

vehicular exterior door handle assembly; a deployment mechanism, wherein the deployment mechanism, with the base portion mounted at the frame of the B-pillar of the vehicle door, is coupled to the handle portion and operable to move the handle portion between the recessed position and the deployed position; a control module comprising electronic circuitry is disposed remote from the vehicular exterior door handle assembly, wherein the control module is configured to control a latch mechanism of the vehicle door; wherein the control module, based on a user input, actuates the latch mechanism of the vehicle door to unlock the vehicle door; wherein the deployment mechanism, with the base portion mounted at the frame of the B-pillar of the vehicle door, and responsive to the control module actuating the latch mechanism to unlock the vehicle door, is electrically operated to move the handle portion from the recessed position to the deployed position; and wherein, with the handle portion in the deployed position and the door unlocked, the handle portion is graspable by the user to open the vehicle door.

18. The vehicular exterior door handle assembly of claim 17, wherein the deployment mechanism comprises an electrically operable actuator and a control link, and wherein the control link, with the base portion mounted at the frame of the B-pillar of the vehicle door, is mechanically coupled to the handle portion, and wherein the electrically operable actuator, when the deployment mechanism is operated to move the handle portion between the recessed position and the deployed position, is electrically operated to move the control link relative to the electrically operable actuator between a retracted position and an extended position.

19. The vehicular exterior door handle assembly of claim 18, wherein the electrically operable actuator is disposed at an interior portion of the frame of the B-pillar of the vehicle door.

20. The vehicular exterior door handle assembly of claim 19, wherein the control link, with the base portion mounted at the frame of the B-pillar of the vehicle door, extends through an aperture formed in the frame of the B-pillar of the vehicle door to engage the handle portion.

21. A vehicular exterior door handle assembly, the vehicular exterior door handle assembly comprising: a base portion configured to mount at an outer surface of a frame of a vehicle door; a handle portion including a grasping portion; wherein the handle portion is movable relative to the base portion between (i) a recessed position, where the grasping portion of the handle portion is at least partially recessed at the base portion, and (ii) a deployed position, where the grasping portion of the handle portion protrudes outward from the base portion so as to be graspable by a user; wherein the handle portion is pivotably mounted at the base portion, and wherein the handle portion is pivotable relative to the base portion between the recessed position and the deployed position; wherein, with the base portion mounted at the frame of the vehicle door and with the handle portion in the recessed position, (i) the handle portion is outboard of the outer surface of the frame of the vehicle door and (ii) no portion of the handle portion extends inboard of an innermost part of the base portion toward the outer surface of the frame of the vehicle door; wherein, with the base portion mounted at the frame of the vehicle door and with the handle portion in the recessed position, an outer surface of the base portion and an outer surface of the handle portion are exposed at and establish respective Class-A surfaces at the vehicle door, and wherein the outer surface of the base portion and the outer surface of the handle portion are flush with a Class-A surface of the vehicle door adjacent the vehicular exterior door handle assembly; a deployment mechanism, wherein the deployment mechanism, with the base portion mounted at the frame of the vehicle door, is coupled to the handle portion and operable to move the handle portion between the recessed position and the deployed position; wherein the deployment mechanism is accommodated within an interior portion of the frame of the vehicle door; a control module comprising electronic circuitry is disposed remote from the vehicular exterior door handle assembly, wherein the control module is configured to control a latch mechanism of the vehicle door; wherein the control module, based on a user input, actuates the latch mechanism of the vehicle door to unlock the vehicle door; wherein the deployment mechanism, with the base portion mounted at the frame of the vehicle door, and responsive to the control module actuating the latch mechanism to unlock the vehicle

door, is electrically operated to move the handle portion from the recessed position to the deployed position; wherein the handle portion is pivotably mounted at the base portion via a pivot element, and wherein the deployment mechanism, with the base portion mounted at the frame of the vehicle door, engages the pivot element to move the handle portion between the recessed position and the deployed position; and wherein, with the handle portion in the deployed position and the door unlocked, the handle portion is graspable by the user to open the vehicle door.

22. The vehicular exterior door handle assembly of claim 21, wherein the deployment mechanism comprises an electrically operable actuator and a control link, and wherein the control link, with the base portion mounted at the frame of the vehicle door, is mechanically coupled to the handle portion, and wherein the electrically operable actuator, when the deployment mechanism is operated to move the handle portion between the recessed position and the deployed position, is electrically operated to move the control link relative to the electrically operable actuator between a retracted position and an extended position.

23. The vehicular exterior door handle assembly of claim 22, wherein the control link, with the base portion mounted at the frame of the vehicle door, extends through an aperture formed in the outer surface of the frame of the vehicle door to engage the handle portion.

24. The vehicular exterior door handle assembly of claim 21, wherein the pivot element comprises a ramped interface, and wherein the deployment mechanism comprises a corresponding ramped interface, and wherein, when the deployment mechanism is operated to move the handle portion between the recessed position and the deployed position, the ramped interface of the deployment mechanism moves along the ramped interface of the pivot element to pivot the handle portion relative to the base portion between the recessed position and the deployed position.

25. The vehicular exterior door handle assembly of claim 21, wherein the base portion comprises an applique configured to mount at the outer surface of the frame of the vehicle door.