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(54) **MENU DRIVEN WALL CONSOLE WITH LED INDICATORS FOR GARAGE DOOR OPERATOR**

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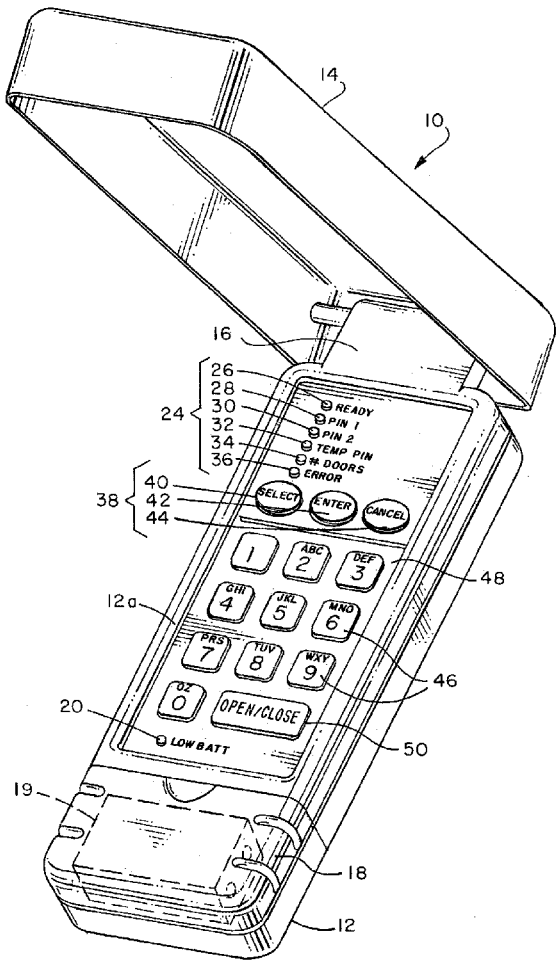
(57) **ABSTRACT**

A wall console device for controlling a door operator includes a door operator control circuit that transmits signals to at least one door operator, where the at least one door operator operable to move a motorized door. A control pad includes plural touch responsive command selectors and a door operator control means for user control over the opening and closing of the motorized door. The plural command selectors provide input signals to the door operator control circuit and include a command selector to indicate an operating function among a plurality of selectable operating functions, a command selector to select the indicated operating function, and a command selector to cancel the selected operating function. Plural visual indicators assist a user of the wall console device to program the wall console device to control the at least one door operator.



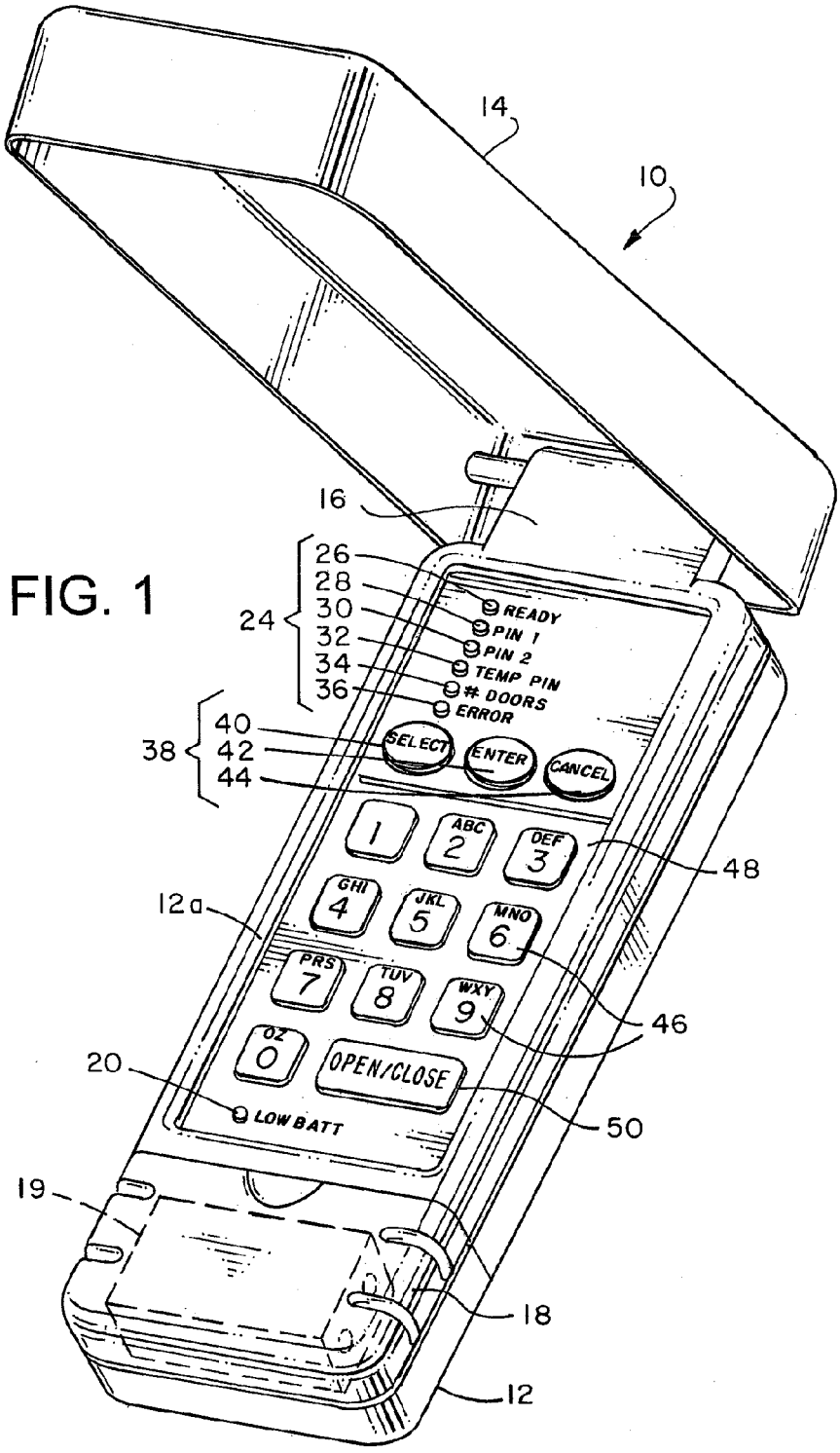

14
10
16
26
28
30
32
34
36
24
READY
PIN 1
PIN 2
TEMP PIN
DOORS
ERROR
40
42
44
38
SELECT
ENTER
CANCEL
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PRS
8 TUV
9 WXY
0 OZ
OPEN/CLOSE
LOW BATT
48
12a
46
20
50
19
18
12

FIG. 1

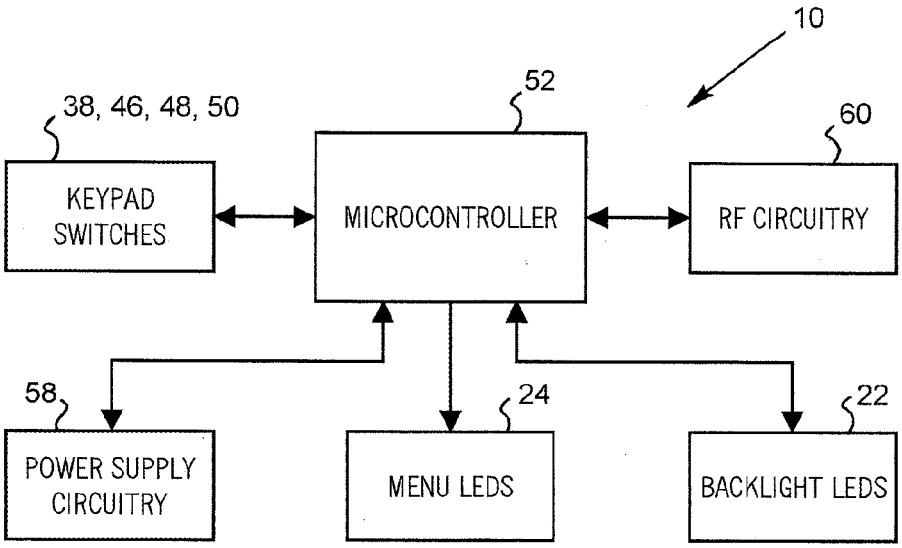

10
52
38, 46, 48, 50
60
KEYPAD SWITCHES
MICROCONTROLLER
RF CIRCUITRY
58
24
22
POWER SUPPLY CIRCUITRY
MENU LEDS
BACKLIGHT LEDS

FIG. 2

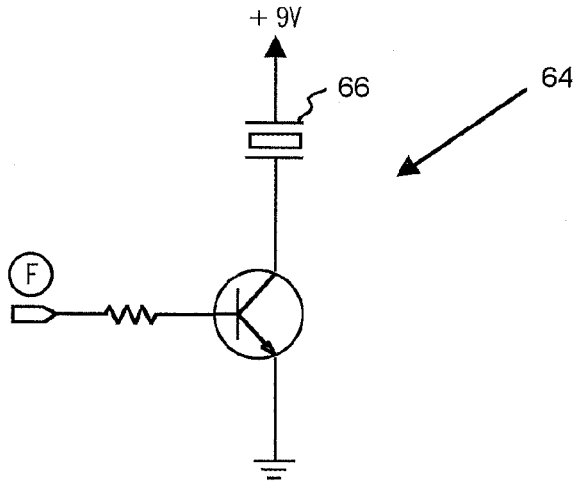

+ 9V
66
64
F

FIG. 9

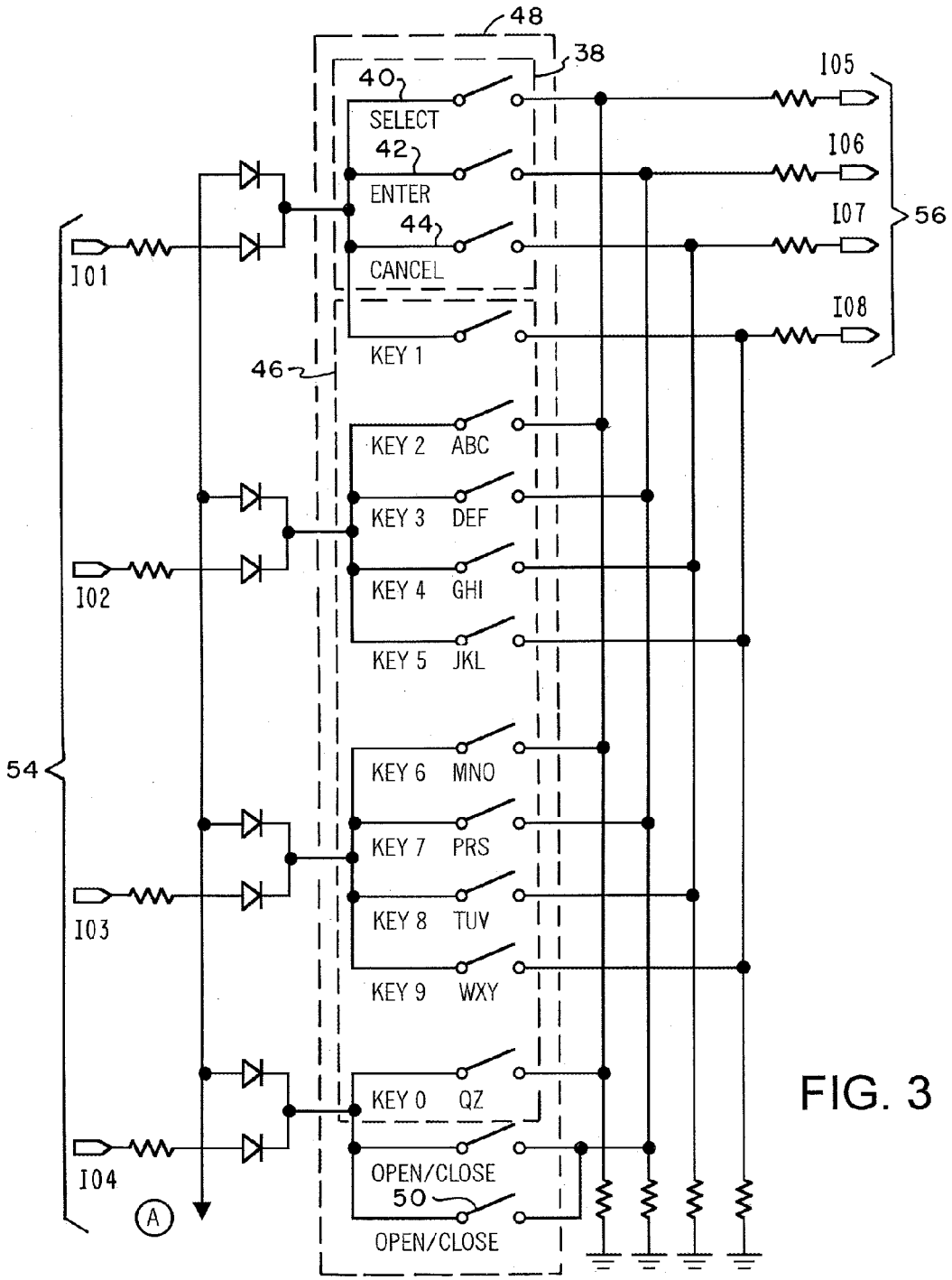

48
38
40
SELECT
42
ENTER
44
CANCEL
KEY 1
46
KEY 2 ABC
KEY 3 DEF
KEY 4 GHI
KEY 5 JKL
KEY 6 MNO
KEY 7 PRS
KEY 8 TUV
KEY 9 WXY
KEY 0 QZ
OPEN/CLOSE
50
OPEN/CLOSE
I01
I02
I03
I04
I05
I06
I07
I08
56
54
A

FIG. 3

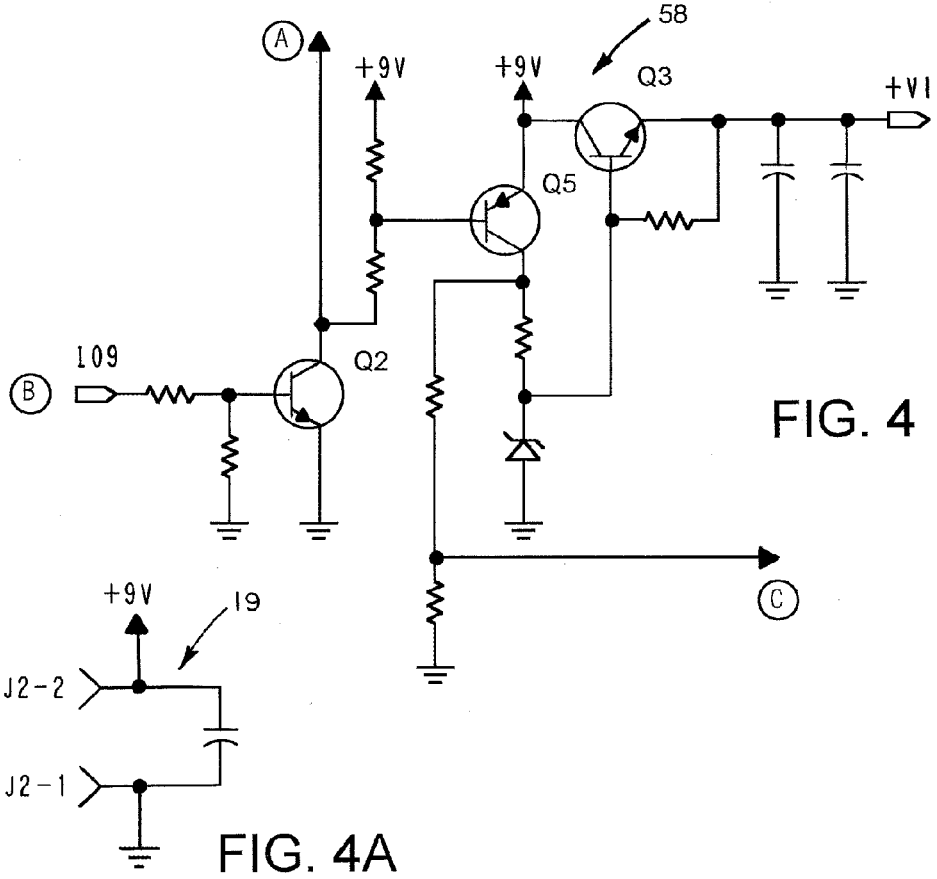


FIG. 4

FIG. 4A

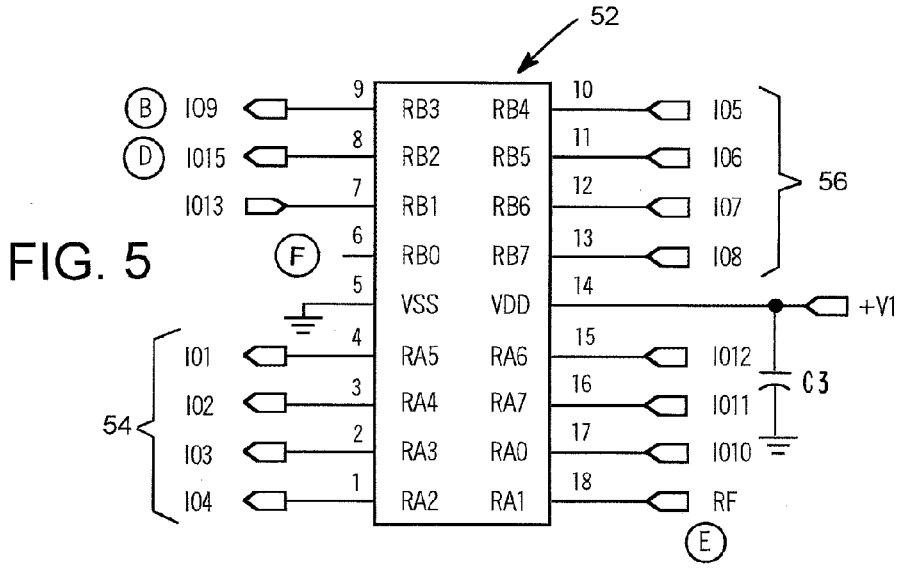


FIG. 5

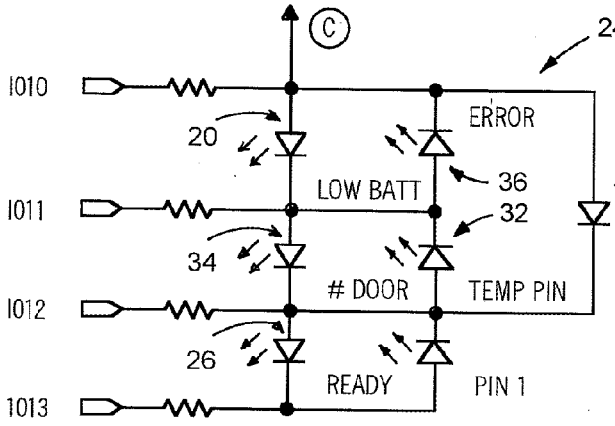


FIG. 6

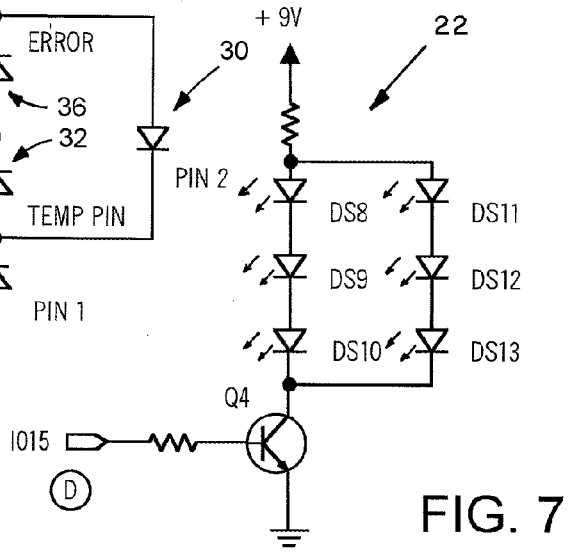


FIG. 7

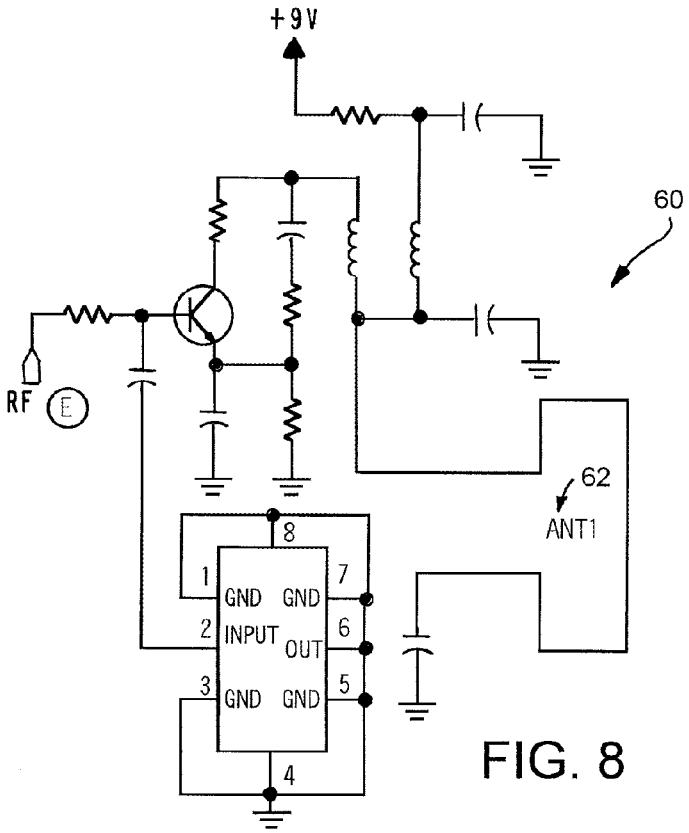


FIG. 8

MENU DRIVEN WALL CONSOLE WITH LED INDICATORS FOR GARAGE DOOR OPERATOR

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. patent application Ser. No. 11/496,329, filed Jul. 31, 2006, now pending, which is a continuation of U.S. patent application Ser. No. 10/755,578, filed Jan. 12, 2004, now U.S. Pat. No. 7,106,168, the disclosures of which are hereby incorporated by reference.

BACKGROUND

[0002] The present invention relates to the general field of garage door or other barrier entry operators, and more particularly, to an external wall mountable, menu driven, console device for such operators.

[0003] In the art of garage door operators and the like, it is conventional practice to provide a wall mountable, menu driven, console device to control a door operator from the exterior of a building or a residential dwelling. Console devices known in the art are of various sophistication and user friendliness. Some console devices may be hardwired to the door operator. Other console devices may provide a wireless user interface to the door operator. Still other console devices may allow for a key-like entry system to gain access. Yet other console devices provide access to operation of the garage door after performing a keypad type entry.

[0004] It is conventional practice for some console devices to grant access only after entering a user identification or authorization code such as a Personal Identification Number (PIN). Console devices in the art allow a user to program a PIN of their own choosing.

[0005] Some conventional console devices provide programming feedback by a blinking light emitting diode (LED). Blinking LEDs fail to convey the nature of an error or confirm an entry while programming. Thus, blinking LEDs in conventional console devices make programming a user determined PIN tedious and difficult.

[0006] Because console devices with blinking LEDs offer limited feedback and thus have limited programming capabilities, they also have limited functional capabilities. For example, such console devices lack certain functional capabilities such as the ability to easily program and control more than one door, program more than one unique PIN or to create a separate temporary PIN. Limiting the functional capabilities of a console device limits the usefulness and efficiency of a given console device.

[0007] In the art of garage door openers and the like, certain console devices could include liquid crystal displays (or LCDs) to convey console device information to the user. Although these displays may provide the user with some programming feedback, LCDs are costly to manufacture when compared to LEDs, require expensive backlighting, fail to operate in most outdoor environments and do not hold up well in traditional surface mount manufacturing.

[0008] Accordingly, improvements in door operator console devices are desired, particularly in menu-driven programmable keyless wall console devices. There is a need for low cost, efficient and easy to use console devices with desirable features. With an easily programmable console device, users will have the ability to, for example, control and operate more than one door, efficiently program more than one PIN number for each door and easily create temporary PINs.

SUMMARY OF THE INVENTION

[0009] The present invention provides an improved wall mountable, console device for keyless entry type wall console devices of garage doors, gates and like barriers. The invention provides a wall mountable console device that replaces cumbersome conventional numeric keypad programming with an easy to follow menu driven programming methodology. The invention further provides a menu driven programming methodology where individual visual indicators signal a menu choice. The present invention conveys the nature of an entry and provides a user with meaningful programming feedback.

[0010] The present invention provides a number of advantages over prior art console devices including the ability to easily program the console device by using an LED driven menu. The LED driven menu provides instant feedback during the programming session or during normal use. The LED driven menu may include a "READY" LED to provide information on whether the device is in "home" or ready state and an "ERROR" LED to provide a user with feedback on conditions. The LED driven menu may further include items related to PINs and door designator references. For example, the LED driven menu may have a "PIN**1**" LED, a "PIN**2**" LED, a "TEMP PIN" LED and a "# DOOR" LED. The present invention also provides an easily ascertainable indication on whether a low battery condition exists by a "LOW BATT" LED.

[0011] The present invention provides other advantageous features and increased programming capabilities, while maintaining an easily accessible and simply designed interface. The interface includes, for example, features to aid in the programming and in the operation of the console device by providing user-accessible switches for selecting, entering or canceling an LED menu option or entry. A user can easily program the same PIN for multiple doors using the same console device, program multiple PINs for a single door and create a separate temporary PIN for a single door or more than one door.

[0012] The present invention's LED driven menu offers several advantages over conventional console devices with LCD displays. The LED driven menu console device has a lower manufacturing cost and eliminates the use of expensive display backlighting, while maintaining an easy to use programming methodology. Moreover, LEDs can withstand extreme temperature variations, while LCDs tend to be more sensitive to extreme temperature fluctuations. In addition, the present invention's LED driven menu arrangement is more suitable for the use of surface mount technology. Moreover, the LED driven menu provides a low cost yet practical solution for using and programming a console device.

[0013] For a more complete understanding of the features and advantages of the present invention, reference is now made to the detailed description of the invention along with the accompanying drawing in which corresponding numerals in the different drawings refer to corresponding parts.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0014] FIG. **1** is a perspective view of a preferred embodiment of an LED menu driven keyless wall console device of the present invention;

[0015] FIG. **2** is a block diagram of the LED menu driven keyless wall console device;

[0016] FIG. **3** is a circuit diagram of the keypad switches of the LED menu driven keyless wall console device;

[0017] FIG. **4** is a circuit diagram of the power supply circuit of the LED menu driven keyless wall console device;

[0018] FIG. **4**A is a circuit diagram of a battery connected to the LED menu driven keyless wall console device;

[0019] FIG. **5** is a circuit diagram of the microcontroller of the LED menu driven keyless wall console device;

[0020] FIG. **6** is a circuit diagram of the menu LEDs of the LED menu driven keyless wall console device;

[0021] FIG. **7** is a circuit diagram of the backlight LEDs of the LED menu driven keyless wall console device;

[0022] FIG. **8** is a circuit diagram of the radio frequency (RF) circuitry of the LED menu driven keyless wall console device; and

[0023] FIG. **9** is a circuit diagram of an audio feedback circuit.

DETAILED DESCRIPTION OF THE INVENTION

[0024] In the description that follows, like elements are marked throughout the specification and drawings with the same reference numerals, respectively. The drawing figures are not necessarily to scale and certain elements may be shown in somewhat generalized or schematic form in the interest of clarity and conciseness. Commercially available circuit elements are used throughout.

[0025] The present invention comprises an improved menu driven keyless wall console device. FIG. **1** depicts a preferred embodiment of a menu driven keyless wall console device **10**. The console device **10** is particularly adapted to mount on an exterior wall of a residential garage, not shown, for use in opening or closing a garage door also not shown. The console device **10** essentially comprises two major structural components, a suitable weather proof housing **12** and a cover **14**. FIG. **1** depicts the console device **10** with the cover **14** in the accessible or open position. The cover **14** is preferably hingably attached to an extension **16** of the housing **12** for easy access and for protection from weather elements when in a closed position. When the cover **14** is in an open position, the console device **10** allows a user access to a removable battery compartment cover **18** and thus to a battery **19**.

[0026] Housing **12** includes a front wall **12**a at which several components described herein are disposed, as shown in FIG. **1**. For example, the console device **10** may have a low battery LED type visual indicator **20**, labeled here as LOW BATT, a visual indicator array or menu **24** and backlight LEDs, not shown in FIG. **1**, to provide an illuminated background for the console device **10**.

[0027] A visual indicator array or menu **24**, shown in FIG. **1**, in a preferred embodiment, comprises, for example, LED type visual indicators including at least the following menu items: a READY LED **26**, a PIN **1** LED **28**, a PIN **2** LED **30**, a TEMP PIN LED **32**, an # DOORS LED **34** and an ERROR LED **36**. Each LED menu item is a visual indicator of a selected function, programming object or programming state. For example, an enabled READY LED **26** indicates that the control circuitry of console device **10** is in its home position and is awaiting an entry by a user.

[0028] In a preferred embodiment, a user can program the console device **10** with at least two permanent PINs and a temporary PIN. Console device **10** provides an LED menu **24** with options that aid in programming such PINs. For example, by choosing the PIN **1** LED **28** a user may program a first programmable PIN using an alphanumeric keypad **48**. A user can, similarly, choose the PIN **2** LED **30** to program a second programmable PIN. A user can further choose the TEMP PIN LED **32** to designate a temporary PIN to accommodate, for example, household guests or service persons that may require temporary access to the household.

[0029] The LED menu **24** also provides a menu item to allow the console device **10** the ability to control a plurality of doors. The #DOORS LED **34** menu option allows the user to set the total number of doors that the console device **10** is to control. For example, once the #DOORS LED **34** is selected, the user enters via the keypad **48** either '2', '3' or '4' and then presses the "ENTER" input push button **42**. The console device **10** then accepts the entered number and the #DOORS LED **34** goes out and the READY LED **26** comes on, indicating that the entry was accepted without an error. Once the number of doors is set, the user can control multiple doors by first entering the correct PIN, then pressing the "OPEN/CLOSE" push button switch **50**, then pressing the specific door to be controlled (i.e. 1, 2, 3 or 4).

[0030] The LED menu **24** further provides the ERROR LED **36**. The ERROR LED **36** signals a user that the console device **10** detects an error. The ERROR LED **36** may be enabled, for example, subsequent to an incorrect PIN entry or programming entry.

[0031] The user also has access to the alphanumeric keypad **48** which may include a set **38** of menu input push button switches **40**, **42** and **44**, a set of alphanumerically labeled push button switches **46** and an OPEN/CLOSE button **50**. The set **38** of input button switches may include a "SELECT" input push button **40**, an "ENTER" input push button **42** and a "CANCEL" input push button **44**. Each of the alphanumerically labeled push button switches **46** may be designated to correlate with at least one or more numbers and/or letters, as shown in FIG. **1**. For example, the alphanumerically labeled push button switch **46** labeled as number "**5**" also correlates to the letters "J", "K" and "L".

[0032] The OPEN/CLOSE button **50** allows the user control over opening and closing a designated door. In a preferred embodiment, the OPEN/CLOSE button **50** toggles a door operator from the open position to the closed position and visa versa. (Note: the actual toggling actually takes place within the opener itself).

[0033] FIG. **2** is a block diagram of the LED menu **24** driven wireless wall console device **10**. A microcontroller **52** monitors the logic inputs and outputs of the console device **10**. The microcontroller **52** is operably connected to keypad **48**, to the menu LEDs **24**, to backlight LEDs **22**, to a power supply circuit **58** and to an RF transmitter circuit **60**. The microcontroller **52** monitors the keypad **48** by sequentially driving outputs **54**, see FIG. **3**, and reads inputs **56** from the keypad to determine if any keypad switches have been actuated. When a switch **46** on the console device **10** is actuated, the microcontroller **52** may also turn on the backlight LEDs **22**. In addition, the microcontroller **52** monitors

and measures the voltage of battery **19** and enables the LOW BATT indicator **20** if the battery voltage falls below a predetermined amount.

[0034] FIG. **3** illustrates a circuit diagram of the keypad **48** of the console device **10**. Keypad **48** comprises the set of menu input buttons **38**, alphanumerically labeled push button switches **46** and the OPEN/CLOSE button **50**. As mentioned above, set **38** includes the SELECT button **40**, ENTER button **42** and CANCEL button **44**. There are ten alphanumerically labeled push buttons **46**, each corresponding to a unique set of alphanumeric characters. The circuit diagrams of FIGS. **3**, **4** and **5** through **8** are interconnected at the encircled letters "A" through "E" and as otherwise described herein.

[0035] When idle, the microcontroller **52** is not powered because the power supply circuitry **58** is off. When any keypad switch **48** is pressed, transistor Q2 is turned on and the power supply circuitry **58** is turned on thus applying power to the microcontroller **52**. The microcontroller **52** then outputs a high voltage level on **110** line **109** and biases transistor Q2 on, thus latching 'on' the power supply circuitry **58**. The microcontroller **52** sequentially pulses **110** lines **101** thru **104** to the keypad input **54** and reads the keypad output **56** to determine which switch was pressed.

[0036] To enable programming of the console device **10**, a user preferably enters a PIN, by actuating the corresponding alphanumerically labeled switches **46**. After the user has completed entering their PIN, the user then depresses the ENTER button **42**. If a correct PIN has been entered, the console device **10** will light the LED menu item READY LED **26**. Thus, the console device **10** allows secured access only to those knowing a particular pre-programmed PIN. If a user enters an incorrect PIN, the console device **10** will energize the ERROR LED **36**. The console device **10** may deny access to a user for a predetermined time period if plural incorrect PINs have been entered consecutively.

[0037] The LED menu **24**, the set of menu input buttons **38** and the alphanumerically labeled buttons **46**, assist the user to program the PINs. Once the user enters the correct PIN**1** followed by pressing the ENTER button **42**, the console device **10** will indicate its programming mode 'home' position by a lit READY LED **26**. The user may sequentially select a menu function from the LED menu **24** by pressing the SELECT button **40** until the function the user desires to program or choose lights up. The user then makes the appropriate keypad entry and then presses the ENTER button **42**. The console device **10** then will light the READY LED **26** indicating that a correct entry was made and that the console device is now ready for the user to select an additional function, if so desired. If no further input is provided by the user, the console device **10** will turn off after a predetermined amount of time.

[0038] When idle, the microcontroller **52** is not powered because the power supply circuitry **58** is off. The user would approach the console device **10** and place it in the open position, as illustrated in FIG. **1**. The user then would press a desired button on the wall console device **10**. This action would turn on the power supply circuitry **58** and supply power to the microcontroller **52**. The microcontroller **52**, in turn, enables the backlight LEDs **22**. The user may enter PIN**1** followed by pressing the ENTER button **42**, thus placing the console device **10** in the programming mode. The microcontroller **52** would then light the READY LED **26** indicating that the console device **10** is waiting for a program function to be selected. If the user desired to change PIN **1**, the user would sequentially actuate the SELECT button **40** until PIN**1** LED **28** is selected. Then, while PIN**1** LED **28** is selected, the user can enter a new PIN, to be designated as 'PIN**1**'. After entering the new PIN**1**, the user would then actuate the ENTER button **42**. The console device **10** recognizes this new entry and indicates its programming home position by lighting the READY LED **26**. Thus, a first PIN**1** has successfully been programmed into the console device **10** by using the LED driven menu **24**. If, however, the console device **10** recognizes that the PIN does not meet some predetermined criteria (for example a certain minimal or maximum number of characters), then the LED menu **24** may enable the ERROR LED **36**. The user would, in that case, repeat the programming process. If at any time during programming, a predetermined amount of time passes without any keypad activity by the user, the microcontroller **52** would turn off the power supply circuitry **58**, thus conserving battery **19** energy.

[0039] A similar programming method may be followed to program a second PIN by selecting PIN **2** LED **30**. A user may also decide to program a separate temporary PIN to grant temporary access to, for example, a service worker or houseguest, by selecting the TEMP PIN LED **32**. Although the console device **10** shown here provides for two PIN numbers, it is believed that those skilled in the art can easily modify console device **10** to allow more than two PINs.

[0040] Similarly, the LED menu **24** visually assists a user to program other desirable features. For example, a user may program a single PIN for multiple doors controlled by the same console device **10** by selecting the # DOORS LED **34** after entering the correct PIN followed by pressing the ENTER button **42**. Suppose for example, the user has a console device **10** controlling three doors. While the # DOORS LED **34** is lit, the user would enter the number '3' from the keypad **48** followed by pressing the ENTER button **42**. The console device **10** would no be programmed to control three separate door openers. Now if the user desires to control one of the three doors, for example, the third door, they would wait for the console device **10** to turn off, enter the correct PIN, then press the OPEN/CLOSE button **50** and then press the alphanumeric keypad entry for '3'. After a user has access to a door, a user can, for example, decide to open or close the door by pressing any keypad pushbutton switch.

[0041] FIG. **4** depicts a preferred embodiment of the power supply circuit **58**, comprising a simple series pass regulator, of the console device **10**. The microcontroller **52** manages the power supply **58** as also seen in FIG. **5**. For example, when one of the menu input buttons of set **38** or alphanumerically labeled push button switches **46** is actuated, transistor Q**5** is turned on, thus turning the power supply section **52** "on". The microcontroller **52** outputs a logical '1' on Input/Output (I/O) line **9**, which enables transistor Q**2**. Q**2** maintains a ground path for transistor Q**5** and thus the microcontroller **52** enables the power supply **58** regardless of which keypad switch or button **46** is actuated. After a predetermined amount of time of no keypad activity, the microcontroller **52** will set I/O line **9** to a logic '0' and turn off the power supply section **58**. Thus, the microcontroller **52** and the power supply section **58** work in conjunction to maintain an energy efficient system for the console device **10**.

[0042] FIG. **4** further depicts connection "A" between the collector of transistor Q**2** of the power supply section **58**, depicted in FIG. **4**, and the circuit diagram of the keypad **48**, depicted in FIG. **3**. Connection "B" connects pin **9** of the microcontroller **52**, depicted in FIG. **5**, and the power supply section **58**, depicted in FIG. **4**. Connection "C" connects the power supply section **58** to the LED menu **24** and 'low battery' indicator LED **20** of the console device **10**, depicted in FIG. **6**. A +V**1** is output from the emitter of transistor Q**3** and connects the power supply section **58** to pin number **14** of the microcontroller **52**, see FIG. **5**.

[0043] FIG. **4**A depicts a preferred battery connection circuit supply of console device **10**. A nine-volt battery **19**, connects to a typical circuit board (not shown) and secured to the circuit board by way of connectors J**2**-**1** and J**2**-**2**. Battery **19** supplies positive nine volts (+9V) to various locations on the circuits depicted, for example, in FIGS. **3**, **4**, **7** and **8**.

[0044] FIG. **5** depicts a preferred embodiment of the microcontroller **52** used in console device **10**. The microcontroller **52** is a preferably an 18-pin semiconductor device which controls and manages the functions of the console device **10**. The microcontroller **52** may be of a type commercially available, such as an 8-bit PICmicro® 16 series microcontroller, available from Microchip Technology, Chandler, Ariz.

[0045] The microcontroller **52** is responsible for monitoring the set **38** of menu input buttons **38** and alphanumerically labeled push button switches **46** to determine which have been actuated. Specifically, the microcontroller **52** sequentially drives I/O lines **1**, **2**, **3** and **4** and reads I/O lines **5**, **6**, **7** and **8** to determine which switch **46** was actuated. Pin numbers **1**-**4** of the microcontroller **52** are connected to I/O lines **4**, **3**, **2** and **1**, while pin numbers **10**-**13** tie into I/O lines **5**, **6**, **7** and **8**, see FIG. **3**. Pin **5** of the microcontroller **52** is tied to ground while Pin **6** is tied to the audio feedback circuit **64**, as illustrated by connection "F." Pins **7** and **15**-**17** are multiplexed to the LED menu **24** and the LOW BATT indicator **20**, as depicted in FIG. **6**. Pin **8** is tied to the backlight LEDs **22**, as illustrated by connection "D". Pin **14** is tied to a +V**1**.

[0046] The microcontroller **52** manages the power supply section **58**, as seen in FIG. **5**. Pin **9** is tied to the power supply section **58**, as illustrated by connection "B". The RF section **60** is enabled and modulated by algorithms programmed into the microcontroller **52**. Pin **18** is tied to the RF section **32**.

[0047] FIG. **6** depicts a preferred embodiment of the LED menu **24** and 'low battery' indicator LED **20** of the console device **10**. Six of the seven LEDs depicted correspond to the LED menu **24**: READY LED **26**, PIN **1** LED **28**, PIN **2** LED **30**, TEMP PIN LED **32**, #DOORS LED **34** and ERROR LED **36**. Each individual LED in the LED menu **24** serves as programming and operational menu choices. The seventh LED corresponds to the LOW BATT indicator **20**.

[0048] The LED menu **24** is preferably multiplexed such that the microcontroller **52** controls the seven LEDs in the LED menu **24** with only four input/output or I/O lines. For example, if the microcontroller **52** finds that the console device **10** is ready for user input, it will forward bias the READY LED **26** by essentially disabling I/O lines **10** & **11**, setting I/O line **12** high and setting I/O line **13** low.

[0049] The LED menu **24** preferably aids a user to program a multitude of functions and generally utilize console device **10**. The console device **10** is ready for programming when the READY LED **26** is enabled. Using the SELECT input button **40** a user can sequentially select a desired LED menu **24** function to use or program the console device **10**, see FIG. **3**. The READY LED **26** would then turn off and the selected LED menu **24** function would be enabled. The user accordingly inputs the desired entries and actuates the ENTER input button **42** when the entry is complete. If the console device **10** does not enable the ERROR LED **36**, the user has successfully completed the previously selected menu **24** function and console device **10** will return to the home state, enabling the READY LED **26**. If at some point during the programming process, a user decides that an incorrect menu **24** function is enabled, the user may actuate the CANCEL push button **44** and return to home state, again enabling the READY LED **26**.

[0050] FIG. **6** also depicts a preferred low battery indicator LED **20**. As discussed earlier, the low battery indicator LED **20** is enabled when the microcontroller **52** detects that the battery **19** voltage falls below a predetermined voltage.

[0051] FIG. **7** depicts a preferred embodiment for backlight LEDs **22** of the LED menu driven keyless wall console device **10**. The backlight LEDs **22** illuminate the keypad **48** such that it is visible in dark ambient conditions. The backlight LEDs **22** are preferably placed as a set of three LEDs in parallel with another set of three LEDs. The backlight LEDs **22** are triggered on when either a menu input button **38** or alphanumerically labeled push button switches **46** of the console device **10** is actuated. When activity is detected, the microcontroller **52** powers transistor Q**4**, and thus turns on the backlight LEDs **22**. Likewise, after a predetermined duration of time without any activity, the microcontroller **52** disables the backlight LEDs **22** by turning off transistor Q**4**, thus conserving energy. The backlight LED **22** circuit ties into pin number **8** of the preferred microcontroller **52**, as seen by connection "D".

[0052] Although the console device **10** may be configured to communicate with a door operator by hardwiring, FIG. **8** illustrates a diagram of an RF circuit or section **60** of the console device **10**. The RF section **60** is enabled and modulated by algorithms programmed into the microcontroller **52**. The RF section **60** has an antenna **62** enabling it to transmit appropriate commands to the door operator. The RF section **60** is tied, by way of connection "E", to pin number **18** of the microcontroller **52**. A typical mode of operation may be that which is described in U.S. Pat. No. 6,049,289 to Dennis Waggamon et al., and which is incorporated herein by reference. It is should be understood by one skilled in the art, that the console device **10** need not be wireless, but alternatively could be hardwired to a desired garage door or the like.

[0053] FIG. **9** depicts a preferred embodiment for an audio feedback circuit **64**. Microcontroller **52** modulates a piezo electric transducer **66** to produce various audio tones. Console device **10** may incorporate audio signals, periodically, corresponding to ERROR LED **36**, and to alert the user of an error both visually and audibly through the programming process. Console device **10** may also incorporate audio signals to alert the user of other user feedback functions such as low battery **19** conditions or simply positive feedback for a keystroke entry.

[0054] Although a preferred embodiment of a menu driven wall console device **10** and various embodiments of the present invention are discussed in detail herein, it will be

appreciated that the present invention provides many applicable inventive concepts that can be embodied in a wide variety of specific contexts. For example, while the description has principally referenced a operator for a garage door, it is to be understood that the console of the present invention may also be utilized for gate and other barrier operators. The specific embodiments discussed herein are merely illustrative of specific ways to make and use the invention, and do not delimit the scope of the invention. Those skilled in the art will recognize that various substitutions and modifications may be made to the invention without departing from the scope and spirit of the appended claims.

What is claimed is:

1. A wall console device for controlling a door operator, comprising:

a door operator control circuit transmitting signals to at least one door operator, the at least one door operator operable to move a motorized door;

a control pad including plural touch responsive command selectors and a door operator control means for user control over the opening and closing of the motorized door;

said plural command selectors for providing input signals to the door operator control circuit comprising:

a command selector to indicate an operating function among a plurality of selectable operating functions of the at least one door operator;

a command selector to select the indicated operating function of the at least one door operator;

a command selector to cancel the selected operating function of the at least one door operator; and

plural visual indicators for assisting a user of the wall console device to program the wall console device to control the at least one door operator.

2. The wall console device set forth in claim **1** wherein said door operator control means is at least one user-operable door operator control switch.

3. The wall console device set forth in claim **1** further including means for selecting the motorized door to be controlled from a plurality of motorized doors controllable by the wall console device.

4. The wall console device set forth in claim **1** wherein the command selector to indicate the operating function scrolls through the plurality selectable operating functions of the at least one door operator.

5. A wall console device for controlling a door operator, comprising:

a wireless door operator control circuit transmitting wireless signals to at least one door operator, the at least one door operator operable to move a motorized door;

a control pad including plural touch responsive command selectors and a door operator control means for user control over the opening and closing of the motorized door;

said plural command selectors for providing input signals to the wireless door operator control circuit comprising:

a command selector to indicate an operating function among a plurality of selectable operating functions of the at least one door operator;

a command selector to select the indicated operating function of the at least one door operator;

a command selector to cancel the selected operating function of the at least one door operator; and

plural visual indicators for assisting a user of the wall console device to program the wall console device to control the at least one door operator.

6. The wall console device set forth in claim **5** wherein said door operator control means is at least one user-operable door operator control switch.

7. The wall console device set forth in claim **5** further including means for selecting the motorized door to be controlled from a plurality of motorized doors controllable by the wall console device.

8. The wall console device of claim **5** wherein the command selector to indicate the operating function scrolls through the plurality of selectable operating functions of the at least one door operator.

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