



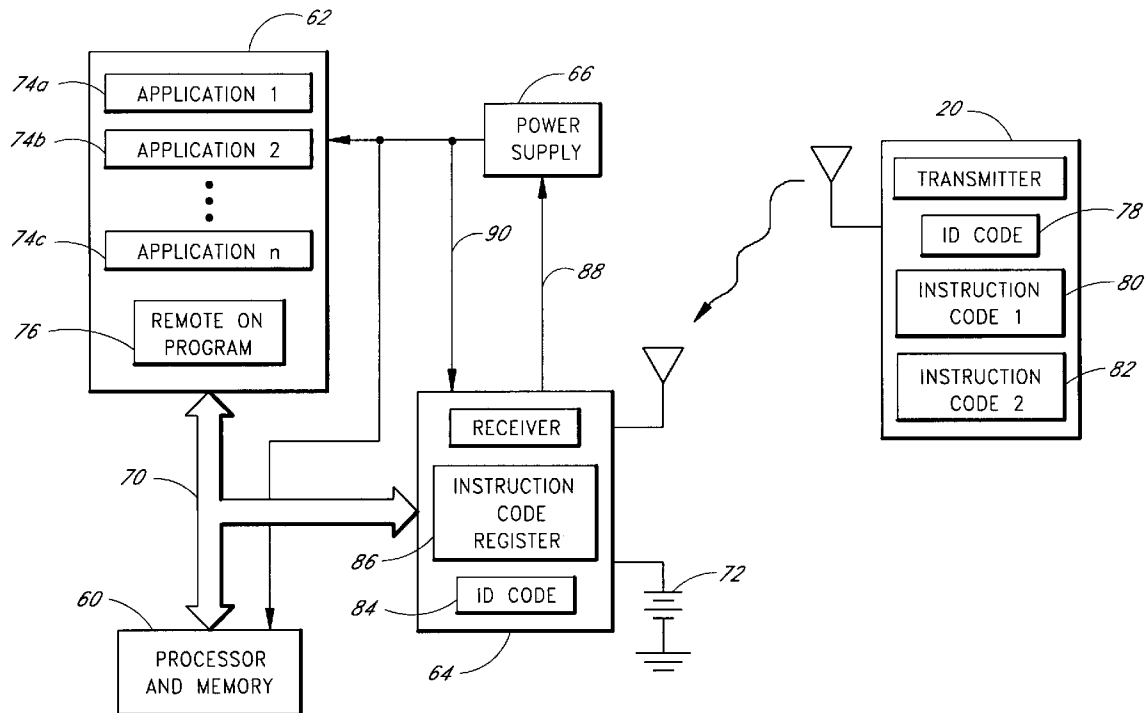
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(19) **United States**(12) **Patent Application Publication**
Leman et al.(10) **Pub. No.: US 2006/0092041 A1**(43) **Pub. Date: May 4, 2006**(54) **SYSTEMS AND METHODS FOR REMOTELY
CONTROLLING A COMPUTER****Publication Classification**(76) Inventors: **Michael V. Leman**, Eagle, ID (US);
William M. Creese, Meridian, ID (US)(51) **Int. Cl.**
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Correspondence Address:

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614 (US)(57) **ABSTRACT**(21) Appl. No.: **11/311,715**(22) Filed: **Dec. 19, 2005****Related U.S. Application Data**(63) Continuation of application No. 09/574,736, filed on
May 18, 2000, now Pat. No. 7,005,966.

A computer system is configured to be powered up by a hand-held controller. The hand-held controller is in wireless communication with a computer. One or more buttons on the hand-held controller may be used to automatically launch a particular application program which has been pre-selected by a computer user after completing the power up process.



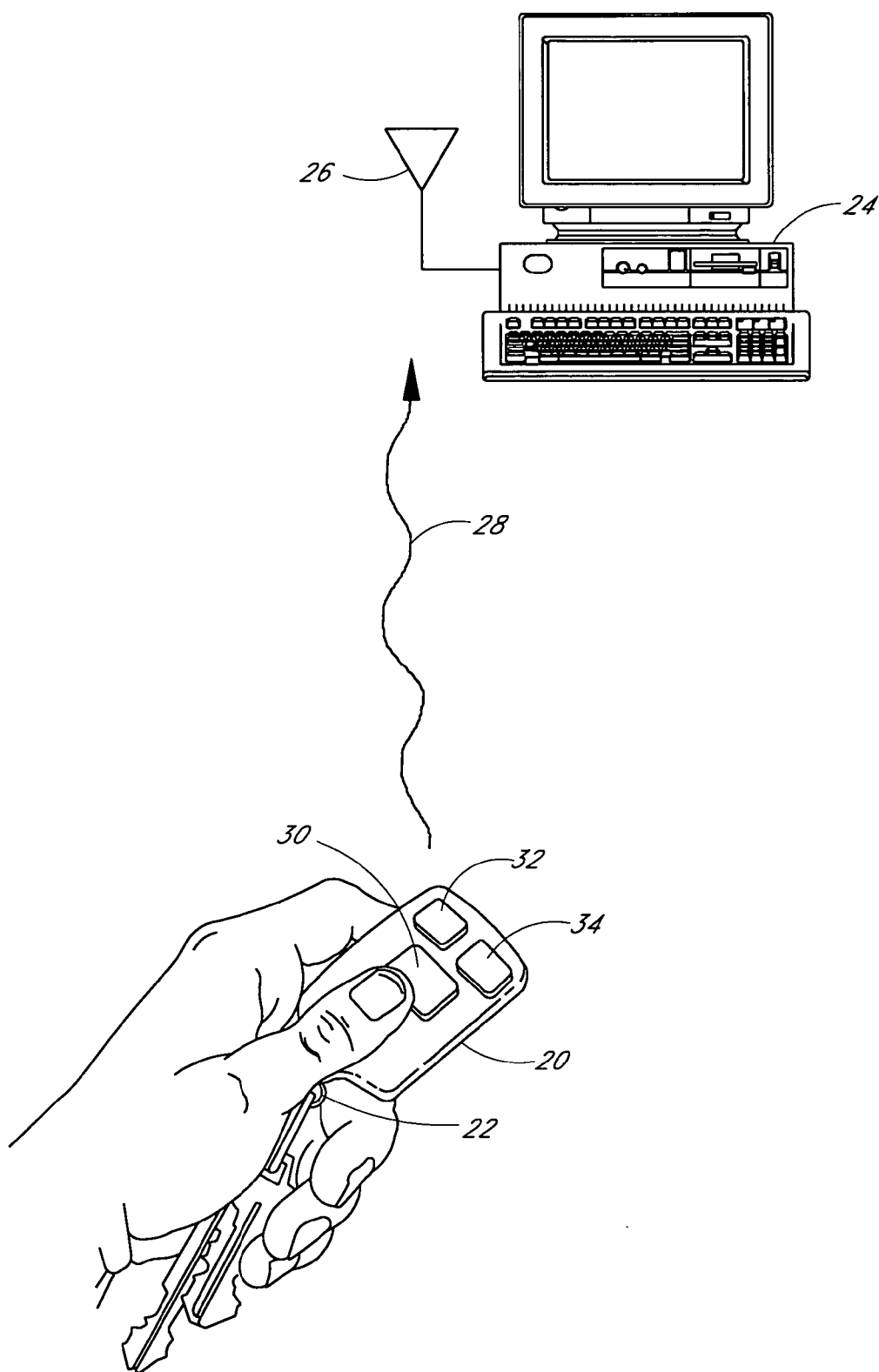


FIG. 1

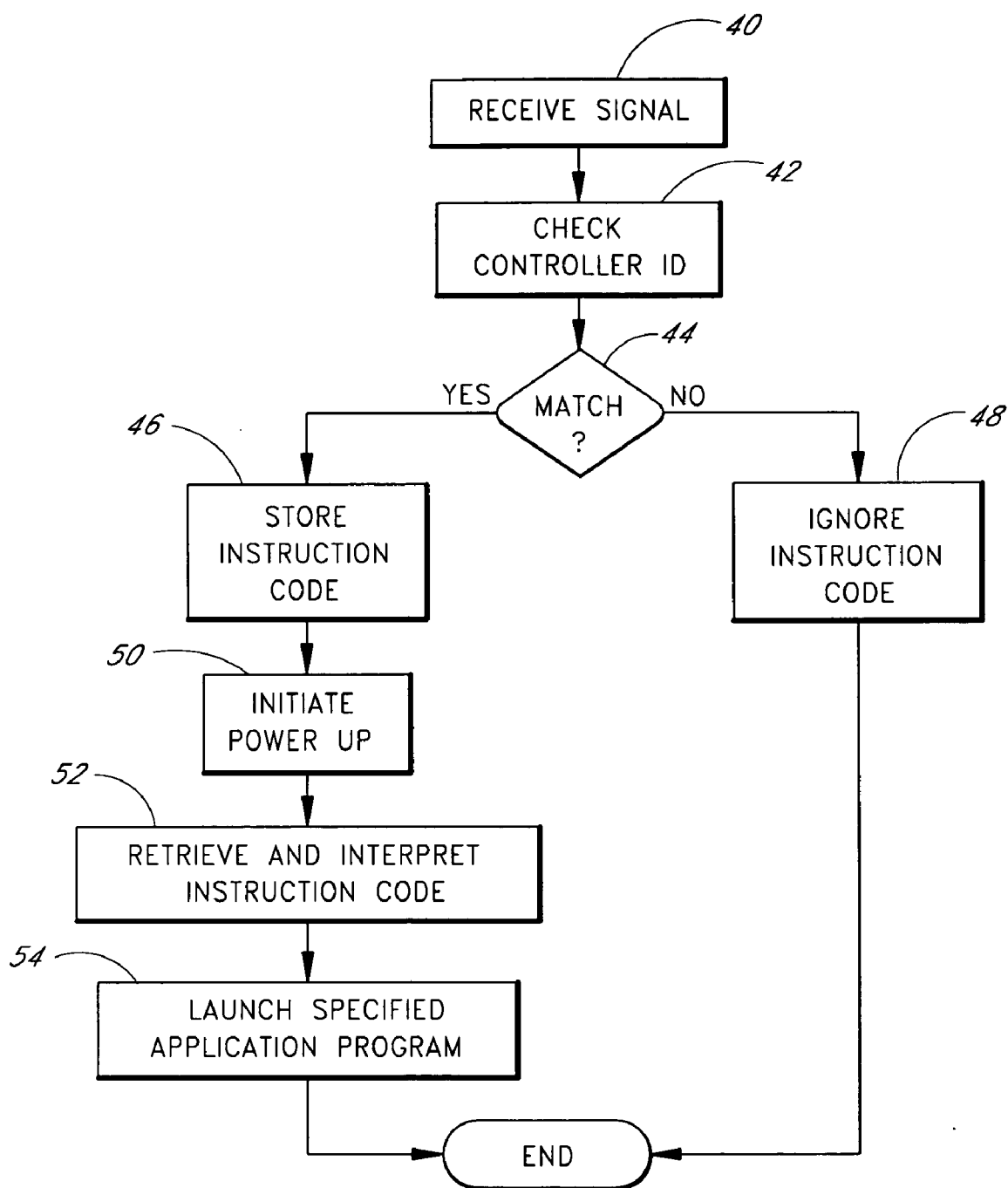


FIG. 2

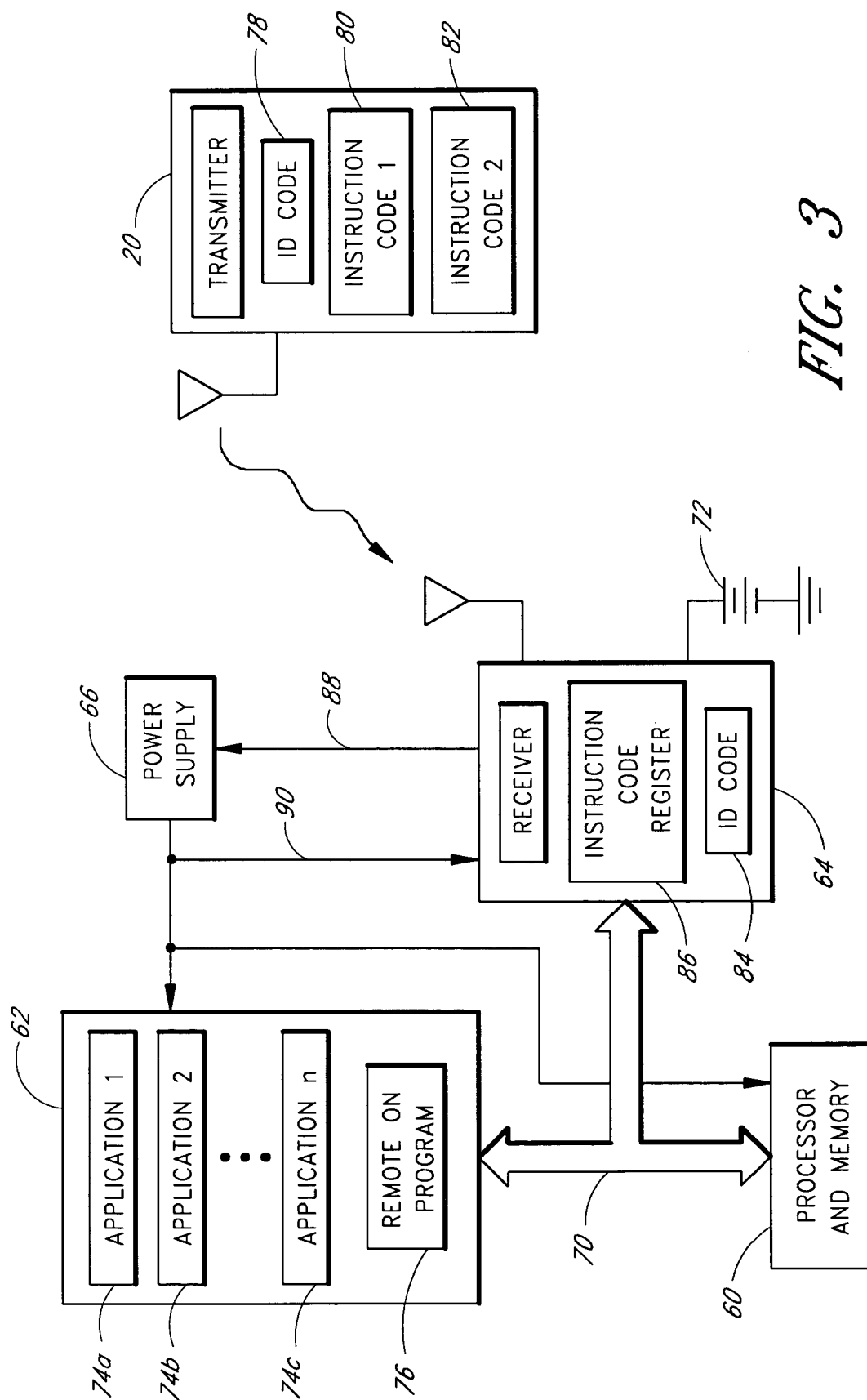


FIG. 3

SYSTEMS AND METHODS FOR REMOTELY CONTROLLING A COMPUTER

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application is a continuation of and claims priority benefit under 35 U.S.C. § 120 from U.S. patent application Ser. No. 09/574,736, filed May 18, 2000, which is hereby incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The invention relates to remote control of computers.

[0004] 2. Description of the Related Art

[0005] In today's business world, personal computers are almost a necessity, and are commonly found in offices and employee workspaces. Generally, people turn their computer off when they leave the office after work in the evening. This is done to conserve energy, to address safety concerns common to all energized electrical appliances, and also in response to security concerns that someone other than the computer owner may gain access to sensitive business information. Thus, when most people arrive at the office in the morning, they must turn on their computer, wait for the system to boot up, and then launch some particular application program they will be using. This results in wasted time as the user sits and waits for the computer to complete the boot up process.

[0006] Currently, no computer system is available that addresses this problem. Various types of remote control systems for computers have been described and marketed, but none are particularly suitable for resolving the above described problem. Many conventional remote computer controllers, wireless mice and keyboards, for example, have a very short communication range, and/or require a clear line of sight between the wireless transmitter in the device and the receiver in the computer. This makes them impractical for use by a worker until entering the office. There would therefore be minimal, if any, time savings involved with the use of these devices to control initiation of computer operation.

[0007] Other remote control devices work over telephone connections. One example of such a system is provided by U.S. Pat. No. 5,596,628 to Jon Klein. These systems, however, require the initiation of a telephone connection with the computer to be controlled. This is not convenient for solving the above described problem. For these reasons, a convenient and simple to operate computer system with remote computer power control is needed in the art.

SUMMARY OF THE INVENTION

[0008] The invention includes remotely controllable computer systems, methods of remote computer control, and devices for the remote control of computers. In one embodiment, the invention comprises a remote controlled computer system, including a computer comprising a wireless receiver and a hand-held controller comprising a wireless transmitter. The hand-held controller is configured to send a signal to the

wireless receiver upon user actuation, and the computer is configured to perform a power on sequence and to launch a user-defined application program in response to receiving the signal.

[0009] In another embodiment the invention comprises a method of remotely controlling a computer comprising transmitting a signal from a hand-held controller to the computer, and in response thereto, placing the computer in an on state and launching a user specified application program.

[0010] One embodiment of a remote control device for a personal computer comprises a hand-held housing containing wireless signal transmission circuitry for communicating with wireless signal receiving circuitry in the personal computer. The housing comprises an attachment device for connecting the remote control device to a key ring, purse handle, or other commonly carried personal item. In another embodiment, a remote control device for a personal computer comprises a hand-held housing containing wireless signal transmission circuitry for communicating with wireless signal receiving circuitry in the personal computer and at least one user actuated control operative to initiate wireless signal transmission of a command to perform a power up sequence and launch a selected application program.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] **FIG. 1** is an overall perspective view of a hand-held computer controller in wireless communication with a personal computer according to one embodiment of the invention.

[0012] **FIG. 2** is flow chart illustrating steps performed by a computer in response to received control signals according to one embodiment of the invention.

[0013] **FIG. 3** is a block diagram of a computer system configured to receive and interpret control signals according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] Embodiments of the invention will now be described with reference to the accompanying Figures, wherein like numerals refer to like elements throughout. The terminology used in the description presented herein is not intended to be interpreted in any limited or restrictive manner, simply because it is being utilized in conjunction with a detailed description of certain specific embodiments of the invention. Furthermore, embodiments of the invention may include several novel features, no single one of which is solely responsible for its desirable attributes or which is essential to practicing the inventions herein described.

[0015] Referring now to **FIG. 1**, a computer system in accordance with one embodiment of the invention comprises a controller **20**. The controller **20** is advantageously small enough to fit comfortably in a person's hand as well as in a pocket, purse, automobile glove compartment, or the like. In one embodiment, the controller **20** comprises an attachment device **22**. The attachment device **22** may be a suitably sized hole, a wire loop or ring, or other facility for attaching the controller **20** to a key ring, purse handle, or other commonly carried personal item.

[0016] The controller 20 also incorporates internal wireless transmission circuitry and an antenna (not shown) for wireless communication with a computer 24 that incorporates an antenna 26 and a wireless receiver. These aspects of the computer 24 will be described in more detail below with reference to FIG. 3. Using a wireless link 28, the controller 20 sends commands to the computer 24. In one embodiment, the commands issued by the controller 20 are operative to place the computer in the on state and optionally to also launch a user specified application program such as a word processor, spreadsheet, web browser, CAD and CAE programs, etc.

[0017] As shown in FIG. 1, one embodiment of the controller 20 has three user actuated push buttons. A first button 30 may initiate only computer 24 power up, but not launch any specific application programs. A second button 32 may initiate both power up and the launch of a first user defined application program. A third button 34 may initiate both power up and the launch of a second user defined application program. Thus, the user may have a choice of several different remote control operations. This embodiment may be used to eliminate time wasted by computer users while waiting for their computer to boot up and load a desired application program. In a business or office environment, for example, a computer user may prefer to have their office computer on and running the moment they arrive at the office. In this embodiment, an advantageous range for the communication link 28 may be between approximately 200 and 500 feet. With this range, as the user is heading toward the office, they can press a button 30, 32, 34 on the controller 20, thereby initiating either only power up, or also power up plus the launch of a desired application. When they arrive at the office door a few minutes later, the computer is ready and waiting for them.

[0018] The construction of wireless transmitter and receiver circuitry suitable for implementing the wireless link 28 is well known and will not be described in detail herein. This technology is used in applications such as garage door openers, keyless entry systems for automobiles, as well as other currently available commercial applications, and a wide variety of specific designs could be used in the controller 20 and computer 24 without altering the character of the system. The 200 to 500 foot range may be advantageous in that it is far enough to generally provide two or more minutes between initiation of power up and arrival of the user at the computer 24, but it is not so far to become an excessive drain on one or more batteries internal to the controller 20. Longer ranges of 900 or more feet may also be advantageous, especially in those instances where the resulting reduction of battery life is not a major concern.

[0019] One embodiment of a method of response of the computer 24 to the actuation of the buttons 30, 32, 34 on the controller 20 is illustrated in FIG. 2. The method begins at step 40 when the computer 24 receives a wireless transmission signal from the controller 20. As also shown below in FIG. 3, the wireless message reception and analysis circuitry in the computer 24 is continually in the on-state, even when the remainder of the computer 24 is in an off-state. The signal received by the computer 24 advantageously includes at least two pieces of information for use by the computer 24. The first is a controller hardware identification code. The second is an instruction code that designates which application program, if any, should be launched.

[0020] At the next step 42, the computer 24 checks the controller hardware identification code, and compares it to an internally stored identification code. If, at step 44, these two codes match, the computer 24 accepts the remainder of the transmitted data and, at step 46, stores the transmitted instruction code. If the codes do not match, at step 48 the computer 24 ignores the remainder of the message. In analogy with garage door openers and automotive keyless entry systems, this step 42 allows simultaneous use of different controllers 20 in proximity to one another in a single office building for example. In this way, the computer 24 only responds to control instructions from the controller 20 in the possession of the operator of the computer 24.

[0021] After storing the instruction code, at step 50 the computer initiates a power up sequence. As described below with reference to FIG. 3, this step advantageously includes activating the computer power supply and loading the operating system software. At step 52, the computer 24 retrieves and interprets the stored instruction code, and at step 54, the computer launches the appropriate application program as specified by the retrieved instruction code.

[0022] Referring now to FIG. 3, the computer 24 advantageously includes a processor and memory circuitry 60 and a storage device 62 that may, for example, comprise a hard disk drive. The computer 24 also includes remote control interface circuitry 64 for receiving signals and/or data from the remote transmitter 20. The computer 24 further includes a power supply 66 that supplies power to all of the electrical components of the computer 24. The processor and memory circuits 60, the storage device 62, and the remote control interface circuitry 64 are coupled through a bus system 70. Although not illustrated for purposes of clarity, those of skill in the art will appreciate that the bus system 70 will typically comprise a set of busses of varying format that communicate through bridge circuitry. The remote control interface circuitry 64 may be incorporated into the computer 24 in a variety of ways. It may comprise a daughter printed circuit board which plugs into an expansion slot in the computer 24. Alternatively, it may be incorporated directly onto a motherboard in the computer 24 that also mounts the processor and memory circuits 60. The remote control interface circuitry 64 is continually powered by a battery 72 so that it can receive and process wireless signals transmitted to the computer 24 even when the computer 24 is in an off state.

[0023] The storage device 62 stores, among other things, several application programs 74a, 74b, 74c. As discussed above, it is one of these programs that the user may wish to remotely launch. The storage device 62 also contains a remote on program 76. In this embodiment, the remote controller 20 sends a signal to the remote control interface circuitry 64 which includes the controller identification code 78 and one of the instruction codes 80 or 82. The remote control interface circuitry 64 then compares the received identification code with a stored identification code 84. If the two match, the remote control interface circuitry 64 stores the received instruction code in an instruction code register 86.

[0024] After storing the instruction code in the register 86, the remote control interface circuitry activates the power supply 66 by asserting an output 88 which is connected to the power supply circuitry 66. This may be accomplished in a wide variety of ways which are well understood by those

in the art. Asserting the output line **88** may close a relay in the AC power lines to the power supply, for example. In an advantageous embodiment, the power supply includes a low voltage secondary on/off signal line that toggles the supply from an off state to an on state when asserted. In this embodiment, the output **88** is coupled to this secondary on/off signal line.

[0025] Upon the application of power, the computer **24** will load its operating system software. A variety of operating systems are currently utilized in the computer industry, including Unix™, Linux™, DOS™, and Windows™. At this time, a large majority of the currently commercially available personal computers automatically load Windows™ upon power up. Furthermore, Windows™ includes a Startup utility, which allows the user to list one or more application programs that Windows™ will load and run automatically when the computer **24** is powered up.

[0026] In the embodiment of FIG. 3, the remote on program **76** is listed in the Startup utility for automatic launch when the computer is powered up. The remote on program **76** causes the computer to perform an I/O operation to retrieve the instruction code stored in the instruction code register **86**. Using a table which is part of the remote on program **76** that cross references instruction codes with application programs **74a**, **74b**, **74c**, the remote on program **76** determines which application program the user wishes to have launched, and initiates the loading of this user selected application program.

[0027] With the controller **20** illustrated in FIG. 1, depending on the button **30**, **32**, **34** pushed on the remote controller **20**, different instruction codes will be sent and stored in the instruction code register **86**, resulting in the launch of different application programs. If the user only wants to power the computer up without launching a program, this may be accomplished by sending, for example, all zeros as an instruction code when the appropriate button **30** is pushed on the controller **20**. This may be interpreted by the remote on program **76** as an instruction to load no additional application program. In addition, the remote control interface circuitry could be provided with a connection **90** to the power supply output. In an embodiment with this connection **90**, if the power supply is activated locally with the power switch, the power supply output may be sensed, and the remote control interface circuit could be configured load zeros into the instruction code register in response so that no application program is automatically loaded as may be the case with the remote power up procedure. A convenient remote controller is therefore provided which is easy to carry, simple to operate, and which saves computer users time.

[0028] The foregoing description details certain embodiments of the invention. It will be appreciated, however, that no matter how detailed the foregoing appears in text, the invention can be practiced in many ways. As is also stated above, it should be noted that the use of particular terminology when describing certain features or aspects of the invention should not be taken to imply that the terminology is being re-defined herein to be restricted to including any specific characteristics of the features or aspects of the invention with which that terminology is associated. The scope of the invention should therefore be construed in accordance with the appended claims and any equivalents thereof.

What is claimed is:

1. A remote control system for controlling a computer device, the remote control system comprising:

a wireless receiver configured to couple to a computer device; and

a handheld controller comprising:

a wireless transmitter configured to send a plurality of wireless signals to the wireless receiver; and

at least three buttons for actuating said plurality of signals, wherein a first button generates a first signal for initiating a power on sequence of the computer device and a launching by the computer device of a first user-defined application program, wherein a second button generates a second signal for initiating the power on sequence of the computer device and a launching by the computer device of a second user-defined application program, and wherein a third button generates a third signal for initiating the power on sequence of the computer device without launching an application program.

2. The remote control system of claim 1, wherein the wireless receiver comprises a printed circuit board configured to couple with an expansion slot of the computer device.

3. The remote control system of claim 2, wherein the wireless receiver further comprises a battery for powering the wireless receiver.

4. The remote control system of claim 1, wherein the handheld controller further comprises an attachment device configured to attach the handheld controller to a portable personal item.

5. The remote control system of claim 1, further comprising the computer device.

6. The remote control system of claim 5, wherein the computer device includes a separate power supply than the wireless receiver.

7. The remote control system of claim 5, wherein the computer device is a personal computer.

8. The remote control system of claim 1, wherein the wireless signals are radio frequency signals.

9. The remote control system of claim 8, wherein the wireless receiver and the wireless transmitter have a communication range of approximately 200 to 500 feet.

10. A method of remotely controlling a computer, the method comprising:

transmitting at least one of a plurality of command signals from a handheld controller to a computer, wherein the handheld controller comprises at least three user-actuable inputs for generating the plurality of command signals, and wherein a first of the user-actuable inputs initiates a power on sequence of the computer and a launching by the computer of a first user-defined application, wherein a second of the user-actuable inputs initiates the power on sequence of the computer and a launching of a second user-defined application, and wherein a third of the user-actuable inputs initiates the power on sequence of the computer without a launching of an application.

11. The method of claim 10, additionally comprising receiving the at least one of the plurality of command signals with a wireless receiver.

12. The method of claim 11, wherein said transmitting comprises radio frequency transmission.

13. The method of claim 12, wherein said transmitting occurs over a distance between approximately 200 and 500 feet.

14. The method of claim 10, additionally comprising analyzing the command signal to select an application for launch from a plurality of application programs.

15. The method of claim 10, wherein at least one of the first and second user-defined applications is a word processing application.

16. A remote control device for a computer, the remote control device comprising:

means for wirelessly communicating at least one of a plurality of command signals to a computer;

means for housing said means for wirelessly communicating in a handheld casing; and

means for receiving user input for initiating the wireless communication of the at least one of the plurality of command signals, said means for receiving further comprising:

means for generating a first command signal to initiate a power on sequence of the computer and a launching by the computer of a first application;

means for generating a second command signal to initiate the power on sequence of the computer and a launching by the computer of a second application different than the first application; and

means for generating a third command signal to initiate the power on sequence of the computer without launching an application.

17. The remote control device of claim 16, wherein the first and second applications are user-defined applications.

18. The remote control device of claim 16, wherein the wireless communication is radio frequency communication.

19. The remote control device of claim 18, wherein said means for wirelessly communicating has a communication range of approximately 200 to 500 feet.

20. The remote control device of claim 16, further comprising means for attaching the means for housing to a portable personal item.

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