

current image, and more particularly the image of each contact patch area **44** can be compared to previous images to determine what action to perform in a host device.

[0045] Referring back to **FIG. 2**, the display arrangement **30** may be a stand alone unit or it may be integrated with other devices. When stand alone, the display arrangement **32** (or each of its components) acts like a peripheral device (monitor) that includes its own housing and that can be coupled to a host device through wired or wireless connections. When integrated, the display arrangement **30** shares a housing and is hard wired into the host device thereby forming a single unit. By way of example, the display arrangement **30** may be disposed inside a variety of host devices including but not limited to general purpose computers such as a desktop, laptop or tablet computers, handhelds such as PDAs and media players such as music players, or peripheral devices such as cameras, printers and/or the like.

[0046] **FIG. 4** is a multipoint touch method **45**, in accordance with one embodiment of the present invention. The method generally begins at block **46** where multiple touches are received on the surface of the touch screen at the same time. This may for example be accomplished by placing multiple fingers on the surface of the touch screen. Following block **46**, the process flow proceeds to block **47** where each of the multiple touches is separately recognized by the touch screen. This may for example be accomplished by multipoint capacitance sensors located within the touch screen. Following block **47**, the process flow proceeds to block **48** where the touch data based on multiple touches is reported. The touch data may for example be reported to a host device such as a general purpose computer.

[0047] **FIG. 5** is a block diagram of a computer system **50**, in accordance with one embodiment of the present invention. The computer system **50** may correspond to personal computer systems such as desktops, laptops, tablets or handhelds. By way of example, the computer system may correspond to any Apple or PC based computer system. The computer system may also correspond to public computer systems such as information kiosks, automated teller machines (ATM), point of sale machines (POS), industrial machines, gaming machines, arcade machines, vending machines, airline e-ticket terminals, restaurant reservation terminals, customer service stations, library terminals, learning devices, and the like.

[0048] As shown, the computer system **50** includes a processor **56** configured to execute instructions and to carry out operations associated with the computer system **50**. For example, using instructions retrieved for example from memory, the processor **56** may control the reception and manipulation of input and output data between components of the computing system **50**. The processor **56** can be a single-chip processor or can be implemented with multiple components.

[0049] In most cases, the processor **56** together with an operating system operates to execute computer code and produce and use data. The computer code and data may reside within a program storage block **58** that is operatively coupled to the processor **56**. Program storage block **58** generally provides a place to hold data that is being used by the computer system **50**. By way of example, the program storage block may include Read-Only Memory (ROM) **60**, Random-Access Memory (RAM) **62**, hard disk drive **64**

and/or the like. The computer code and data could also reside on a removable storage medium and loaded or installed onto the computer system when needed. Removable storage mediums include, for example, CD-ROM, PC-CARD, floppy disk, magnetic tape, and a network component.

[0050] The computer system **50** also includes an input/output (I/O) controller **66** that is operatively coupled to the processor **56**. The I/O controller **66** may be integrated with the processor **56** or it may be a separate component as shown. The I/O controller **66** is generally configured to control interactions with one or more I/O devices. The I/O controller **66** generally operates by exchanging data between the processor and the I/O devices that desire to communicate with the processor. The I/O devices and the I/O controller typically communicate through a data link **67**. The data link **67** may be a one way link or two way link. In some cases, the I/O devices may be connected to the I/O controller **66** through wired connections. In other cases, the I/O devices may be connected to the I/O controller **66** through wireless connections. By way of example, the data link **67** may correspond to PS/2, USB, Firewire, IR, RF, Bluetooth or the like.

[0051] The computer system **50** also includes a display device **68** that is operatively coupled to the processor **56**. The display device **68** may be a separate component (peripheral device) or it may be integrated with the processor and program storage to form a desktop computer (all in one machine), a laptop, handheld or tablet or the like. The display device **68** is configured to display a graphical user interface (GUI) including perhaps a pointer or cursor as well as other information to the user. By way of example, the display device **68** may be a monochrome display, color graphics adapter (CGA) display, enhanced graphics adapter (EGA) display, variable-graphics-array (VGA) display, super VGA display, liquid crystal display (e.g., active matrix, passive matrix and the like), cathode ray tube (CRT), plasma displays and the like.

[0052] The computer system **50** also includes a touch screen **70** that is operatively coupled to the processor **56**. The touch screen **70** is a transparent panel that is positioned in front of the display device **68**. The touch screen **70** may be integrated with the display device **68** or it may be a separate component. The touch screen **70** is configured to receive input from a user's touch and to send this information to the processor **56**. In most cases, the touch screen **70** recognizes touches and the position and magnitude of touches on its surface. The touch screen **70** reports the touches to the processor **56** and the processor **56** interprets the touches in accordance with its programming. For example, the processor **56** may initiate a task in accordance with a particular touch.

[0053] In accordance with one embodiment, the touch screen **70** is capable of tracking multiple objects, which rest on, tap on, or move across the touch sensitive surface of the touch screen at the same time. The multiple objects may for example correspond to fingers and palms. Because the touch screen is capable of tracking multiple objects, a user may perform several touch initiated tasks at the same time. For example, the user may select an onscreen button with one finger, while moving a cursor with another finger. In addition, a user may move a scroll bar with one finger while