

low (A)

TITLE OF THE INVENTION

Portable Display Apparatus and Business Bidding Method

CROSS-REFERENCE TO RELATED APPLICATIONS

[Not Applicable]

- pretty well written w/ clear & good structure
- your separation of Figs 3 & 4 worked
- you could benefit from a system - level drawing as discussed in class & changing the order of drawings
- claims are OK, but review & see if you can make better
- keep making improvements to stay "A" on full application assignment

BACKGROUND OF THE INVENTION

[0001] The present invention generally relates to a [invention]. More particularly, the present invention relates to a [invention, more specifically].

[0002] [general background]

[0003] [describe prior art]

[0004] [explain what is lacking in prior art/drawbacks]

BRIEF SUMMARY OF THE INVENTION

[0005] One or more of the embodiments of the present invention provide

[describe invention as claimed]

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Figure 1 illustrates a display apparatus according to an embodiment of the present invention.

[0007] Figure 2 illustrates a display apparatus according to an alternate embodiment of the present invention.

[0008] Figure 3 illustrates a block diagram of an internal power system of a display apparatus according to an embodiment of the present invention.

[0009] Figure 4 illustrates a block diagram of an internal communication system of a display apparatus according to an embodiment of the present invention.

[0010] Figure 5 illustrates a block diagram of a location confirming system according to an embodiment of the present invention.

[0011] Figure 6 illustrates an additional alternative embodiment of a location confirming system

[0012] Figure 7 illustrates a flowchart (700) describing a method for displaying an image on a display apparatus.

[0013] Figure 8 illustrates a flowchart describing a method for an auction and payment system according to an embodiment of the present invention.

[0014] Figure 9 illustrates a flowchart describing a method for confirming a presence of an electronic device at a pre-determined location according to an embodiment of the present invention.

*not describe time,
but OK to mark address*

[0015] Figure 10 illustrates a flowchart describing a method to create an account assigned to the operator to permit operator to bid on an auction according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Figure 1 illustrates a display apparatus 100 according to an embodiment of the present invention. The display apparatus 100 includes an electronic display screen 110, and an operator attachment system 120. The operator attachment system 120 may include a housing 130, straps 140, 145, fastening devices 150, 155, 160, 165. Straps 140, 145 may include connectors 170, 175.

[0017] Operator attachment system 120 encloses electronic display 110 such that electronic display 110 remains visible when viewed from the outside of display apparatus 100. Operator attachment system 120 additionally attaches an operator, such as a person, to display apparatus 100. Housing 130 surrounds display screen. Fastening devices 150, 155, 160, 165 connect to a perimeter edge of housing 130. A first end of strap 140 may be attached to fastening device 155 and a second end of strap 140 is attached to fastening device 160. A first end of strap 145 is attached to fastening device 150 and a second end of strap 145 is attached to fastening device 165. Straps 140, 145 may include connectors 170, 175 attached to a portion of straps 140, 145 to divide straps 140, 145 into two portions when unconnected, and a full strap when connected. ✓

[0018] In operation, display apparatus 100 is attached to an operator by operator attachment system 120. An operator as used herein may include a person that owns, wears, carries or otherwise transports a display apparatus, or someone acting for or in behalf of a person that owns, wears, carries, or otherwise transports a display apparatus. The operator may be at a desired location for a target audience to view an image, such as an advertisement, displayed on the display screen 110 of display apparatus 100.

Electronic display 110 displays an image on its screen and may maintain an image on its screen when power is not provided to electronic display 110 and as a result operator does not have to carry a power supply or large bulk battery in addition to wearing display apparatus 100. Straps 140, 145 may be placed over the shoulders of an operator to provide support in wearing display apparatus 100. ^{Because} As the size of a person varies, in a preferred embodiment the length of straps 140, 145 may be adjusted to according to the preference and comfort of the operator. Straps may alternatively be a fixed length. ~~they are~~ *they are*

[0019] In a preferred embodiment, electronic display 110 is an electronic paper display that is approximately the size of a sheet of paper including a diagonal measurement of about 14.1 inches. In an embodiment, electronic display 110 may be less than 1 millimeter thick, and may be bent a full 180 degrees and still remain flexible. Electronic display 110 may also support up to 4096 colors in a preferred embodiment. Electronic display 110 may alternatively be non flexible, or be a larger or smaller diagonal measurement, or support more or fewer colors. Housing 130 may include a case that is approximately 3-4 mm thick, and hermetically sealed.

[0020] Straps 140, 145 may be made of a fabric such as nylon or polypropylene. Fastening devices 150, 155, 160, 165 may be brackets, but may also alternatively be velcro, hooks, snaps, buttons or other fasteners to attach straps 140, 145 to housing 130. Connectors 170, 175, such as snap-squeeze connectors may be used to provide assist the operator in fitting straps 140, 145 or in putting on display apparatus 100. Other connectors may alternatively be used such as velcro, buttons, hooks, clips, buckles or other devices to connect two portions of a strap.

[0021] In an alternative embodiment, one strap may be used to be placed around the back of the neck, over the shoulders, or back of an operator. Alternatively, straps 140, 145 may not be used at all. Other ways to attach an operator to display apparatus exist such as a structure to extend from housing 130 to rest on the shoulders of an operator, or other structure intended to attach an operator to display apparatus 100, or allow display apparatus to be worn by an operator such as placing electronic display in a garment worn by a user.

[0022] Display apparatus may be attached to operator such that electronic display is viewed from front of operator, or alternatively from the back of operator. Another embodiment of the present invention may include more than one electronic display being displayed on from the front as well as the back of the operator. Such an embodiment may have straps that extend over the shoulders of an operator, connecting two electronic displays that may display the same image or different images.

[0023] Figure 2 illustrates a display apparatus 200 according to an alternate embodiment of the present invention. The display apparatus 200 includes an electronic display screen 210, and an operator attachment system 220. The operator attachment system 220 may include a housing 130, straps 140, 145, fastening devices 150, 155, 160, 165, communication port 280, location monitoring system 290, and lighting elements 295. Straps 140, 145 may include connectors 170, 175 attached to a portion of straps 140, 145 to divide straps 140, 145 into two portions when unconnected, and a full strap when connected.

[0024] Operator attachment system 220 encloses electronic display 110 such that electronic display 210 remains in view when viewed from the outside of display

apparatus 200. Operator attachment system 220 additionally attaches an operator, such as a person, to display apparatus 200. Housing 130 surrounds display screen. Fastening devices 150, 155, 160, 165 are connected to a perimeter edge of housing 130. A first end of strap 140 is attached to fastening device 170 and a second end of strap 140 is attached to fastening device 180. A first end of strap 145 is attached to fastening device 150 and a second end of strap 145 is attached to fastening device 165. Communication port 280 may be coupled with electronic display 210, location monitoring device 290, and an internal power supply (not shown). The internal power supply provides power to location monitoring device 290, and lighting elements 295 which may be affixed to a perimeter of display apparatus 200.

You can see how it may have been more clear if you had already shown how this works functionally

[0025] In operation, display apparatus 200 may be attached to an operator by operator attachment system 220. The operator may be at a desired location for a target audience to view an image, such as an advertisement, displayed on the display screen 210 of display apparatus 200. Electronic display 210 displays an image on its screen. Straps 140, 145 may be placed over the shoulders of an operator to provide support in wearing display apparatus 200. As the size of a person varies, in a preferred embodiment the length of straps 140, 145 may be adjusted to according to the preference and comfort of the operator. Straps may alternatively be a fixed length. Lighting elements 295, such as low-power light emitting diodes, are coupled to an internal power supply and provide display apparatus 200 with backlight so that the image displayed by electronic display 210 can be seen in low-light conditions.

[0026] In operation, communication port 280 may be connected to an external electronic device, such as a computer, to perform various tasks with display apparatus

200. For example an image may be displayed, updated, or changed on electronic display 210, with data representing the image being sent to electronic display 210 through communication port 280 from external electronic device. A second task may be to retrieve data from display apparatus 200. Retrieved data may be, for example, stored location information representing geographic location of display apparatus 200 at previous points in time, as well as stored identification information of the display apparatus. These tasks will be discussed more fully in figures 3 and 4, as will the operation of location monitoring system in receiving and storing data representing geographic location of display apparatus 200.

not shown

[0027] Communication port 280 is preferably a universal serial bus port, which also facilitates power being supplied to display apparatus when connected to an external electronic device. Alternatively communication port may be a firewire, RS232, RS485 or other hardwired connection port, or a wireless communication port. Power may alternatively be provided to electronic display when an image is updated through a separate power connection from communication port 280. Alternatively, a power source such as a battery may supply electronic display with power when an image is updated on electronic display 210.

[0028] In a preferred embodiment electronic display 210 is an electronic paper display that is approximately the size of a sheet of paper including a diagonal measurement of about 14.1 inches. In a preferred embodiment electronic display 210 may be less than 1 millimeter thick, and may be bent a full 180 degrees and still remain flexible. Electronic display 210 may also support at least 4096 colors in a preferred embodiment, however the number of supported colors in electronic display 210 may be

fewer. Electronic display 210 may alternatively be non-flexible, or be a larger or smaller diagonal measurement. Housing 130 may include a case that is hermetically sealed.

[0029] An alternative embodiment within the scope and spirit of the present invention includes an operator attachment system with a location monitoring system as described herein, and an electronic display, such as an LCD screen, cathode ray tube display, plasma display, or any other type of display used in electrical devices.

[0030] Figure 3 illustrates a block diagram of an internal power system 300 of a display apparatus according to an embodiment of the present invention. The internal power system includes an electronic display 210, a communication port 280, a power storage device 320, a memory device 330, lighting elements 295, and a location monitoring device 290. Location monitoring device includes a power storage device 340, a transceiver 350, a processor 360, and a memory device 370.

[0031] Communication port 280 is coupled to power storage device 320, electronic display 210, and power storage device 340 of location monitoring device 290.

Power storage device 320 is coupled to memory device 330, lighting elements 295, and electronic display 210. Power storage device is coupled to transceiver 350, processor 360, and memory device 370.

~~AI~~ *Numbering error*

[0032] In operation, display device 300 may be connected to an external computer through communication port 320 to receive an image to be displayed on electronic display 310. While the display device 300 is connected to a computer through communication port 320, power is sent to electronic display 320 while the image is updated. Display apparatus 300 may be connected to an external computer through communication port 280 to receive power by electronic display 210 and to charge power

From this is really more of an alternate embodiment

storage devices 320, 340. Electronic display 210 draws power through communication port 280 when the image is initially displayed by electronic display 210 but electronic display may maintain an image thereafter when power is not provided to the electronic display 210. Power storage device 340 provides power to a transceiver 350, a processor 360, and a memory device 370. Power storage device 320 may also provide power to lighting elements 295, and memory device 330.

[0033] In an alternate embodiment electronic display 210 displays a subsequent image to replace an original image when display device is not connected to an external computer. Electronic display 310 may also receive power from power storage device 320 when display device 300 is not connected to an external power source. In an alternate embodiment a single power storage may be used provide power to memory devices 330, 370, lighting elements 295, electronic display 210, transceiver 350, and processor 360 as opposed to using two power storage devices 320, 340. Alternatively more than two power storage devices may be implemented to provide the previously mentioned components with power.

[0034] Power storage device *is* preferably a rechargeable battery or other type of internal power storage device which is charged when display apparatus 300 is connected through communication port 280. In an alternate embodiment, power storage device 230 is not rechargeable may be an internal battery that needs to be replaced when charge is used up. In a preferred embodiment communication port 220 is a universal serial bus port such that external power source is an electronic device that may provide display apparatus 200 with both power and data, as well as retrieve data from display apparatus 200. However, in an alternate embodiment the power needed by electronic display 200

I like how you broke the power & data systems into separate figs for clarity

which one?

may be supplied through a separate port than the port through which data is transmitted or from an internal power supply such as an internal battery.

[0035] Figure 4 illustrates a block diagram of an internal communication system of a display apparatus 400 according to an embodiment of the present invention. The internal communication system for display apparatus 400 includes a communication port 280, memory device 330, electronic display 210, and location monitoring system 290. Location monitoring system includes a transceiver 350, processor 260, and memory device 370.

[0036] In display apparatus 400, communication port 280 is in forward communication to electronic display 210. Communication port 280 is in bidirectional communication with memory device 330. Communication port 280 is in bidirectional communication with location monitoring system 290, and specifically processor 360. Processor 360 is in bidirectional communication with memory device 370 and transceiver 350.

[0037] In operation, communication port 280 may be connected to an external electronic device, such as a computer, to perform various tasks with display apparatus 400. For example an image may be displayed, updated, or changed on electronic display 210, with data representing the image being received by display apparatus 400 through communication port 280 from the external electronic device, and sent to electronic display 210. Alternatively, data representing an image may be sent to memory device 330 to be stored for later use such as updating or replacing the image on electronic display 210 when display apparatus is not connected to external electronic device. For example, a processor may be programmed to change or update the image being displayed

by electronic display. The processor retrieves the image stored on memory device and relays the image to electronic display 310. This processor may be processor 360, or a separate independent processor. The processor may be programmed to change the image at a variety of different time intervals automatically, or in the alternative an operator control interface may be included in display apparatus 400 to give the operator control over the display of the images.

[0038] Display apparatus may also receive data into location monitoring system 290 using a transceiver 350. For example, transceiver 350 may receive location information representing a geographic or physical location of an external electronic device. The location information may then be sent to processor 360 which relays the location information to memory device 370 where location information can be stored for later retrieval. Transceiver 350 may also send a request signal to an external electronic device over a communication link such as a Bluetooth or other wireless communication link. The request signal requests location information from the external electronic device. This process may be repeated multiple times with location information being stored on memory device 370 without writing over previously stored location information.

[0039] Location information may be received from an external electronic device that is in close proximity to display apparatus 400 to approximate the geographic location of display apparatus 400. Location information may be, for example, global positioning system coordinates. An alternative embodiment of the present invention includes an internal global positioning system receiver that receives global positioning coordinates that represent the geographic or physical location of the display apparatus itself, and not

of an external electronic device sent to a transceiver 350 in location monitoring system 290.

[0040] In operation, data may be retrieved from display apparatus 400 through communication port 280. For example, location information may be requested by an external computing device to compare with pre-determined location information to verify and confirm the presence of the display apparatus at a pre-determined venue. Communication port 280 may be connected to a computing device which requests retrieval of the stored location information in memory device 370. A request for the location information is sent through communication port 280 to processor 360 which finds the location of location information on memory device 370. Location information is then sent from memory device 370 to processor 360 and then to the external computing device through communication port 280.

[0041] Additional data may be retrieved from display apparatus 400 according to an embodiment of the invention. Each display apparatus may have identification information, such as a number, letters, or combination of both which may be unique to the display apparatus. Memory device 330 may contain stored data representing the identification assigned to display apparatus 400. It may be useful in operation for an external computing device to retrieve identification information for display apparatus 400 from memory device 330. External computing device may be connected, through a wired or wireless connection, with communication port 280. Identification information is requested from memory device 330 and sent to the external computing device through communication port 280. Identification may be stored on memory device 330 either at a stage of manufacture or changed or updated at a later point in time. An alternative

embodiment of the present invention may include a single memory device to store both location information and identification information as opposed to the embodiment of Fig. 4 which has two memory devices 330, 370. Additionally, more than two memory devices may be implemented to store location information and identification information.

[0042] Figure 5 illustrates a block diagram of a location confirming system 500 according to an embodiment of the present invention. Location confirming system 500 includes a transceiver 510, a processor 520 and an external electronic device 530. The transceiver 510 is in communication with both external electronic device 520, and processor 520.

[0043] In operation, transceiver 510 receives a signal with location information representing the geographic or physical location of external electronic device 530. Transceiver 520 sends the location information to processor 520. Processor 520 may compare location information of the external electronic device 530 and pre-determined location information which represents the physical geographic location of a desired venue such as a location where an operator of a display apparatus may advertise. If the difference between the location information of the external electronic device 530 and the pre-determined location information of a pre-determined venue is within a threshold amount, then processor 520 may determine that the presence of external electronic device 530 is confirmed. When a significant difference exists, processor 520 determines absence at the pre-determined location. In embodiment of the present invention, more than one set of location information is received over a period of time in an attempt to confirm the presence of the external electronic device at a desired location over a longer period of time. When multiple readings of location information are received, some

Correct Fig 5 name in Fig 4-3



location information readings may within the threshold when compared with predetermined location information, while others are not. ^{The?} Processor may confirm presence if failure is due to equipment failure. When failure to confirm is not due to equipment failure, processor may still determine that the presence is confirmed when location information readings immediately prior to the unsuccessful reading, and immediately after the unsuccessful reading are determined to be successful. Processor may store the result of the determination in a memory device, in a database, or on a server.

Write the multiple sentences

[0044] In a preferred embodiment, transceiver 510 is contained within a location monitoring system of a display apparatus. The location monitoring system may additionally include a memory device that stores the location information to be retrieved at a later point in time. Processor may be coupled to a second transceiver to send a request signal to the location monitoring system to send the location information to the processor for comparison with predetermined location information. Processor may alternatively be connected to location monitoring system over a server and read location information directly from the memory device. Location information may be global positioning system coordinates, received by a global positioning system receiver build in to external electronic device, such as a GPS-enabled cellular phone, or a PDA, blackberry, or other electronic device with GPS capabilities.

[0045] Figure 6 illustrates an additional alternative embodiment of a location confirming system 600. Regarding figure 6, transceiver 510 may be included as part of a cellular phone network such as part of a cell phone tower. Processor 520 may be part of a server that hosts a web site with an operator interface. External electronic device may

OK

include a cellular phone, or other device that may receive calls in the cellular telephone network such as blackberries, iphones, and other like devices.

[0046] In operation, processor 520 sends a test signal and may ping the external electronic device without making an actual phone call over the cellular network. The location information may be related to the cell location that the external electronic device 530 was in at the time that location information was received. The cell location relates to which cellular phone tower for which the strongest communication signal was established at the time of the test signal or ping was sent. An alternative to sending a test signal or ping without making an actual phone call is to make an actual phone call to determine the cell location of electronic device 530, however, then the owner of the external electronic device 530 will be charged with a call.

Yes - you know, you are one of the very few people to write this obvious bullshit

[0047] Figure 7 illustrates a flowchart 700 describing a method for displaying an image on a display apparatus. At step 710 an image may be transferred to an electronic display with an external computing device transferring data representing the image to a display apparatus containing the electronic display. Transferring the image to the display apparatus may also include displaying the image on the electronic display and providing the electronic display with power when the image is initially displayed. Alternatively at least one different image may be transferred to the display apparatus and may be stored on a memory device within the display apparatus. Transferring data may include using a communication link between the display apparatus and the external computing device. The communication link may be a universal serial bus link or other wired communication link used to transmit data to the display apparatus. The communication link may alternatively be a wireless communication link.

*I just had to see what you had Fig 10
You say do not modify the flowchart*

✓

[0048] At step 720 the image may be maintained on the electronic display when no power is provided to the electronic display. The display apparatus may be worn by an operator while the image is being maintained on the electronic display with no power provided to the electronic display. At step 730 the image displayed by the electronic display may be updated with a different image when the display apparatus does not have a communication link established with an external computing device. While the image is updated power may be required to be provided to the electronic display. Power may be provided to the electronic display during step 730 when the display apparatus is not connected to an external computing device providing an image. The method may return to step 720, and the different image may be maintained on the electronic display when no power is provided to the electronic display.

[0049] Figure 8 illustrates a flowchart 800 describing a method for an auction and payment system according to an embodiment of the present invention. In a preferred embodiment a third-party company hosts the auction, and in the context of a auction for advertising services the third-party company may be the company selling the display apparatuses. Third-party company may charge fees generate revenue at different stages throughout the auctioning process. Fees may range from flat fees, to fees that are based on a percentage of the value of the auction or other compensation.

[0050] At step 810 an advertising company seeking individuals to perform a service for the company creates a listing. For example, in an embodiment, an advertising company such as Bank of America desires to hire display apparatus operators to attend a specific venue while wearing a display apparatus. In order to create a listing, information may be collected from the advertising company. Advertising company may provide the

number of operators desired to employ, location of the venue, the starting time of the event, and the stopping time of the event, as well as the start and stop times of the auction itself. Advertising company may also desire to set a bid reserve limit representing the maximum amount a winning bid may accepted. The reserve amount may or may not be viewed by the operators who will be bidding on the listing. Third-party company may charge a fee to the advertising company to create the fee, as well as an additional fee for the additional feature of the bid reserve limit.

Nice

[0051] At step 820, operators begin the bidding phase, in which operators with an account may place bids on the listing, where the bids represent the amount of money the operator desires to accept from performing advertising services for the advertising company for the terms stated in the listing. Prior to the start time of the event, the bidding closes. An example may be that the bidding phase ends between 24 and 48 hours of the start time of the event. At step 830, the bids are selected according to the number of operators desired by the advertising company, and are selected according to the lowest bids first. By way of example, if the advertiser specifies in its listing that it wants ten operators at a particular venue, then the ten lowest bids at the end of the bidding phase are chosen.

✓

[0052] At step 840, the determination is made if there are winners to the auction. Reasons why there might not be any winners to the auction include zero bids being placed on the listing during bidding phase 820. Another reason why there might not be any winners is because all of the bids that were placed exceeded a bid reserve limit set by the advertising company in step 810. If no winners exist, then the auction is terminated and advertising company may create a new listing at step 810 to try again to get operators

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to bid, or to increase their bid reserve limit to attempt to get winning bids by operators. A new listing may create a new fee to be paid to Third-party company.

[0053] If winners do exist, then winning operators may be notified in step 850. They may be notified by a notification email stating the results of the auction, they may receive a phone call, or a status may change in their account that they can log in to view to see the results of the auction. Once winners exist, third-party company may charge advertising company for the total amount of the winning bids of the auction to be paid to the operators, along with a fee to be paid to the third-party company. The amount for the operators may be held from the operators to be distributed after the completion of the event and when operators are confirmed to have been present at the event. Alternatively, the amount of the auction plus the fee could be charged after the completion of the event and when operators are confirmed to have been present at the event rather than beforehand.

[0054] In step 860, the operators may transfer the image from the advertising company onto their display apparatus. This may be accomplished by connecting their display apparatus to their computer through a communication port to be sent to the electronic display of the display apparatus. If more than one is desired to be updated during the event, then more than one image may also be transferred to the display apparatus and stored in a memory device within the display apparatus. The operator then attends the venue during the start and stop times set forth by the listing. If a ticket is required, operator may be required to pay for the ticket themselves. Alternatively tickets may be provided as part of the listing, or as part of the compensation.

[0055] At step 870, the presence at the venue is determined. Fig. 9 describes more fully how the presence of the operator at a venue may be determined. If the presence at the venue is not confirmed then at step 880 the operator does not get paid. If the bid price of the operator had already been taken from the advertising company by the third-party company prior to step 880, then third-party company may credit the amount of that bid to a future listing that advertising company may create. Alternatively, third-party company may refund the amount of the bid by an electronic fund transfer, check or cash.

[0056] If the presence of the operator at the venue is confirmed, then third-party company 890 may pay the bid amount to the operator. The payment may be made as a direct deposit in a bank account, check, cash, or crediting a debit or credit card or providing them with some other form of economic value substantially equal to the value of the bid. Alternatively, advertising company may pay the operator directly after confirmation of their presence at the venue is received, as well as paying any fees and commissions to the third-party company directly.

[0057] Another alternative feature that may be desired by an advertising company is to offer additional forms of compensation to operators for lead generation. One form of lead generation may be for an operator to have a cell phone with them in case a potential customer were to approach the operator for more information about the product, service, or company that is being advertised on the display apparatus. The operator may call a number to get the potential customer in touch with a customer representative of the advertising company. The phone call may either go directly to the advertising company's customer service representative, or it is forwarded to them. One alternative may be to have a cellular phone pre programmed to only call the number to the customer service

Partial Confirmation

✓

✓

representatives. The operator's account is recognized because of the call, and the operator may be compensated for each potential customer or lead the operator provides. If there is abuse, a waiting period may be implemented to compensate the operator after it appears there has been no abuse. When an operator has been compensated for the lead, the third-party company bills the advertising company for that additional service.

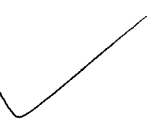
[0058] Figure 9 illustrates a flowchart 870 describing a method for confirming a presence of an electronic device at a pre-determined location according to an embodiment of the present invention. At step 910, location information of the electronic device is received. The location information represents a geographic or physical location of the electronic device. The location information may be received directly from the electronic device or from a separate electronic device through which location information has been relayed, or alternatively from a separate electronic device from which location information has been stored in a memory device.

[0059] At step 920, the location information is compared with pre-determined location information, which represents a geographic or physical location of a pre-determined location, such as a venue for advertising to a group of potential contacts. Location information of the electronic device and pre-determined location information may be global positioning system coordinates, or information regarding the cell location in a cellular telephone network. At step 930, a decision is made based on the comparison of step 920 as to whether location information of the electronic device and the pre-determined location information are a match. To be considered a match during comparison in step 930, it may be required that the location information of the electronic device and the pre-determined location information to be identical. Alternatively, it may

only be required that the two be within an allowable tolerance range to be considered a match.

[0060] If the comparison is considered a match at step 930, then the presence of the electronic device at the desired venue is considered to be confirmed at step 940. If there is a failure to match, then a decision 950 may be made whether the failure was attributed to equipment failure or that the location information simply did not match the pre-determined location information. If the failure to match was not due to equipment failure but simply a failure to match, then a lack of presence at the venue is confirmed at step 960. If the failure to match was due to equipment failure then presence at the venue is unknown at step 970.

[0061] In an embodiment, the method represented by flowchart 900 may be repeated more than one time, if multiple readings of location information of the electronic device are received during the duration time that the operator is supposed to be at the venue. For example, location information may be received at uniform intervals such as every fifteen minutes from the electronic device during the time the operator is supposed to be at the venue. Each reading may be compared with the pre-determined location information to confirm the presence of operator at multiple points in time, thus increasing the knowledge of whether the operator remained at the venue the entire time the operator was supposed to be there. In an alternative embodiment, location information may be received at random or non-uniform time intervals during the time the operator is supposed to be at the venue. In yet another embodiment the method represented by flowchart 900 may be performed one time to confirm a presence at a desired venue at a single point in time. Confirmation of the operator at the venue with the display apparatus




may be accomplished in non-electronic ways such as by using venue spotters, which may be people who physically attend the venue to look for operators that are supposed to be there. An announcement may be made for operators to meet the venue spotters at a location at the venue to confirm their presence at the venue.

[0062] Figure 10 illustrates a flowchart 1000 describing a method to create an account assigned to the operator to permit operator to bid on an auction according to an embodiment of the invention. The auction and bidding process are described more fully in Figs. 8, 9. The steps of Fig. 10 refer to steps taken prior to allowing an operator to bid. However, an alternative embodiment of the present invention may include performing some or all of the steps of Fig. 10 at some point after a bid is received from the operator.

[0063] Step 1010 may involve an operator obtaining a display apparatus. One possible method for the operator to obtain a display apparatus is to obtain it as a free promotion from a company desiring advertising services, or other entity. A second method for the operator to obtain a display apparatus is to purchase it. The purchase may occur as an online transaction from a website, a phone order, a physical storefront, or other purchasing methods. If the operator elects to purchase the display apparatus, operator may pay in full at the time of purchase, or create a deferred payment plan with the display selling company. Such a payment plan may include having a portion of their earnings from completed advertising jobs reduced in order to pay off the remaining balance. The total amount paid under a deferred payment plan may also exceed the original purchase price of the display apparatus. This increased amount paid may be a flat rate, or it may also be increase according to an interest rate. Other deferred payment


plans may exist whereby operator may make one or more subsequent payments to pay for the display apparatus when all or a portion of the original purchase price is not paid for when the original purchase agreement is made.

[0064] A third way for a operator to obtain a display apparatus may be to have the advertising company purchase the display apparatus on behalf of the operator. In such a scenario, the display selling company may require advertising company pay for the display apparatus in advance as well as bear the risks associated with the operator not performing advertising services including return of an unused display apparatus.



[0065] Alternatively, an operator may obtain a display apparatus through a rental agreement or other non ownership means whereby a display apparatus may be returned upon termination of employment. A refundable deposit may be employed to encourage the operator to return a display apparatus under such an agreement.

[0066] Once the display apparatus is in the possession of the operator, a display apparatus may become broken, lost, or stolen. If this occurs, the operator may have to bear all risk associated with owning a display apparatus such as incurring the costs associated with replacement or repair. However, display selling company, or advertising company may alternatively choose to insure the display apparatus and incur some of the risk of loss, theft, or inoperability.



[0067] Step 1020 involves collecting personal information from the operator. An operator may be asked to provide personal information such as operator's name, address, phone number, credit or debit card information, email address, or other personal information helpful in identifying the operator, communicating with the operator, or otherwise associating the operator with the account. Information such as credit card

information may additionally be useful in verifying that operator is at least 18 years of age. Credit card information, along with debit card or bank account information may also be useful in paying operator for by crediting a card or setting up a direct deposit as an alternative to written checks. Cell phone information may be useful when used in combination with an embodiment where verification and confirmation of the display apparatus' presence uses a cellular phone to ping, call, or utilize the built in GPS receiver to determine location data.

[0068] Collecting personal information may be accomplished over a website which prompts the operator to enter personal information into data entry fields of the website and stores the personal information into an account database assigned to the operator. An alternative method to collect personal information may be to have an telephone representative call the operator (of the display apparatus) to request that the operator give the personal information over a telephone conversation. An operator may alternatively be asked to provide personal information in alternative ways such as by email, written or typed correspondence, or other communicative methods. Because personal information is often desired to be private and confidential, encryption may be used for any online transfer of personal information. Step 1020 may be repeated at any time for an operator to update personal information.

[0069] Each display apparatus may have identification information, such as a number, letters, or combination of both which is unique to the display apparatus. At step 930, identification information for the display apparatus may be obtained. This is done to associate a specific display apparatus with operator's account. One method to obtain identification information for the display apparatus, the operator may be asked to connect

the display apparatus with a computer that is linked to website and an account database containing operator's other account information. This connection may be through a universal serial bus, or other wired communication connection, or a wireless connection such as a Bluetooth connection. Once the connection is made, the computer may read personal identification that is stored on a memory device within the display apparatus. An alternative method to obtain identification information of an apparatus may be to have the personal information identifier displayed physically on the display apparatus and operator may then provide the identification information in a similar manner as operator's personal information, such as inputting it into an website, emailing it, with written or typed communication, or telephone communication. An alternative to both steps 1020 and 1030 may be to have the operator provide personal information at the time of obtaining the display apparatus, and display apparatus selling company can assign identification information for the display apparatus to the operator's account prior to the operator actually having the display apparatus in their possession.

[0070] Step 1040 involves testing the functionality of display apparatus and the external electronic device to be used by operator. This test may occur while a computer is connected to the display apparatus, and the operator is logged in to the company website. One test may be to perform a test of the display apparatus' location monitoring system. Directions may be given to assist the operator in establishing a connection between the location monitoring system in the display apparatus and an external electronic device. These directions may be provided either in an instruction manual or other written set of instructions, or through an online guide through the website.

Alternatively an online chat field with a customer service representative may be available on the website to discuss unique problems or be guided through the process.

[0071] The connection established between the location monitoring system of the display apparatus and the external electronic device may be any connection that facilitates a transfer of data between a location monitoring system of a display apparatus and an external electronic device, such as for example, a Bluetooth connection. External electronic device may be a cellular telephone or other electronic device with at least a rudimentary global positioning system receiver.

[0072] Once a connection has been established between location monitoring system of the display apparatus and an external electronic device, a testing procedure may be initiated to test the functionality of the location monitoring system. First, a location information request signal may be sent from location monitoring system to the external electronic device, which responds by sending a location information response signal containing location information representing the geographic location of the external electronic device. After the location information is stored on a memory device in the location monitoring system, the location information may be transmitted over the internet to determine if the testing procedure was a success in step 1050. If the testing procedure yielded correct location information, in step 1060 a success notification box may be displayed on a monitor connected to the computer, wherein the success notification box indicates to the operator that the location confirming system is functioning properly. If the testing procedure yielded incorrect location information, or no location information at all, in step 1070 a failure notification box may be displayed on a monitor connected to the computer wherein the failure notification box indicates to the

operator that the location confirming system is not functioning properly. If testing procedure yielded incorrect or no location information, the testing procedure may alternatively be repeated a number of times until success is given or the testing procedure times out, after which a failure notification box may be displayed on the monitor connected to the computer. Step 1040 may be repeated at any time after the initial account set up phase for operator to ensure the proper functioning of display apparatus and other electronic devices. If the systems are working properly then at step 1080 the operator is ready to bid in an auction for a job with an advertising company. Any of the steps in the method represented by flowchart 1000 may be repeated for an operator to update information about the operator, the display apparatus, or check the functionality of the display apparatus.

Danger
We don't want to characterize all embodiments. This can instead be "one or more embodiments"

[0073]

The present invention solves problems of other display systems known in


the art. A light-weight screen, that maintains an image when power is not provided to the display is power efficient and does not require a bulk battery to supply continuous power to the electronic display. These advantages make the present invention lighter and therefore more comfortable to the operator. Additionally, a new system has been developed to verify the location of a display apparatus in a pre-determined location. This solves the problem of needing human verification, or relying on the honesty of operators to know that the display was in the location it was supposed to be for the time it was supposed to be. This reduces the wasting resources, and the likelihood of fraud. The present invention also provides advantages in terms of advertisers finding potential display operators. Because the bidding process is open to anyone with a display apparatus, a large pool of operators exists while reducing the need for full-time

Can be more specific by pointing to the shortcoming of specific art

employees for hired directly by third-party company. Also combining a bidding process with this type of system that is based on the lowest bid is desirable to potentially lower the costs of advertising to the advertising company by reducing the likelihood of overpaying an operator more than what they are willing to accept for attending a venue. Combining the verification and confirmation methods in the auction process additionally improves efficiency and reduces potential fraud.

[0074] While particular elements, embodiments, and applications of the present invention have been shown and described, it is understood that the invention is not limited thereto because modifications may be made by those skilled in the art, particularly in light of the foregoing teaching. It is therefore contemplated by the appended claims to cover such modifications and incorporate those features which come within the spirit and scope of the invention.

CLAIMS

1. A display apparatus including:
an electronic display, wherein an image is maintained on said electronic display when power is not provided to said electronic display; and
an operator attachment system, wherein said operator attachment system attaches an operator to said electronic display.
 2. The display apparatus of claim 1, wherein said operator attachment system includes a sealing case surrounding said electronic display.
 3. The display apparatus of claim 2, wherein said sealing case includes a communication port, wherein said communication port receives data from a data transmitting source.
 4. The display apparatus of claim 3, wherein said communication port is a universal serial bus port.
 5. The display apparatus of claim 1, wherein said electronic display is an electronic paper display.
 6. The display apparatus of claim 2, wherein said operator attachment system further includes a strap connected to said sealing case.
- 

7. The display apparatus of claim 6, wherein a length of said strap is adjusted from an original length.

8. The display apparatus of claim 1, further including a lighting element affixed to a perimeter of said operator attachment system.

9. The display apparatus of claim 8, wherein said lighting element is a light emitting diode.

10. A display apparatus including:

an electronic display;

an operator attachment system, wherein said operator attachment system attaches an operator to said electronic display; *and*

a location monitoring device, wherein said location monitoring device stores data representing a physical location of an electronic device on a memory device.

no functional connection?

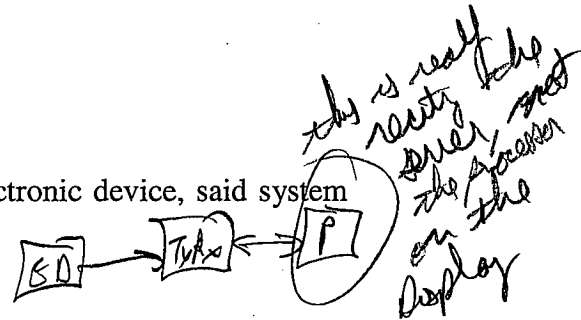
11. The display apparatus of claim 10 wherein said location monitoring device includes a receiver, wherein said receiver receives said data representing the physical location of said electronic device from said electronic device over a communication link between said location monitoring device and said electronic device.

12. The display apparatus of claim 11, wherein said location monitoring device further includes a transmitter, wherein said transmitter sends a signal over said

communication link to said electronic device requesting a return signal containing said data representing a physical location of said electronic device.

13. The display apparatus of claim 12, wherein said communication link is a bluetooth communication link.

14. A system for confirming a presence of an electronic device, said system including:



a transceiver, wherein said transceiver receives a signal from an external electronic device over a communication link, wherein said signal includes location information representing geographic location of said external electronic device; and

a processor communicating with said transceiver and comparing said data representing a geographic location of an external electronic device with pre-determined location information representing a pre-determined geographic location, said processor confirming the presence of said external electronic device at said pre-determined location when the difference between said location information and said

15. The system of claim 14 wherein said location monitoring device further includes a memory device, wherein said memory device communicates with said transceiver and stores said location information.

16. The system of claim 14, wherein each of said data representing geographic location of said external electronic device and said data representing a pre-determined geographic location include global positioning system coordinates.

17. The system of claim 14, wherein each of said data representing geographic location of said external electronic device and said data representing a pre-determined geographic location include a cell location in a cellular telephone network.

18. The system of claim 14, wherein said communication link is a bluetooth communication link.

19. A method for displaying a image, said method including:
displaying an image on a display screen of an electronic display; and
maintaining said image on said display screen when power is not continuously supplied to said display screen, wherein said electronic display is worn by an operator.

20. The method of claim 19 further including transferring said image to said electronic display, wherein transferring said image includes establishing a forward data transfer link between said electronic display and an external computing device.

21. The method of claim 20, wherein establishing said forward data transfer link includes utilizing a USB protocol.

22. The method of claim 19, further including:
displaying a second image on said display screen, wherein said second image replaces said image on said display screen; and
maintaining said second image on said display screen when power is not continuously supplied to said display screen.

23. A method for managing an auction, said method including:
receiving a bid from a first party, wherein said bid represents a value a first party is willing to accept in exchange for providing services for a second party;
assigning said first party to be employed by said second party based on receiving said bid being in a set of lowest bids received, wherein set of lowest bids includes a bid from at least one party; and
retaining compensation from said first party until confirming said first party has performed said services for said second party.

24. The method of claim 23 further including compensating said first party, wherein compensating said first party includes crediting a credit card.

25. The method of claim 23 further including setting a maximum bid reserve, wherein said maximum bid reserve is a maximum value said second party is willing to accept from set of lowest bids to determine whether said second party will employ said first party.

26. The method of claim 23, wherein receiving said bid from said first party is performed through a website.

27. A method for confirming a presence of an electronic device at a pre-determined location, said method including:

receiving location information, wherein said location information represents a geographic location of an electronic device, and
comparing said location information with positional information representing a geographic location of a pre-determined location.

28. The method of claim 27, wherein receiving location information includes pinging said electronic device to obtain information regarding a cell location of said electronic device.

29. The method of claim 27, wherein receiving location information includes:
establishing a communication link between an electronic display apparatus and said electronic device;
receiving said location information from over said communication link; and
storing said location in a memory device of said electronic display apparatus.

30. The method of claim 29, wherein receiving location information further includes transmitting a request signal from said display apparatus to said electronic

device to request said location information to be sent from said electronic device to said display apparatus.

ABSTRACT

A [method and/or system] is provided which [describe invention as claimed]

12203

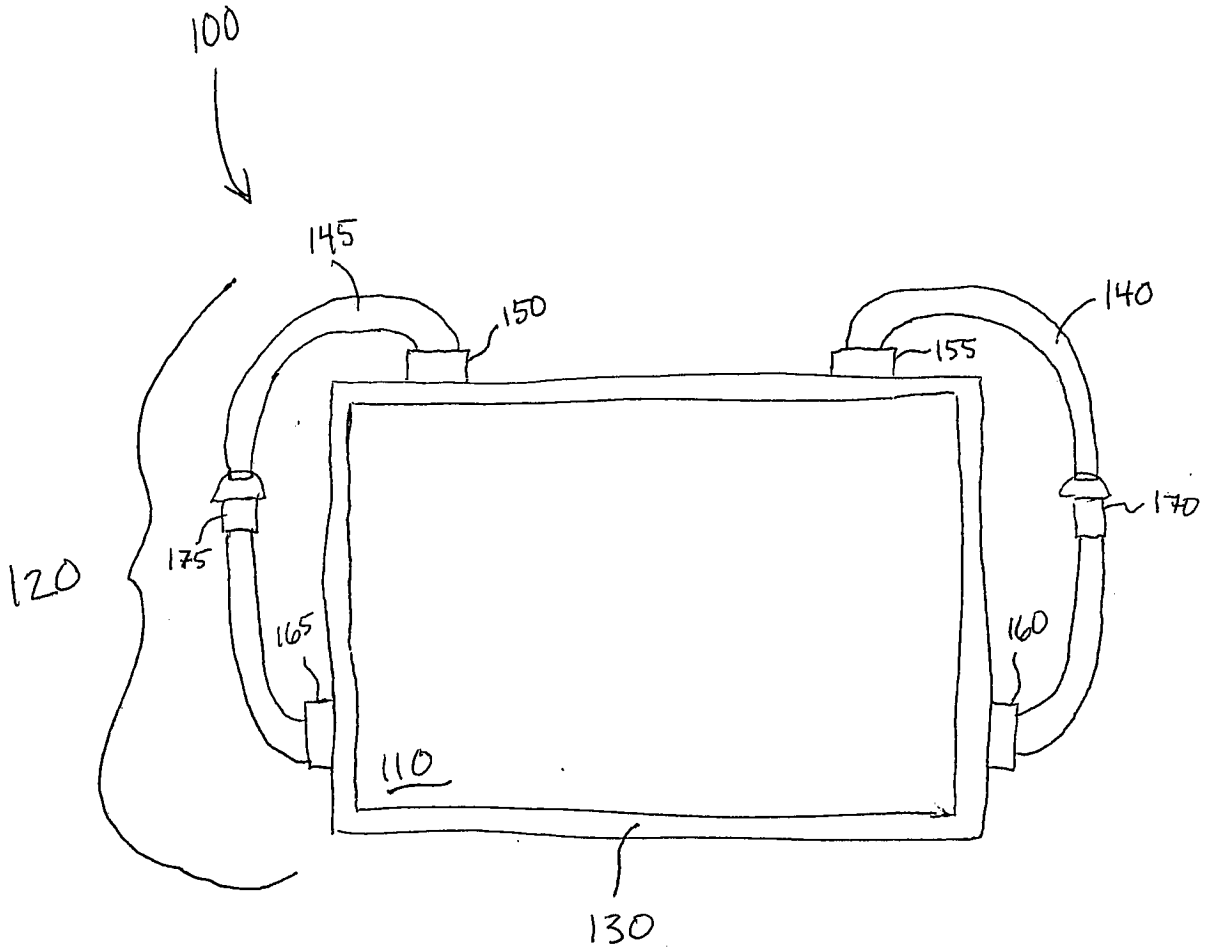


FIG. 1

12203

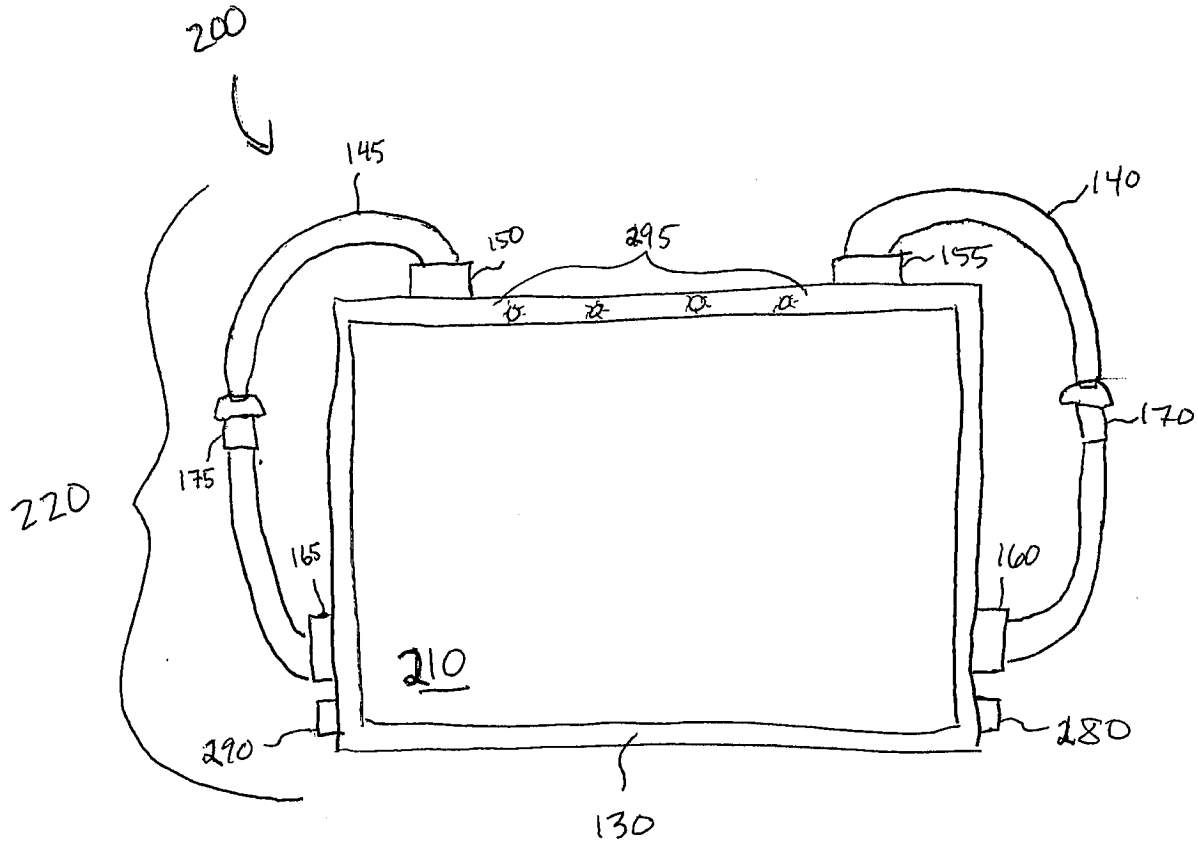
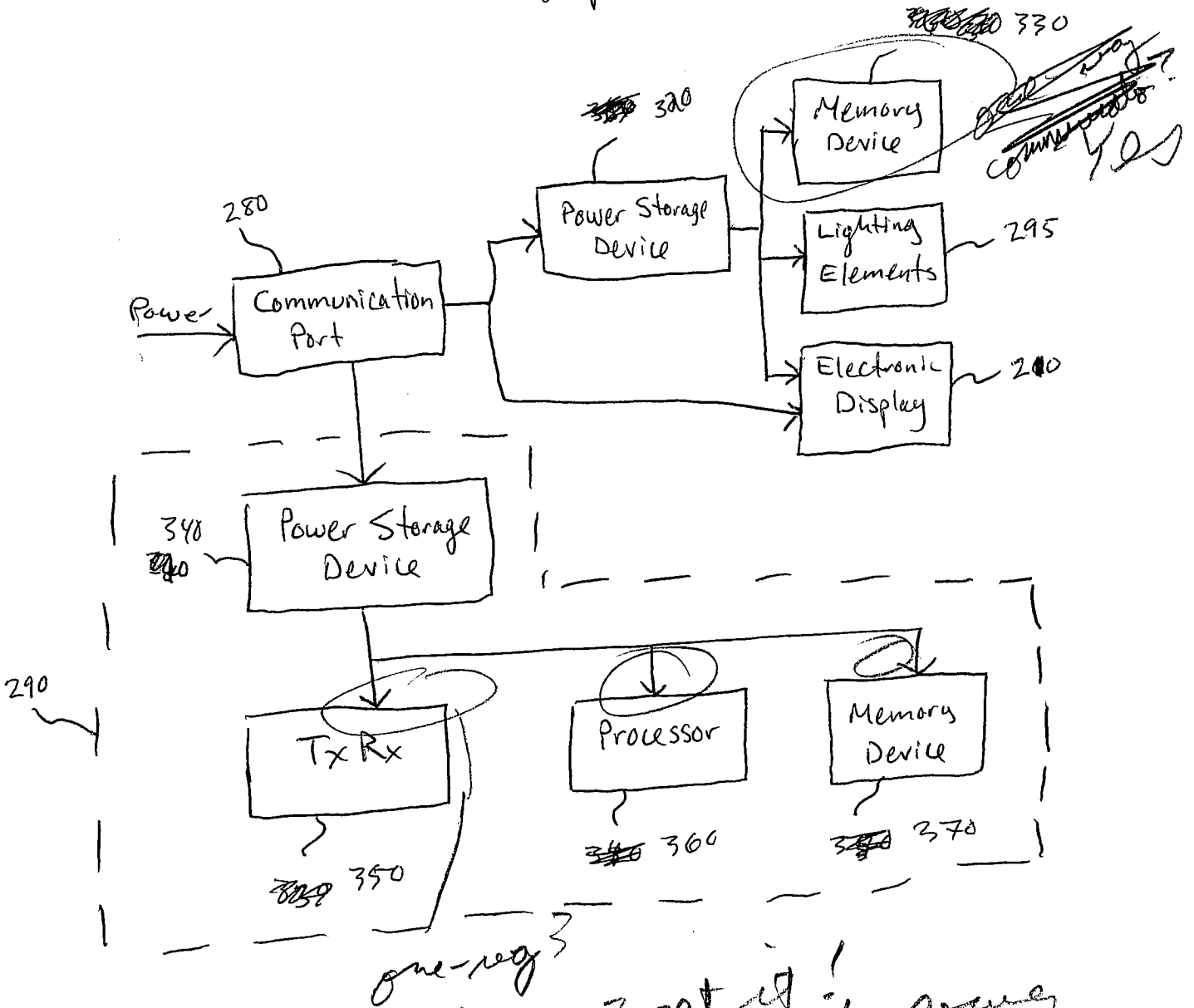


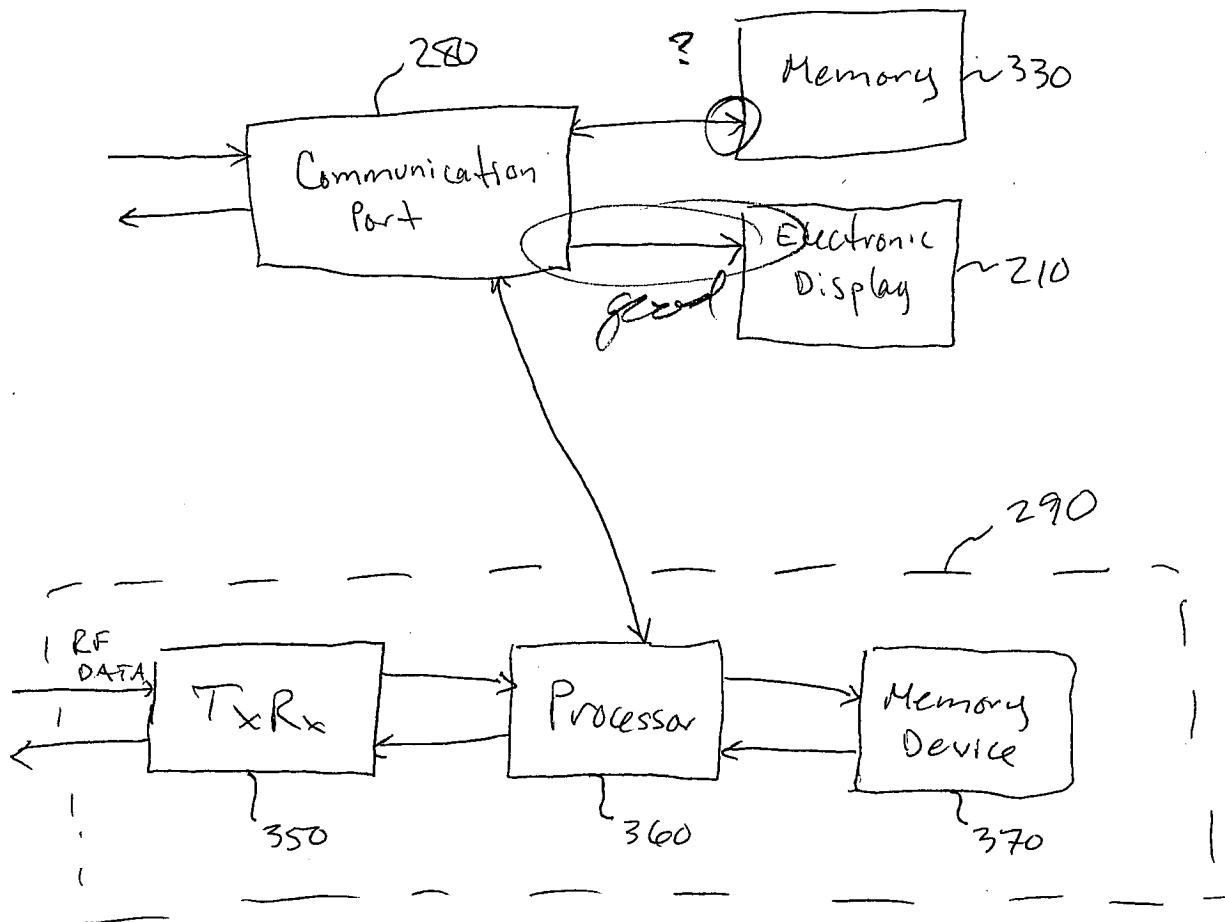
FIG. 2

300
HMM.
2 separate PS devices?



— AHH! Now I get it!
 you have put the power
 system + data system in
 separate planes, not
 a bad idea.
 — Tho 2 PS devices is still
 a little strange, though

400



Why are some
 arrows \leftrightarrow tasks
 \rightarrow ? Stay consistent

~~no power supply~~

FIG. 4

12203

500
↓

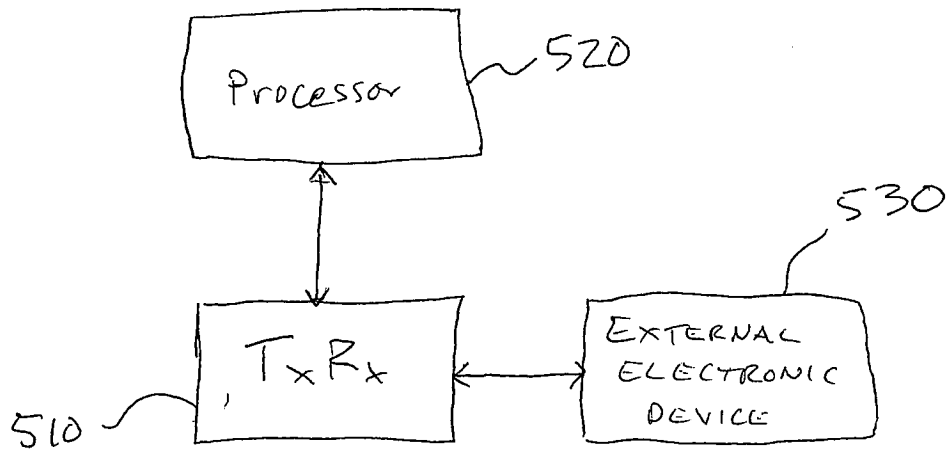


FIG. 5

17203

600
↘

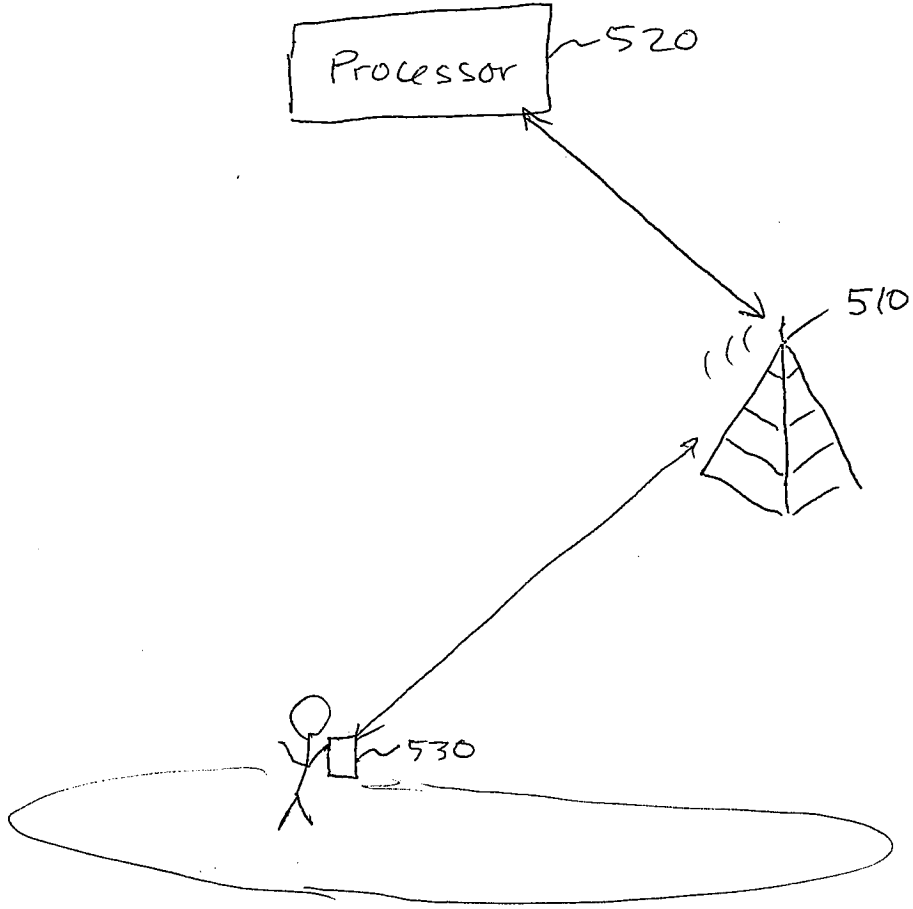


FIG. 6

12203

700
↓

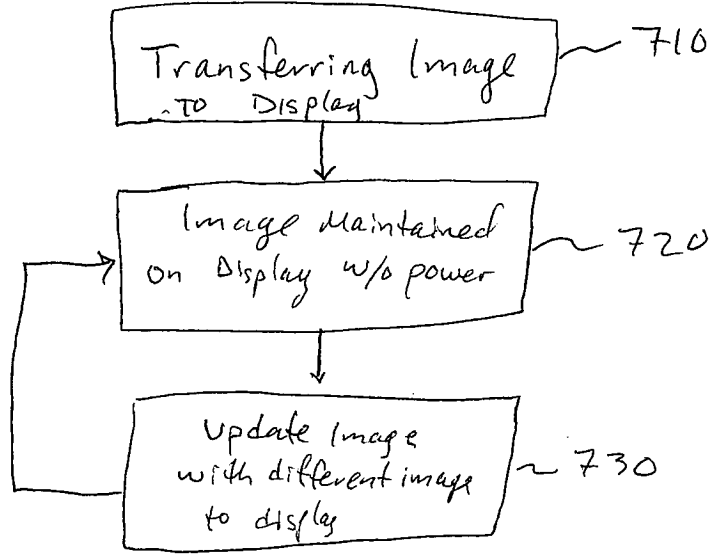


FIG. 7

800
↓

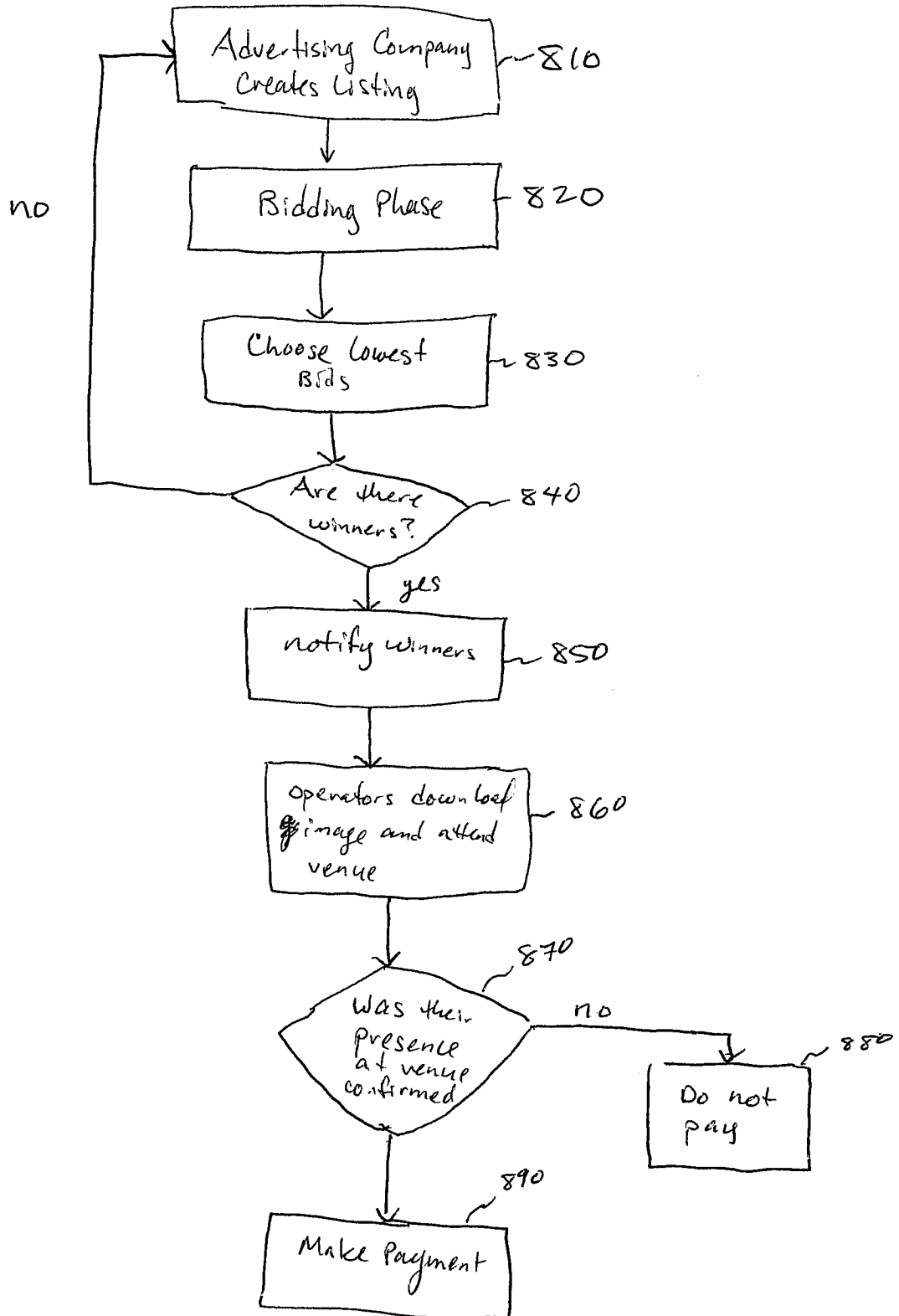


FIG. 8

870
↘

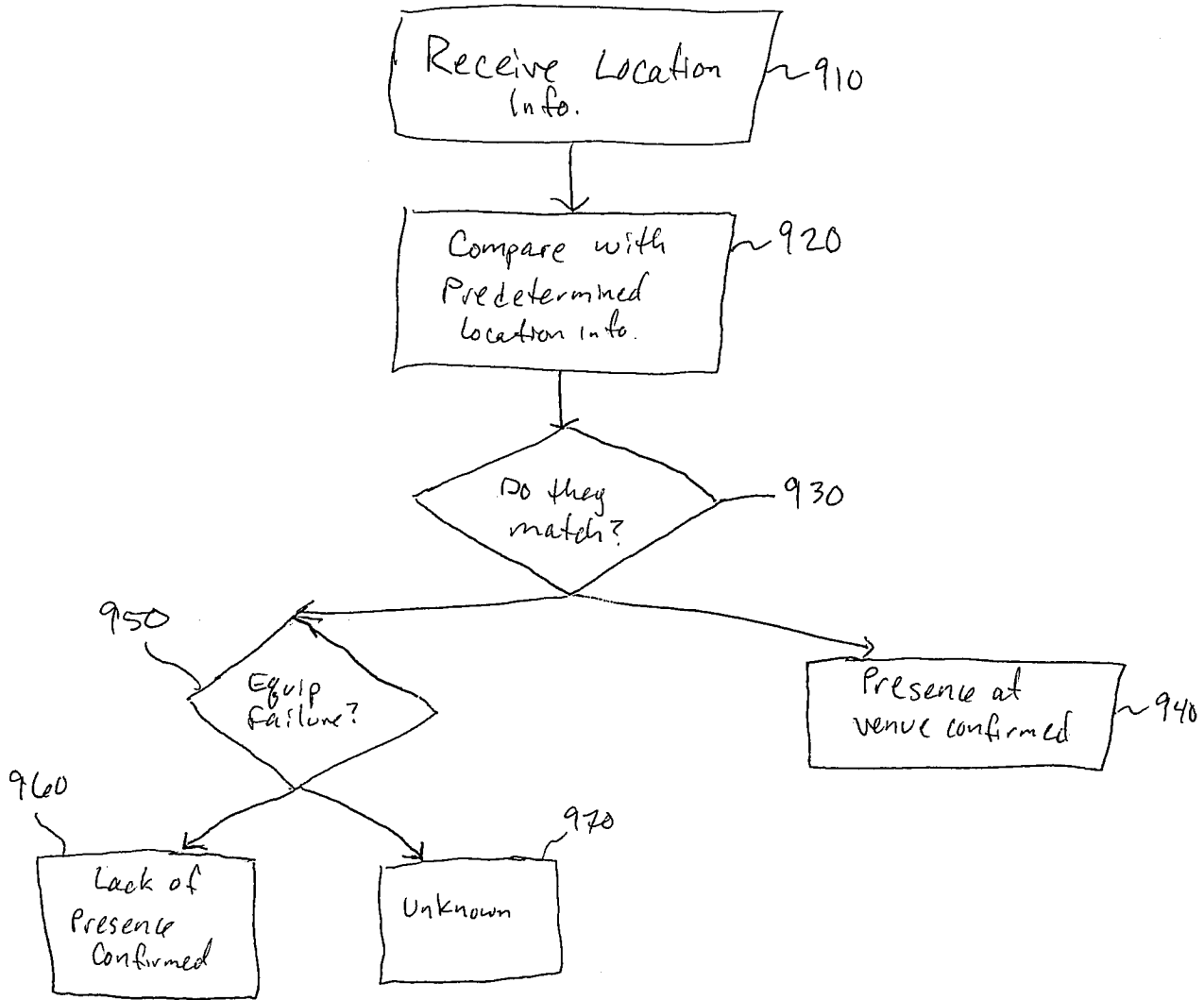


FIG. 9

12203

1000

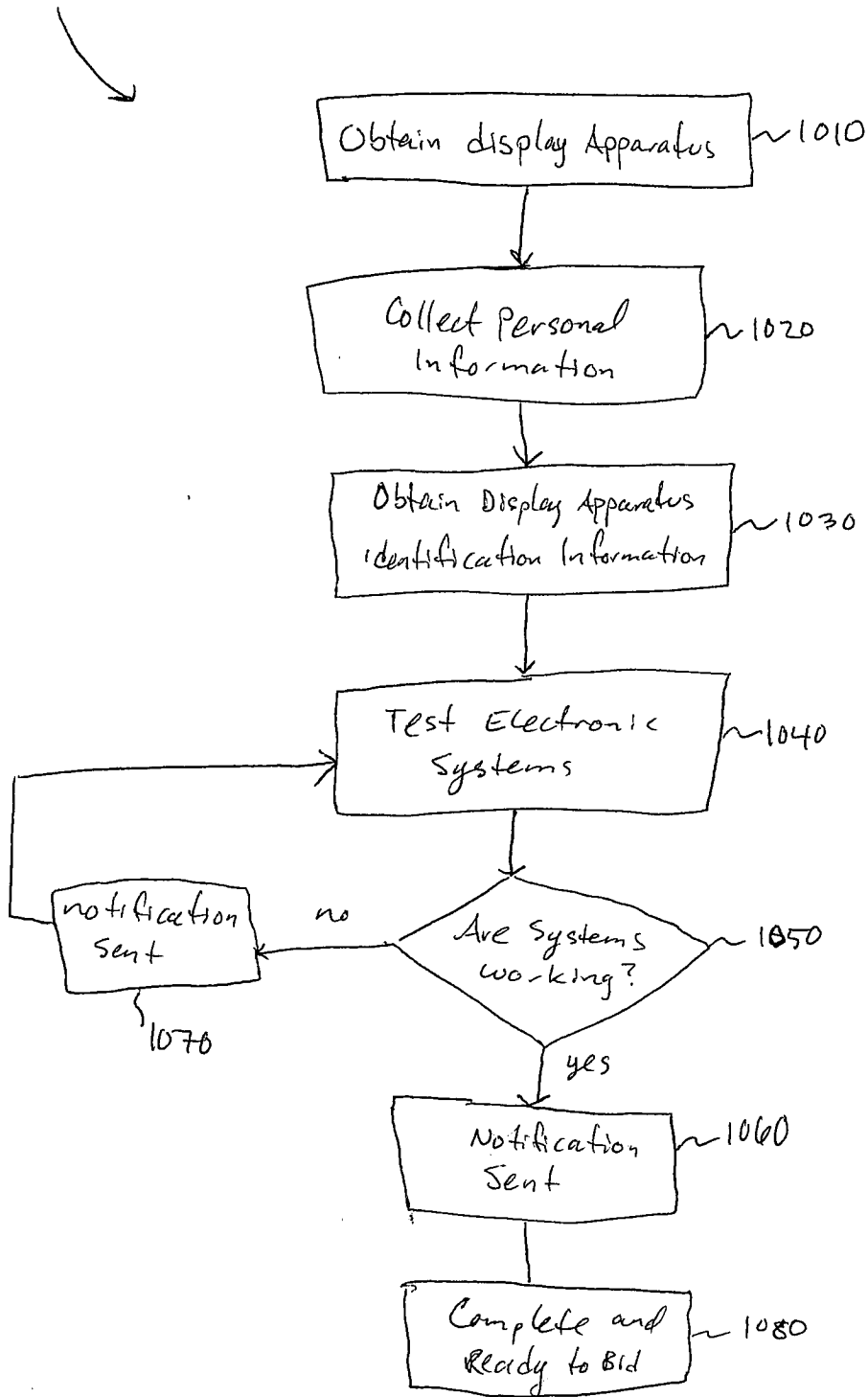


FIG 10