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(54) Title: SYSTEM AND METHOD FOR TIRE FIELD SURVEY DATA COLLECTION

(57) Abstract: In a method for collecting tire field survey data, a computer receives data representative of a selected tire test template. The tire test template includes data representative of at least one test field. The computer receives data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle. The computer displays, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle. The computer displays, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires. The data entry form includes at least one data entry field corresponding to the at least one test field of the selected tire test template.

SYSTEM AND METHOD FOR TIRE FIELD SURVEY DATA COLLECTION

FIELD OF THE INVENTION

[0001] The present disclosure relates to the field of data collection. More particularly, the present disclosure relates to the field of tire field survey data collection.

BACKGROUND

[0002] Tires of a vehicle may be an important factor in the performance and reliability of the vehicle. Thus, improving the design of the tires may be desirable in order to improve the performance and reliability of the tires, and in turn the performance and reliability of the vehicle. Taking into account real world field conditions of the tires may be an important factor in the tire development and improvement process. Field testing of the tires, including data collection, is one aspect of the tire development and improvement process that takes into account real world field conditions.

[0003] Collecting tire data, particularly on large sample sets, may be expensive and time consuming. Additionally, collected tire data may not be easily accessible to geographically dispersed groups of people.

SUMMARY OF THE DISCLOSURE

[0004] In a method for collecting tire field survey data, a computer receives data representative of a selected tire test template. The tire test template includes data representative of at least one test field. The computer receives data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle. The computer displays, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle. The computer displays, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires. The data entry form includes at least one data entry field corresponding to the at least one test field of the selected tire test template. The computer receives tire inspection data corresponding to at least one tire of the plurality of tires, wherein

the tire inspection data corresponds to the at least one data entry field.

[0005] A system for collecting tire field survey data includes at least one processor, at least one computer-readable tangible storage device, and program instructions stored on the at least one storage device for execution by the at least one processor. The program instructions include first program instructions configured to receive data representative of a selected tire test template, the tire test template including data representative of at least one test field. The program instructions further include second program instructions configured to receive data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle. The program instructions further include third program instructions configured to display, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle. The program instructions further include fourth program instructions configured to display, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires, the data entry form including at least one data entry field corresponding to the at least one test field of the selected tire test template. The program instructions further include fifth program instructions configured to receive tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

[0006] A computer program product collecting tire field survey data includes at least one computer-readable tangible storage device and program instructions stored on the at least one storage device. The program instructions include first program instructions configured to receive data representative of a selected tire test template, the tire test template including data representative of at least one test field. The program instructions further include second program instructions configured to receive data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle. The program instructions further include third program instructions configured to display, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle. The program instructions further include fourth program instructions configured to display, on a graphical display, a data

entry form corresponding to a selected tire of the plurality of tires, the data entry form including at least one data entry field corresponding to the at least one test field of the selected tire test template. The program instructions further include fifth program instructions configured to receive tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate various example embodiments of aspects of the invention. It will be appreciated that the illustrated element boundaries (e.g., boxes, groups of boxes, or other shapes) in the figures represent one example of the boundaries. One of ordinary skill in the art will appreciate that one element may be designed as multiple elements or that multiple elements may be designed as one element. An element shown as an internal component of another element may be implemented as an external component and vice versa. Furthermore, elements may not be drawn to scale.

[0008] **Fig. 1** illustrates an example system for collecting tire field survey data.

[0009] **Fig. 2** illustrates a block diagram of an example tire field survey data collection system.

[00010] **Fig. 3** illustrates a flow chart of an example method for collecting tire field survey data.

[00011] **Fig. 4** is a schematic diagram illustrating an example computer for implementing the system and method of **Figs. 2 and 3.**

DETAILED DESCRIPTION

[00012] The following includes definitions of selected terms employed herein. The definitions include various examples, forms, or both of components that fall within the scope of a

term and that may be used for implementation. The examples are not intended to be limiting. Both singular and plural forms of terms may be within the definitions.

[00013] As used in this application, the term "computer component" refers to a computer-related entity, either hardware, firmware, software, a combination thereof, or software in execution. For example, a computer component can be, but is not limited to being, a process running on a processor, a processor, an object, an executable, a thread of execution, a program, and a computer. By way of illustration, both an application running on a server and the server can be computer components. One or more computer components can reside within a process or thread of execution and a computer component can be localized on one computer or distributed between two or more computers.

[00014] "Computer communication," as used herein, refers to a communication between two or more computing devices (e.g., computer, personal digital assistant, cellular telephone) and can be, for example, a network transfer, a file transfer, an applet transfer, an email, a hypertext transfer protocol (HTTP) transfer, and so on. A computer communication can occur across, for example, a wireless system (e.g., IEEE 802.11, IEEE 802.15), an Ethernet system (e.g., IEEE 802.3), a token ring system (e.g., IEEE 802.5), a local area network (LAN), a wide area network (WAN), a point-to-point system, a circuit switching system, a packet switching system, combinations thereof, and so on.

[00015] "Computer-readable medium," as used herein, refers to a medium that participates in directly or indirectly providing signals, instructions or data. A computer-readable medium may take forms, including, but not limited to, nonvolatile media, volatile media, and transmission media. Non-volatile media may include, for example, optical or magnetic disks, and so on. Volatile media may include, for example, optical or magnetic disks, dynamic memory and the like. Transmission media may include coaxial cables, copper wire, fiber optic cables, and the like. Transmission media can also take the form of electromagnetic radiation, like that generated during radio-wave and infra-red data communications, or take the form of one or more groups of signals. Common forms of a computer-readable medium include, but are not limited to, a floppy disk, a flexible disk, a hard disk, a magnetic tape, other magnetic media, a CDROM, other optical media, punch cards, paper tape, other physical media with patterns of holes, a RAM, a

ROM, an EPROM, a FLASH-EPROM, or other memory chip or card, a memory stick, a carrier wave/pulse, and other media from which a computer, a processor or other electronic device can read. Signals used to propagate instructions or other software over a network, like the Internet, can be considered a "computer-readable medium."

[00016] "Data store," as used herein, refers to a physical or logical entity that can store data. A data store may be, for example, a database, a table, a file, a list, a queue, a heap, a memory, a register, and so on. A data store may reside in one logical or physical entity or may be distributed between two or more logical or physical entities.

[00017] "Logic," as used herein, includes but is not limited to hardware, firmware, software or combinations of each to perform a function(s) or an action(s), or to cause a function or action from another logic, method, or system. For example, based on a desired application or needs, logic may include a software controlled microprocessor, discrete logic like an application specific integrated circuit (ASIC), a programmed logic device, a memory device containing instructions, or the like. Logic may include one or more gates, combinations of gates, or other circuit components. Logic may also be fully embodied as software. Where multiple logical logics are described, it may be possible to incorporate the multiple logical logics into one physical logic. Similarly, where a single logical logic is described, it may be possible to distribute that single logical logic between multiple physical logics.

[00018] An "operable connection," or a connection by which entities are "operably connected," is one in which signals, physical communications, or logical communications may be sent or received. Typically, an operable connection includes a physical interface, an electrical interface, or a data interface, but it is to be noted that an operable connection may include differing combinations of these or other types of connections sufficient to allow operable control. For example, two entities can be operably connected by being able to communicate signals to each other directly or through one or more intermediate entities like a processor, operating system, a logic, software, or other entity. Logical or physical communication channels can be used to create an operable connection.

[00019] "Query," as used herein, refers to a semantic construction that facilitates gathering

and processing information. A query might be formulated in a database query language like structured query language (SQL) or object query language (OQL). A query might be implemented in computer code (e.g., C#, C++, Javascript) that can be employed to gather information from various data stores or information sources.

[00020] "Signal," as used herein, includes but is not limited to one or more electrical or optical signals, analog or digital signals, data, one or more computer or processor instructions, messages, a bit or bit stream, or other means that can be received, transmitted or detected.

[00021] "Software," as used herein, includes but is not limited to, one or more computer or processor instructions that can be read, interpreted, compiled, or executed and that cause a computer, processor, or other electronic device to perform functions, actions or behave in a desired manner. The instructions may be embodied in various forms like routines, algorithms, modules, methods, threads, or programs including separate applications or code from dynamically or statically linked libraries. Software may also be implemented in a variety of executable or loadable forms including, but not limited to, a stand-alone program, a function call (local or remote), a servelet, an applet, instructions stored in a memory, part of an operating system or other types of executable instructions. It will be appreciated by one of ordinary skill in the art that the form of software may depend, for example, on requirements of a desired application, the environment in which it runs, or the desires of a designer/programmer or the like. It will also be appreciated that computer-readable or executable instructions can be located in one logic or distributed between two or more communicating, co-operating, or parallel processing logics and thus can be loaded or executed in serial, parallel, massively parallel and other manners.

[00022] Suitable software for implementing the various components of the example systems and methods described herein may be produced using programming languages and tools like Java, Java Script, Java.NET, ASP.NET, VB.NET, Cocoa, Pascal, C#, C++, C, CGI, Perl, SQL, APIs, SDKs, assembly, firmware, microcode, or other languages and tools. Software, whether an entire system or a component of a system, may be embodied as an article of manufacture and maintained or provided as part of a computer-readable medium as defined previously. Another form of the software may include signals that transmit program code of the software to a

recipient over a network or other communication medium. Thus, in one example, a computer-readable medium has a form of signals that represent the software/firmware as it is downloaded from a web server to a user. In another example, the computer-readable medium has a form of the software/firmware as it is maintained on the web server. Other forms may also be used.

[00023] "User," as used herein, includes but is not limited to one or more persons, software, computers or other devices, or combinations of these.

[00024] Some portions of the detailed descriptions that follow are presented in terms of algorithms and symbolic representations of operations on data bits within a memory. These algorithmic descriptions and representations are the means used by those skilled in the art to convey the substance of their work to others. An algorithm is here, and generally, conceived to be a sequence of operations that produce a result. The operations may include physical manipulations of physical quantities. Usually, though not necessarily, the physical quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated in a logic and the like.

[00025] It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like. It should be borne in mind, however, that these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise, it is appreciated that throughout the description, terms like processing, computing, calculating, determining, displaying, or the like, refer to actions and processes of a computer system, logic, processor, or similar electronic device that manipulates and transforms data represented as physical (electronic) quantities.

[00026] **Fig. 1** illustrates an example system 100 for collecting tire field survey data. Collecting tire field survey data includes collecting information regarding tire pattern, tire brand and serial number, tire position in the vehicle, tire option code, air pressure, DOT information in or out, outside tire diameter (OTD), tire size, tire specifications, tire edge OTD, mounting date, and so on. Additionally, collecting tire field survey data includes collecting irregular tire wear information such as the depth, width, and length of irregular thread wear. Collecting tire field

survey data also includes collecting remaining thread depth measurement information at various measurement locations within tire grooves.

[00027] One or more computers 102a-c (hereinafter referred to as computer 102) are operably connected to one or more corresponding thread gages 104a-c (hereinafter referred to as thread gage 104). It should be understood that although thread gage 104 is illustrated as being coupled to computer 102 by a wire, thread gage 104 may also be coupled to computer 102 wirelessly. For example, thread gage 104 may be a Mitutoyo wireless digital thread gage.

[00028] Thread gage 104 is configured to collect tire thread measurement data from one or more tires 106a-c (hereinafter referred to as tire 106). Tire thread measurement data is useful to in estimating the estimated life of a tire. By measuring the depth of the remaining tire thread, a tester may estimate how many more miles a tire may safely drive. Thread gage 104 is configured to automatically transmit the tire thread measurement data to computer 102 without requiring manual data entry. In one example, computer 102 is configured to receive tire data via alternative user input devices. For example, computer 102 may be configured to receive tire data via a keyboard, a mouse, a touch screen, or other similar input device.

[00029] The system 100 further includes a server 108 to which data can be uploaded and from which data can be downloaded. In the example system illustrated, server 108 serves as a central data repository so that various users may upload and download data. In this arrangement, the integrity of the data is improved over a decentralized system because all users work from the same data. In another example system (not shown), a distributed model is used instead of a central server. In the distributed model, the data is uploaded and downloaded from multiple locations (instead of a single location) that work in concert to maintain data integrity. Computer 102 is in communication with server 108 and is configured to upload tire thread measurement data to server 108. Computer 102 is also configured to download, from server 108, data necessary to perform tire field survey data collection.

[00030] Server 108 and computer 102 include one or more data tables (not shown) for storing data. For example, server 108 and computer 102 include a tire mounting data table for storing data about tires and how they are mounted on specific vehicles. Tire mounting tables may also

include a tire test template (not shown). A tire test template includes data fields for entering tire survey data. A tire test template may also include data fields representative of customers for whose tires the survey data is being collected, and so on. The mounting data table may further include fleet data including data representative of a plurality of vehicles in a fleet. Server 108 and computer 102 also include an inspection table in which the tire inspection data is stored. Data may be downloaded or uploaded between computer 102 and main server 108.

[00031] Computer 102 has a tire field survey data collection program (not shown). As will be described, tire field survey data collection program is responsible for the graphical display of tire information including, for example, tire location information, tire pattern information, tire brand and model information, tire manufacturing date information, tire mileage information, tire air pressure information, and so on. Tire location information refers to information regarding the physical location of the tires in a particular vehicle in the fleet (e.g. driver side front, passenger side rear, left front, right rear, and so on). Tire field survey data collection program is further responsible for receiving tire inspection data corresponding to the tire 106 being inspected. The tire inspection data corresponds to at least one test field from the test fields in the tire test template.

[00032] **Fig. 2** illustrates a block diagram of an example tire field survey data collection program 200. Tire field survey data collection program 200 includes a tire test template program 202 for receiving data representative of a tire test template, or a survey form, including data representative of at least one test field for collecting tire survey data. Tire test template program enables a user to choose a test template, from a drop down menu, corresponding to the type of test, or field survey, the user wants to perform. The user may choose to obtain historical tire inspection data corresponding to the chosen test template as well. Once a user selects a test template, the user may proceed to select a vehicle from a fleet of vehicles for which the user wishes to perform the field survey.

[00033] Tire field survey data collection program 200 further includes a vehicle data program 204 for receiving data representative of at least one selected vehicle. Before a user may proceed to collect survey data, the user may select a specific test, or survey type, as well as the vehicle. In one example, Tire field survey data collection program 200 may customize a data entry form

based on the selected test type and the vehicle. A user may first choose a test from a drop down menu and decide whether to obtain mounting data corresponding to the chosen test. The user then chooses a fleet from a drop down menu and a particular vehicle from that fleet from a second drop down menu which populates after a fleet is selected. The user may then include additional information, using vehicle data program 204, before proceeding with a field survey. For example, a user may choose mounting mileage corresponding to the chosen vehicle, and input odometer current mileage information.

[00034] Tire field survey data collection program 200 further includes a tire location program 206 for displaying, on a graphical display, tire location data, based on the test type and the vehicle selected. Tire location data, or information, refers to the physical location of the tires on a particular vehicle (e.g. driver side front, passenger side rear, left front, right rear, and so on). Tire location program 206 displays tire information including tire location relative to the axles of the vehicle and relative to the other tires in the vehicle. A vehicle may include three axles, for example. The tires corresponding to a front axle may have be removed from a vehicle and therefore data corresponding to those tires may not be displayed by tire location program 206. A middle axle may include four tires that may be labeled G17, G18, G19, and G20, for example, by tire location program 206. Similarly, a rear axle may include four tires that may be labeled G21, G22, G23, and G24.

[00035] Tire location program 206 may display additional tire information for each tire. For example, tire location program 206 may display the tire pattern. In other embodiments, tire location program 206 may display other relevant tire information for each tire such as tire brand and model information, tire manufacturing date information, tire mileage information, tire air pressure information, and so on.

[00036] Tire location program 206 may employ a plurality of indicators to distinguish tires that have been inspected, tires yet to be inspected, and tires that will not be inspected because they have been removed from the vehicle. For example, a blue rectangle on a graphical display of a tire may indicate that the tire is yet to be inspected. Other indicators may indicate that the tire has been removed, has already been inspected, or will not be inspected or inspected at a later time.

[00037] In one example, tire location program 206 allows a user to (1) enter inflation pressure information for each tire, (2) enter any comments regarding the vehicle whose tires are being inspected, and (3) click on a particular tire to begin the collection of tire field survey data or test data for each of the tires.

[00038] Tire survey data collection program 200 further includes a tire inspection program 208 for receiving tire inspection data corresponding to at least one tire of the plurality of tires. The tire inspection data includes data representing tire test data corresponding to the at least one test field.

[00039] Tire inspection program 208 may display information relating to a chosen tire. Displayed information may include tire pattern, tire brand and serial number, tire position in the vehicle, tire option code, air pressure, DOT information in or out, outside tire diameter (OTD), tire size, tire specifications, tire edge OTD, mounting date, and so on.

[00040] The tire inspection data includes data representing tire test data corresponding to at least one test field from a set of test fields. Test fields include, but are not limited to, remaining tread depth (RTD) and irregular wear (IW). From the test data the system may receive or provide calculated fields such as average RTD (Avg RTD), worn thread depth [original thread depth - RTD] (WTD), miles [new miles - old miles], miles per millimeters [miles / WTD] (MPM), total IW volume [IW1 + IW2 + IWn] (TIWV), and so on.

[00041] In one example, tire inspection program 208 may provide data fields for receiving RTD measurement information at various measurement locations within the various tire grooves, according to a selected tire pattern. For example, a tire of pattern may have four grooves. Accordingly, tire inspection program 208 may provide for three RTD measurement positions within each groove for a total of twelve RTD measurements.

[00042] In another example, tire inspection program 208 may provide fields for receiving IW data including, but not limited to, the depth, width, and length of irregular thread wear.

[00043] Tire inspection program 208 includes a “Save Record” function or button for saving data. Saved data may be stored on computer 102 or uploaded to server 108.

[00044] In one example, tire field survey data collection program 200 may be configured to display a list of vehicles. Tire field survey data collection program 200 may employ a plurality of indicators to distinguish vehicles that have been inspected, vehicles yet to be inspected, and vehicles that will not be inspected because the tires of interest have been removed from the vehicle. For example, a vehicle which has been inspected may be displayed with a background of a different color than vehicles that have not been inspected.

[00045] In one example, tire field survey data collection program 200 may display an overview of the tires that have been inspected. An overview may include, but is not limited to, test information, date of the measurement, vehicle identification, tire pattern, tire brand number, tire position, tire mileage, miles per millimeter, and so on.

[00046] Example methods may be better appreciated with reference to the flow diagram of **Figures 3**. While for purposes of simplicity of explanation, the illustrated methodologies are shown and described as a series of blocks, it is to be appreciated that the methodologies are not limited by the order of the blocks, as some blocks can occur in different orders or concurrently with other blocks from that shown or described. Moreover, less than all the illustrated blocks may be required to implement an example methodology. Furthermore, additional or alternative methodologies can employ additional, not illustrated blocks.

[00047] In the flow diagram, blocks denote "processing blocks" that may be implemented with logic. The processing blocks may represent a method step or an apparatus element for performing the method step. A flow diagram does not depict syntax for any particular programming language, methodology, or style (e.g., procedural, object-oriented). Rather, a flow diagram illustrates functional information one skilled in the art may employ to develop logic to perform the illustrated processing. It will be appreciated that in some examples, program elements like temporary variables, routine loops, and so on, are not shown. It will be further appreciated that electronic and software applications may involve dynamic and flexible processes so that the illustrated blocks can be performed in other sequences that are different from those shown or that blocks may be combined or separated into multiple components. It will be appreciated that the processes may be implemented using various programming approaches like machine language, procedural, object oriented or artificial intelligence techniques.

[00048] In one example, methodologies are implemented as processor executable instructions or operations provided on a computer-readable medium. While the above method is described being provided on a computer-readable medium, it is to be appreciated that other example methods described herein can also be provided on a computer-readable medium.

[00049] While **Figure 3** illustrates various actions occurring in serial, it is to be appreciated that various actions illustrated in **Figure 3** could occur substantially in parallel. While five processes are described, it is to be appreciated that a greater or lesser number of processes could be employed and that lightweight processes, regular processes, threads, and other approaches could be employed. It is to be appreciated that other example methods may, in some cases, also include actions that occur substantially in parallel.

[00050] **Figure 3** illustrates a flow chart of an example method for collecting tire field survey data. At step 302, computer 102 receives data representative of a selected tire test template. The tire test template includes data representative of at least one test field. At step 304, computer 102 receives data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle. At step 306, computer 102 displays, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle. At step 308, computer 102 displays, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires. The data entry form includes at least one data entry field corresponding to the at least one test field of the selected tire test template. At step 310, computer 102 receives tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

[00051] **Figure 4** is a schematic drawing illustrating an example computer for implementing the example system and method of **Figs. 2 and 3**. **Figure 4** illustrates a computer 400 that includes a processor 402, a memory 404, and I/O Ports 410 operably connected by a bus 408. In one example, the computer 400 may include an inspection logic 430 configured to receive tire test template data including data representing a set of test fields. Inspection logic 430 may also be configured to receive fleet data including data representing a plurality of vehicles in a fleet. Inspection logic 430 may also be configured to graphically display or cause the graphical display

of tire location information including information regarding the physical location of a plurality of tires in a particular vehicle in the fleet. Inspection logic 430 may also be configured to receive tire inspection data corresponding to at least one tire from the plurality of tires, wherein the tire inspection data includes data representing tire test data corresponding to at least one test field from the set of test fields. Thus, the inspection logic 430, whether implemented in computer 400 as hardware, firmware, software, or a combination thereof may provide means for receiving tire inspection data and means for displaying tire location information. The inspection logic 430 may be permanently or removably attached to the computer 400.

[00052] The processor 402 can be a variety of various processors including dual microprocessor and other multi-processor architectures. The memory 404 can include volatile memory or non-volatile memory. The non-volatile memory can include, but is not limited to, ROM, PROM, EPROM, EEPROM, and the like. Volatile memory can include, for example, RAM, synchronous RAM (SRAM), dynamic RAM (DRAM), synchronous DRAM (SDRAM), double data rate SDRAM (DDR SDRAM), and direct RAM bus RAM (DRRAM).

[00053] A disk 406 may be operably connected to the computer 400 via, for example, an I/O Interfaces (e.g., card, device) 418 and an I/O Ports 410. The disk 406 can include, but is not limited to, devices like a magnetic disk drive, a solid state disk drive, a floppy disk drive, a tape drive, a Zip drive, a flash memory card, or a memory stick. Furthermore, the disk 406 can include optical drives like a CD-ROM, a CD recordable drive (CD-R drive), a CD rewriteable drive (CD-RW drive), or a digital video ROM drive (DVD ROM). The memory 404 can store processes 414 or data 416, for example. The disk 406 or memory 404 can store an operating system that controls and allocates resources of the computer 400.

[00054] The bus 408 can be a single internal bus interconnect architecture or other bus or mesh architectures. While a single bus is illustrated, it is to be appreciated that computer 400 may communicate with various devices, logics, and peripherals using other busses that are not illustrated (e.g., PCIE, SATA, Infiniband, 1394, USB, Ethernet). The bus 408 can be of a variety of types including, but not limited to, a memory bus or memory controller, a peripheral bus or external bus, a crossbar switch, or a local bus. The local bus can be of varieties including, but not limited to, an industrial standard architecture (ISA) bus, a microchannel architecture

(MCA) bus, an extended ISA (EISA) bus, a peripheral component interconnect (PCI) bus, a universal serial (USB) bus, and a small computer systems interface (SCSI) bus.

[00055] The computer 400 may interact with input/output devices via I/O Interfaces 418 and I/O Ports 410. Input/output devices can include, but are not limited to, a keyboard, a microphone, a pointing and selection device, cameras, video cards, displays, disk 406, network devices 420, depth gage 425 and the like. The I/O Ports 410 can include but are not limited to, serial ports, parallel ports, and USB ports.

[00056] The computer 400 can operate in a network environment and thus may be connected to network devices 420 via the I/O Interfaces 418, or the I/O Ports 410. Through the network devices 420, the computer 400 may interact with a network. Through the network, the computer 400 may be logically connected to remote computers. The networks with which the computer 400 may interact include, but are not limited to, a local area network (LAN), a wide area network (WAN), and other networks. The network devices 420 can connect to LAN technologies including, but not limited to, fiber distributed data interface (FDDI), copper distributed data interface (CDDI), Ethernet (IEEE 802.3), token ring (IEEE 802.5), wireless computer communication (IEEE 802.11), Bluetooth (IEEE 802.15.1), Zigbee (IEEE 802.15.4) and the like. Similarly, the network devices 420 can connect to WAN technologies including, but not limited to, point to point links, circuit switching networks like integrated services digital networks (ISDN), packet switching networks, and digital subscriber lines (DSL). While individual network types are described, it is to be appreciated that communications via, over, or through a network may include combinations and mixtures of communications.

[00057] While example systems, methods, and so on, have been illustrated by describing examples, and while the examples have been described in considerable detail, it is not the intention to restrict or in any way limit the scope of the appended claims to such detail. It is, of course, not possible to describe every conceivable combination of components or methodologies for purposes of describing the systems, methods, and so on, described herein. Additional advantages and modifications will readily appear to those skilled in the art. Therefore, the invention is not limited to the specific details, and illustrative examples shown or described. Thus, this application is intended to embrace alterations, modifications, and variations that fall

within the scope of the appended claims. Furthermore, the preceding description is not meant to limit the scope of the invention. Rather, the scope of the invention is to be determined by the appended claims and their equivalents.

[00058] To the extent that the term "includes" or "including" is employed in the detailed description or the claims, it is intended to be inclusive in a manner similar to the term "comprising" as that term is interpreted when employed as a transitional word in a claim. Furthermore, to the extent that the term "or" is employed in the detailed description or claims (e.g., A or B) it is intended to mean "A or B or both". When the applicants intend to indicate "only A or B but not both" then the term "only A or B but not both" will be employed. Thus, use of the term "or" herein is the inclusive, and not the exclusive use. See, Bryan A. Garner, A Dictionary of Modern Legal Usage 624 (2d. Ed. 1995).

CLAIMS

What is claimed is:

1. A method for collecting tire field survey data, the method comprising the steps of:

a computer receiving data representative of a selected tire test template, the tire test template including data representative of at least one test field;

the computer receiving data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle;

the computer displaying, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle;

the computer displaying, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires, the data entry form including at least one data entry field corresponding to the at least one test field of the selected tire test template;

the computer receiving tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

2. The method of claim 1, further comprising the step of the computer transferring the received tire inspection data to a shared data repository.

3. The method of claim 1, further comprising the steps of:

the computer retrieving historical data representative of previously received tire inspection data; and

the computer identifying the at least one tire as already having been inspected, responsive to determining that the previously received tire inspection data corresponds to the at least one tire.

4. The method of claim 1, wherein the step of the computer receiving tire inspection data, comprises the computer receiving, from a depth gage, data representative of remaining thread depth of the at least one tire.

5. The method of claim 1, further comprising the step of the computer calculating tire data based on the received tire inspection data, the calculated tire data including at least one of average remaining tread depth, worn thread depth, miles, miles per millimeters, and total irregular wear volume.

6. A system for collecting tire field survey data, the system comprising:

at least one processor, at least one computer-readable tangible storage device, and program instructions stored on the at least one storage device for execution by the at least one processor, the program instructions comprising:

first program instructions configured to receive data representative of a selected tire test template, the tire test template including data representative of at least one test field;

second program instructions configured to receive data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle;

third program instructions configured to display, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle;

fourth program instructions configured to display, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires, the data entry form including at least one data entry field corresponding to the at least one test field of the selected tire test template;

fifth program instructions configured to receive tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

7. The system of claim 6, the program instructions further comprising sixth program instructions configured to transfer the received tire inspection data to a shared data repository.

8. The system of claim 6, the program instructions further comprising:

sixth program instructions configured to retrieve historical data representative of previously received tire inspection data; and

seventh program instructions configured to identify the at least one tire as already having been inspected, responsive to determining that the previously received tire inspection data corresponds to the at least one tire.

9. The system of claim 6, further comprising a depth gage coupled to the processor and configured to measure thread depth of a tire, wherein the fifth program instructions configured to receive tire inspection data, is configured to receive, from the depth gage, data representative of thread depth of the at least one tire.

10. The system of claim 6, the program instructions further comprising sixth program instructions configured to calculate tire data based on the received tire inspection data, the calculated tire data including at least one of average remaining tread depth, worn thread depth, miles, miles per millimeters, and total irregular wear volume.

11. A computer program product for collecting tire field survey data, the computer program product comprising:

at least one computer-readable tangible storage device and program instructions stored on the at least one storage device, the program instructions comprising:

first program instructions configured to receive data representative of a selected tire test template, the tire test template including data representative of at least one test field;

second program instructions configured to receive data representative of a selected vehicle, including data representative of a plurality of tires on the selected vehicle;

third program instructions configured to display, on a graphical display, data representative of the plurality of tires on the selected vehicle, including data representative of the physical location of the plurality of tires on the selected vehicle;

fourth program instructions configured to display, on a graphical display, a data entry form corresponding to a selected tire of the plurality of tires, the data entry form including at least one data entry field corresponding to the at least one test field of the selected tire test template;

fifth program instructions configured to receive tire inspection data corresponding to at least one tire of the plurality of tires, wherein the tire inspection data corresponds to the at least one data entry field.

12. The computer program product of claim 11, the program instructions further comprising sixth program instructions configured to transfer the received tire inspection data to a shared data repository.

13. The computer program product of claim 11, the program instructions further comprising:

sixth program instructions configured to retrieve historical data representative of previously received tire inspection data; and

seventh program instructions configured to identify the at least one tire as already having been inspected, responsive to determining that the previously received tire inspection data corresponds to the at least one tire.

14. The computer program product of claim 11, further comprising a depth gage coupled to the processor and configured to measure thread depth of a tire, wherein the fifth program instructions configured to receive tire inspection data, is configured to receive, from the depth gage, data representative of thread depth of the at least one tire.

15. The computer program product of claim 11, the program instructions further comprising sixth program instructions configured to calculate tire data based on the received tire inspection data, the calculated tire data including at least one of average remaining tread depth, worn thread depth, miles, miles per millimeters, and total irregular wear volume.

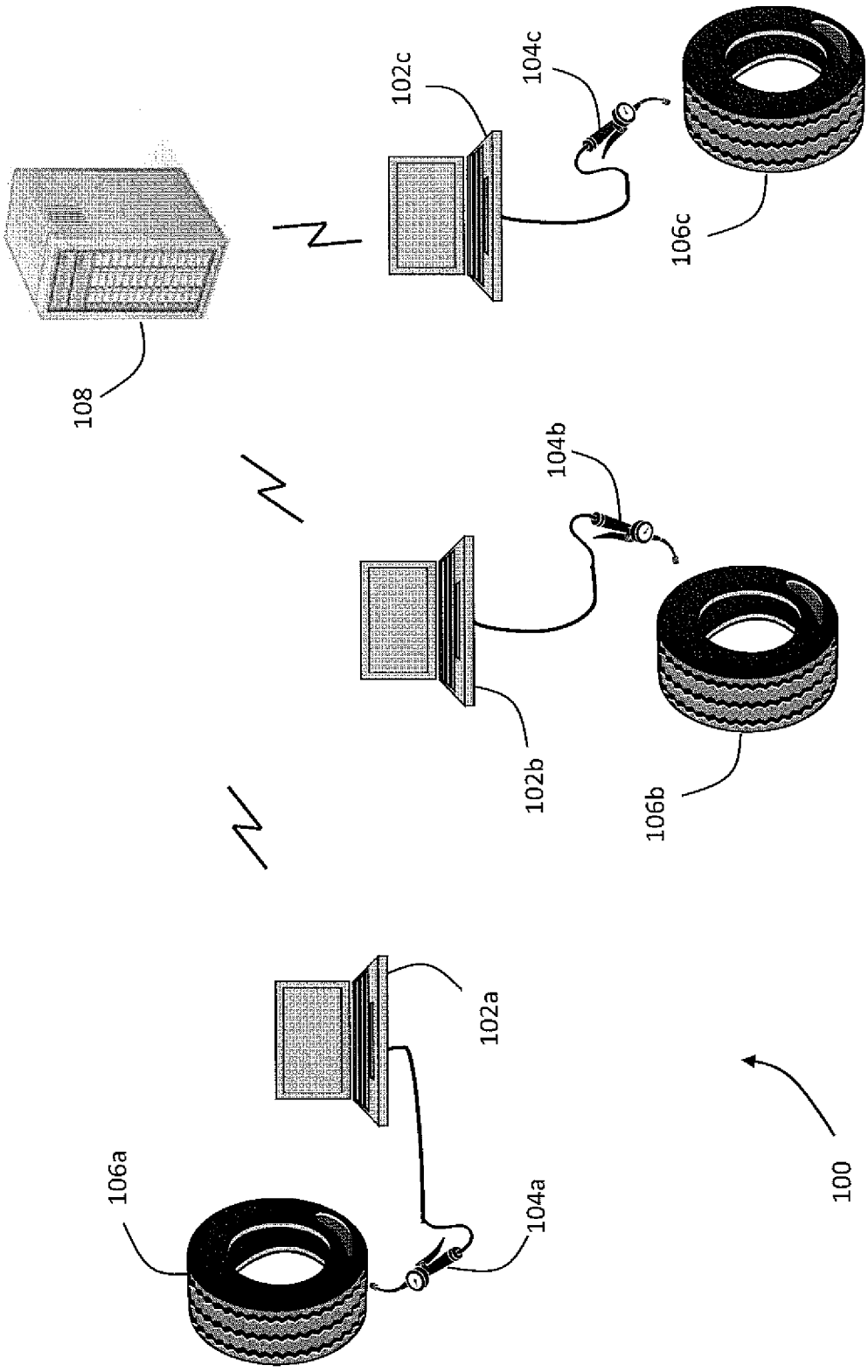

Fig. 1

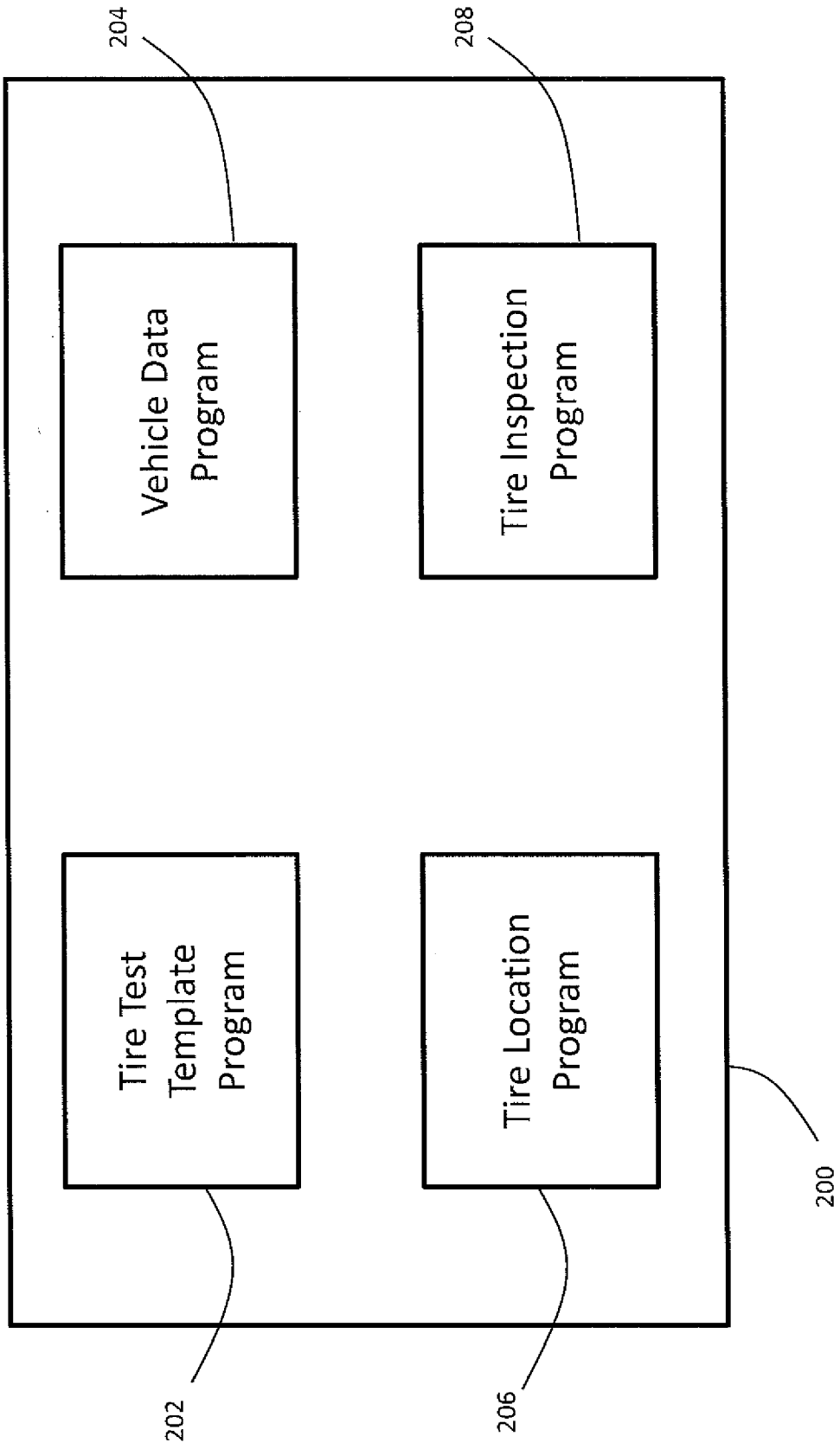
204
208
Vehicle Data Program
Tire Inspection Program
Tire Test Template Program
Tire Location Program
200
202
206

Fig. 2

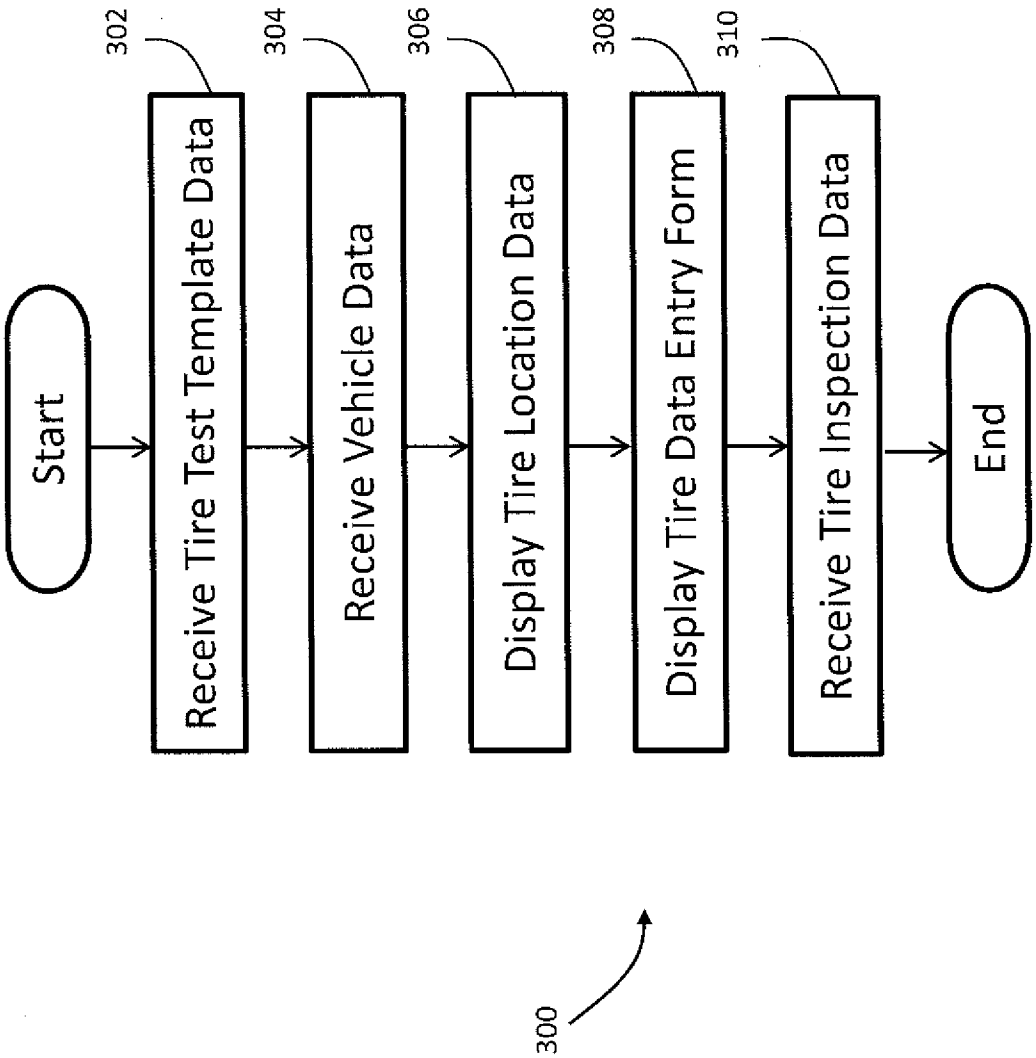
Start
Receive Tire Test Template Data
Receive Vehicle Data
Display Tire Location Data
Display Tire Data Entry Form
Receive Tire Inspection Data
End
302
304
306
308
310
300

Fig. 3

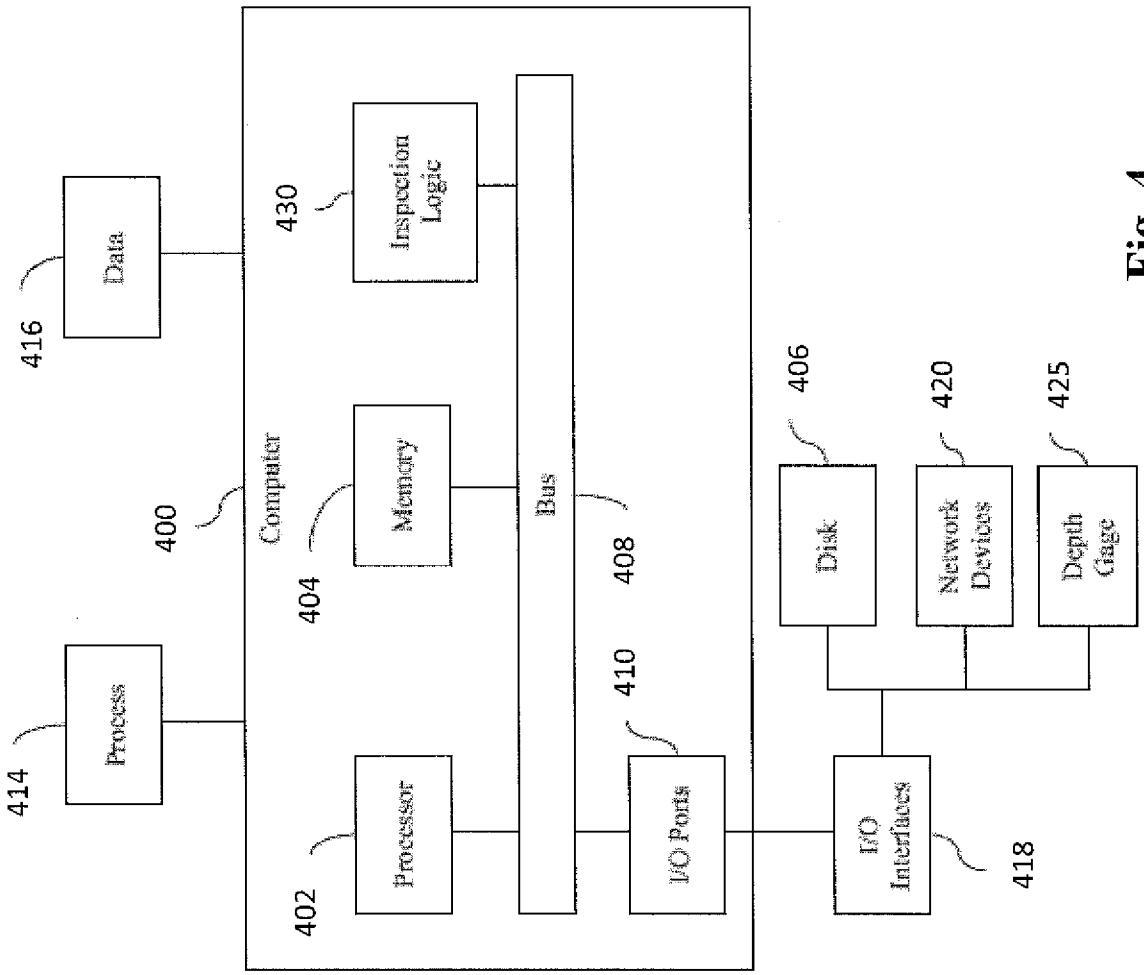
Data
416
Inspection Logic
430
Computer
400
Memory
404
Bus
408
Process
414
Processor
402
I/O Ports
410
Disk
406
Network Devices
420
Depth Gage
425
I/O Interfaces
418

Fig. 4