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(54) Title: PERSONAL PFN SYSTEMS FOR ACCOUNTABLE TRACKING REMOTE MANAGEMENT AND AGGRESSIVE CONTROL SCENARIOS WITH AND WITHOUT VEHICLE AND EQUIPMENT PFNS

(57) Abstract: This invention is a more extensive development of the Primary focal Node or PFN TRAC System as it applies to individual assets and personal use. The personal PFN in this application is still an accountable remote control interface device of wireless communication technologies, processors, activity controls, and local and remote memory storage. In its simplest configuration it performs accountable tracking of the person wearing the PFN and reports that data back to at least one remote location. However, in other versions this personal PFN has all the accountable management and control capability (application specific as the equipment PFNs that make up the machine messaging network). But in this application special consideration is given to size, security, protection, concealment, as well as, common use and functionality. From the first application detailing the Stop and Control box, the PFN invention within its nature and scope has always been presented as an organizational electrical interface platform to perform accountable remote and automated functions in a legally acceptable and civilly responsive manner for society and its institutions. The personal units are much more capable of long range communication and data transfer through this mobile matrix of transient routers in vehicles and equipment with ample power to create a reliable mobile machine messaging network or web.



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**PERSONAL PFN SYSTEMS FOR ACCOUNTABLE
TRACKING REMOTE MANAGEMENT AND
AGGRESSIVE CONTROL SCENARIOS
WITH AND WITHOUT VEHICLE AND EQUIPMENT PFNS**

RELATED APPLICATIONS

This patent application claims priority from U.S. Provisional Patent Application No. 60/200,872, filed May 1, 2000 (110273-120PO1) incorporated herein by reference.

This application is related to U.S. Provisional Patent Application Nos. 60/032,217, filed December 2, 1996 (110273-101); 60/071,392, filed January 15, 1998 (110273-201); 60/089,783, filed June 18, 1998 (110273-300); 60/140,029, filed June 17, 1999 (110273-301); 60/122,108, filed February 26, 1999 (110273-400); 60/176,818, filed January 19, 2000 (110273-401); and 60/139,759, filed June 15, 1999 (110273-500); PCT International Application No. PCT/US 97/21516, filed November 24, 1997 (110273-102); U.S. Patent Application No. 08/975,140, filed November 20, 1997 (110273-100); PCT International Patent Application No. PCT/US99/00919, filed January 15, 1999 (110273-202); PCT International Patent Application No. PCT/US99/13668, filed June 18, 1999 (110273-302); PCT International Patent Application No. PCT/US00/04737, filed February 25, 2000 (110273-403); and PCT International Patent Application No. PCT/US00/16381, filed June 15, 2000 (110273-500WO1) all of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

This invention is a parallel development of the accountable Primary Focal Node (PFN) for equipment, machines and vehicles involving machine messaging and networking by interfacing communications, mini computers (Telematics), with sensors, activity controls and event storage to create accountable management and remote control systems and product. The coordination of personal PFNS with power stable equipment PFNS performing repeating and digipeating communication and machine messaging creates a virtual mobile matrix or web of wireless routers and processors to insure signal reception and integrity.

Here however, the same technology is detailed as a personal PFN in that accountable telemetry is being provided for people, pets other living assets and or mobile objects that may require or benefit from accountable monitoring, management and remote control interaction. Varying degrees of this invention are detailed out in this application for commercialization from mere tracking to a fully interactive personal PFN system .All systems are capable of providing accountability for their telemetry. This separate invention is being deliberately defined and isolated out from the machine messaging PFN systems for a number of reasons. But basically, to be able to write law and regulations

to it's personal use, which will be an intricate part of any commercialization for all the PFNS but much different when involving people a majority of the time. There are areas through out this application detailing the interfacing personal units with PFNS on equipment, machines and vehicles to improve coordinated movement i.e. pedestrians and cyclist with cars and trucks.

5 However, this patent application will explicitly deal with the unique conditions surrounding tracking individuals and performing accountable remote control and management via the personal PFN invention. It will cover the use of aggressive remote control and management through a belt system as an example. The patent application raises all the necessary questions that societies must review to determine proper use protocols and programming for individuals, animals and inanimate
10 objects to increase the quality of life in a free society. The PFN/TRAC System will help individuals that require a monitored existence and professionally managed life style to have a better quality of life. Whether, they have conditional freedom due to legal or health reasons, both personal and public safety can be better insured.

 But most importantly this personal PFN has many benign and benevolent attributes and uses
15 that can ease the every day worries in protected care situations without intruding on a person's privacy, their movement and their enjoyment of life. In many instances the system will perform guarding angle services for an individual in real-time. There are many technical safeguards for this purpose and a strong discourse detailing the major concerns on using this technology in a respectful and social manner to help construct law and regulations.

20 Commercially, the most effective way to offer these innovations is by splitting them into man and machine categories due to how law and regulations will be applied to the actual products and their uses. Fortunately this works well commercially with existing manufacturers. With this type of development the personal PFN technology can best fulfill the purpose and goal of the PFN invention from it's inception, to organize accountable remote and automated control as a TRUSTED system for
25 all.

 This application combines throughout the specifications and claims all forms of wireless communication to perform personal tracking and accountable remote management particularly involving man and animals. Additionally, because both the machine messaging PFN and the personal PFN described in this application have been created together thus far and will continually be
30 discussed jointly on how they interrelate, I Richard C Walker the inventor retain sole delineating powers to license and determine what is considered Personalized PFNS or Machine messaging PFNs and how any of the specific technology is to be commercialized. These decisions would of course be predicated on any legislation governing the uses and application of all the PFN/TRAC technology and any standards agreed upon such as frequency allotments.

With that stated, all communication mediums detailed throughout the related patents will be utilized to create these personal tracking and management systems and the specific configurations as stated in this patent. So, any modalities that essentially perform the same tasks even though they utilize changes in parts or components of these systems are considered the same as these personal PFNs and therefore, fall within the nature and scope of this innovation "The Personal PFN "

Brief Description of the Drawings

Figure 1

Figure 1 depicts the first of three major different communication modalities. This figure deals solely with Radio Frequency (RF) equipment connected to GPS equipment.

Figures 2 and 2A

The next two drawings, Figure 2 and Figure 2A are first a new drawing detailing the two way paging systems and also 2A is a previous depiction of two way paging and GPS system for personal movement from an earlier related filing.

Figure 3

This figure is of the original PFN Cellular phone and modem system called the Complete Card TM Research In Motion LTd. RIM TM also make a similar product as do many others both in analog and now for the ever present digital phone system CMTD and DMTD. These changes still are within the nature and scope of the invention.

Figure 4

The PFN technology will always be current because it has been created to consolidate wireless communication data processing, sensing, activity controls, and event memory storage in one organizational interface platform to make an accountable system. The PFN has always been designed to incorporate Commercial Off The Shelf Products (COTS) in a user friendly fashion of plug, program and play where ever possible. So this figure details COTS products and systems and service providers to provide a personal accountable communication asset to all persons cost effectively, no matter what their economic position is (e.g., person tracking or family tracking through the home TV, etc.).

Figure 5

This figure displays the easiest modality and a large number of the accessories available to the personal PFN it is not meant to be the only modality or form the invention will be constructed in. This drawing goes into more detail as to the construction of a belt system and its purpose and all the other drawings are used to discuss the different communication systems separately but do not detail

the belt structure. Any number of personal configurations are with in the nature and scope of the invention.

Figure 5A

This figure was from an earlier filing detailing a Personal PFN system worn on a belt .(it is numbered in 22 part description numbers with it's accompanying text from the earlier filing. This will be changed in the formal application and is only used in this form to give a complete description and tie in the earlier filings.

Figure 5B

This is also a figure from an earlier filing and has the number 18.and will be handled the same in the formal

Figure 6

This figure lists some of the initial commercial products and possible names they might be marketed under.

Figure 7

Names some of the organizational benefits to having the primary protected and accountable gateway node either as a stand alone device or a personal or equipment PFN/TRAC unit performing repeating and digit-peating functions for wireless communications.

Figure 8

Before, related filings combined Commercial Off The Shelf (COTS) products or systems have been interfaced together as separate devices. This flow chart shows these systems as they would be combined on a single silicon chip in SOC technology for Systems On a Chip to complete a virtual web or matrix of communication and machine messaging using the vehicle platforms as roaming routers of accountable telematic gateway nodes.

Figure 9

Is a diagram of the vehicle and equipment PFNS receiving and repeating a signal from a personal PFN on a child. It is picked up by a number of PFNS that can either use Automated triangulation algorithms or repeat GPS coordinates via the PFN telematics

Figure 10

This diagram describes the uses of the Department Of Transportation network as an example of the many intranets that can be part of a interface matrix through telmatics, telephony and internet protocols with and through the vehicle interface bus systems (CAN,LAN, LIN, etc.)for slow medium and high speed vehicle data transmission as part of a universal primary gateway node to deliver communications and data in bi-directional applications to vehicle application and the massive machine messaging network to monitor and manage machine and resource use, abuse and impact.

Figure 11

Figure 11 is a listing of some exemplary agencies and commercial servers that would be interfaced and have specific data routed to them through the PFN/TRAC matrix for Transportation. This example is used because mobile PFNS will provide the back bone of the communication architecture to support low powered personal PFN transmissions via a mobile matrix of signal repeaters or digitpeaters and a host of communication options and gateways

Figure 12

This figure is a street level application of PFN units personal, vehicle and equipment all communicating with each other and the traffic control system locally as well as the community Intelligent Transportation System ITS in remote locations all apart of this same transportation matrix. This matrix is exemplary and it is with in the nature and scope of the invention to include all telematics and provide accountability to these interfaces and use.

Figure 13

This is an illustration of the Auto tutor on line that is accessible by any computer or processor that has Internet protocols and a communication link up and modem.

Figure 14

This figure is depicting the sensing of a large vehicle with radar or distance sensors as a driver assist system that is being used to teach good driving skills from the Auto Tutor . The in vehicle driver resource component in side the vehicles uses distance sensors of various technologies to monitor good driving practices and make the driver more aware of safe driving practices. This project prototype is part of a project proposal to the National Academy of Sciences and is further detailed in this application.

Figure 15

This figure is still another part of an exemplary lesson plan used in the National academy project regarding safe passing of large vehicles with the sensors aiding the driver and also there use as an automated function.

Figure 16

This illustration shows the advanced Auto Tutor/personal assistant as a real vehicle simulator for training new drivers or retraining drivers or as a sales tool to show features of a new vehicle or to sell and explain accessories.

SUMMARY OF THE INVENTION

The first part of the invention is a personally carried Primary Focal Node (PFN) which has as a base function to provide locating data to a remote location for a person or asset either wearing the device or having the PFN device fixed to it. Further sophistication of the device provides the same kind of accountability and protective considerations for this personally worn PFN that is designed into all other PFNS as detailed through out the related patents. This means that variations of the personal (PFN) will range from just performing locating functions to performing an array of accountable aggressive remote control functions for application specific needs with local and remote memory storage for these events. The system's telemetry might well incorporate or provide audio and video data as well as supply Electronic Serial Number ESN data for the device and personal identity information and deliver physical telemetry of the wearer. Of course, the specifics of any particular product variation will depend on initial purpose cost and practicality. However, the initial variations of these personal PFNS are (basically determined by the type of communications package used) and PFN variations might also utilize additional processors, activity controls, memory storage, and locating systems in the same manner as has been detailed through out the related PFN patents for the equipment PFNS. And conversely these communication systems and locating systems can also be used and applied to any of the earlier machine messaging PFNS for mobile and stationary applications.

In this application the products of this innovation have been broken out into four categories delineated by the types of communication systems they employ. The first system employs Radio Frequency (RF) equipment and uses this example as the prototype employing family radio walkie-talkies with a frequency of 462mhz or 467mhz; to transmit and receive GPS data from a Garmin 135 GPS receiver antenna, which has it's NEMA data string modulated on this carrier wave by a Tigertronics mini modulator. Then the this signal is received by a Kantronic's serial modem that demodulates the signal and sends it to a lap top or desk top computer, where it is converted by Automatic Positional Radio System (APRS) software shareware to provide longitude and latitude coordinates with a time marker to be applied as an object to be placed on calibrated bit maps such as Delorme's Street Atlas. Then by employing a software Macro in this case EZ Macros the zoom key is constantly triggered to zoom in on the closest detail map from the default overlay map in the Delorme street atlas map program. This makes a very effective close in tracking product that keeps the asset in the center of the computer screen, while showing the whole neighborhood and stepping down to a few hundred feet around the asset or the personal (PFN) tracking device. This is done to reference the viewer and is accomplished with the combination of three software programs that are integrated to run together.

This application will spend only one drawing on the generalized concept and use of the software placement of an object on a calibrated map as it is used in the prototype for the two way radio system for this personal innovation of the PFN. This is done because the different communication systems will be writing their software command strings with IP and proprietary application level programs. However, the object placement can be achieved in the same manner if so desired. So, this is why the entire process and product has been constructed as an RF prototype and an intranet, because commercial arrangements must be made with these large communication, Internet and TV providers first. But regardless, the frequency and protocols the technology is proven through these feasibility prototypes and should help to interest these venues and their service providers considerably. There is some greater detail given to some of the security applications with one figure devoted to a possible mandatory wearing of the system. The feasibility product combines three Commercial Off The Shelf (C.O.T.S) software products to create this tracking system and effect and additionally employs a limited range two way family radio with a 2 mi maximum distance in the prototype. An important point of this invention is consolidation and integration which has been stated over and over again through out the related patents. It is particularly important when physical size and power constants apply and they apply very much on personal PFN systems. For this reason, these systems will be consolidated on a single silicon chip or use SOC technology and MIM technology and can be configured physically in any form and concealed in any way to involve biological emplacement. Many modalities to increase the distance and make Personal PFN communications limitless on earth and into space are detailed in this application and the related patent applications.

The RF version of the personal (PFN) could use most any radio frequencies , but most importantly the federal authorities FCC need to sanction and set a side frequencies and protocols for this application and use by the general public for public safety. This system can handle multi-users by assigning call names or (ESN's) in the modulators to be recognized singularly and or all units that are transmitting on the same frequency can be viewed on one computer . If multiple frequencies are desired a scanner circuit and software function can be employed in the transceiver connected to the modem on the computer side so that cycling through the frequencies all PFN stations transmitting are picked up and placed on the calibrated map system (Viewing access can be provided by privacy encrypted locks when in place). Higher volume carrier wave use for each frequency with secure and greater individual recognition is obtained by using digital transmissions. The scan function on the vehicle and equipment PFNS is depicted as a portion of a SOC technology advancement for the PFN.

This is the technique that is used for the repeater function in all multi-communication capable PFNS for limited range RF. Ideally, the Federal Communication Commission (FCC) will allocate a 911 type response system that uses special RF frequencies for public safety applications and certain public safety protocols including FACT program controlled scan lock hardware and firmware that can

be employed to govern all special dedicated frequencies in PFNS in time of emergency (this is part of the TRAC/FACT system detailed in the related filings. These protocols could have software or software embedded firmware in the PFN hardware architecture, as well as, any other communication devices to perform emergency routing of a priority communication that need to be relayed longer distances. This would allow numerous simultaneous communication strings and pathways to reach an emergency response center (911 program, etc.) where they would be appraised with the mass data management program for the best two communication links, while dropping or clearing for regular service all other systems and equipment that initially responded. This would happen very rapidly and the process would be handled through software algorithms in the units programming. This should be a program developed in conjunction with the Federal Access and Control FACT Software program detailed throughout prior related applications. The FCC ITS and DOT have set aside DSRC Dedicated Short Range Communications for mobile and Transportation applications since this initial application and the related filings and these of course fall within the nature and scope of the invention for communicating to the vehicle PFNS to provide alerts warnings and travel information to the vehicle system.

The short range RF system's repeater function would provide long distance capability through either stronger or more powerful radio systems within range e.g. (PFN connected) or they would process the signal in the FACT TRAC software of the PFN employing the emergency communication protocols to retransmit the emergency data on to the 911 center via Pager systems, Cellular Phone systems, or any wired or wireless communication system available to the responding PFN or other telematic units or systems. This process is described in earlier related patent applications and for all RF systems the process used in the APRS software would create a cellular web for any short range signal. The PFNS would have a software polling algorithm performing a scan function for repeater stations and programming digitpeating software commands (communication strings) in real time for transmitting the signal to a preprogrammed destination or closest 911 response service. Also 911 center would have a powerful RF transceiver and auto response routing system. The automatic area polling software would create a mobile cellular web. After the initial contact string from the mobile PFN the controls would be determined through the software in the 911 center indigenous to the area and carrying the algorithms to determine best reception for mobile communications in the area. However, if the communication lock is a hand off to a pager or cell phone traveling near a sole RF PFN the 911 phone service would provide the link and the software polling would occur from the center of other cell and pager systems receiving the RF signal and switch to them as an automated process and send an activation and canvas signal to units that could operate in the area and pick up the short range signal in an emergency. Additionally, this function and system would be interfaced with new dedicated national emergency number system NENA.

This personal PFN system has been a parallel development to the machine messaging network PFN (involving vehicles, machines and any equipment), throughout the related patents. So therefore it uses the same types of communication systems that have been detail earlier. It is necessary however, to detail out these systems further for their use as a personal (PFN) so that anyone skilled in the art
5 can construct these products. As was stated earlier these personal PFN innovations vary in their product architecture basically, by the means used to perform it's communication function. The next system dealt with are the two way pagers.

Two way paging provides a means to transmit NEMA location data in small packets and for the most part this is all that is needed for a GPS system to send tracking data back to a special web
10 site or E-mail address that is running the appropriate software at the IP final application level to place an object on a calibrated map on the screen of a computer. By the same means as described for the (APRS) or RF systems) In this application however the ESN of the pager identifies the tracked PFN system and an Icon can be chosen as well as a screen name, which would all be part of a server or provider's running a software system. Their algorithm through look up files could find the two way
15 paging PFN in a running buffer review file of last known transmission with NEMA GPS coordinates. This file receives and stores all transmitting Pagers they provide this service to and then a software instruction in a lookup function will retrieve location data (NEMA ASCII POCSAG, etc.) that is stored in the buffer and post the object on the appropriate calibrated map, along with the time the GPS position that was generated. (part of the NEMA clock Data received by the GPS receiver that is
20 physically connected to the pager or integrated into it. This would be a service and a part of the pager providers web page in one modality, making all the software a system product for the paging provider. Another modality and product of this PFN technology would be an individually purchased software recognition program bought by the pager owner and installed on his/ her personal computer, laptop, palm pilot organizer or PFN etc, that receives their two way e-mail message. Either forwarded
25 by the pager provider's server or directly to a pager providers IP gateway then through the internet to a personal email address so that a personal computer running the proper application map program can place the object on a calibrated position on the screen for personal viewing. This software product would have a calibrated map package, and a program to reconstruct the GPS signal (depending on the system used and the form it is placed in by the pager interface. This is a proprietary product of this
30 invention even if it is only in the form of a pager being located by triangulation on the pager signal through the known location of the receiving towers and placed on a calibrated bit map via a software algorithm. In this case it dose not need to be connected to a GPS receiver to be tracked. Of course, Kline and Walker LLC, the assignees of this personal tracking and PFN technology, will seek out pager and cellular phone providers to commercialize both types of tracking systems and develop this
35 proprietary set of products. Cooperation with programming with the proprietary software key codes

and some algorithm writing with the wireless phones and paging systems who are presently serving these markets is all that is needed to develop this product for their customers.

The integration of radio and GPS as well as Cell Phone and GPS are also product evolution's stated in earlier related patents and fall within the nature and scope of this invention as reasonable developments inside any PFN as well as the use of multi-communication systems. Which combines radio with paging and wireless telephony (i.e., analog and digital) Throughout all the related patents this has been the planned development of this technology as an integrated consolidation of circuitry planned and described for the PFN hardware systems and product developments . Therefore, the use of these combined technologies and or the COTS products that have recently combined communication system like Nextel and Garmin who have combined analog cellular phone with their GPS. These are COTS products that can be used in any PFN through the Plug, Program and Play procedures with the use of COTS software (e.g., Fagawi to perform remote tracking). However, analog cellular phone tracking will be come extinct with the loss of analog cellular service but still an interface product none the less. With digital CMTD and DMTD becoming the market preference all PFN cellular service will be constructed with the service providers products but PFNS will be backward and forward engineered to accept older products for as long as they have service.

Returning to the Pager the RIM pager systems and the Motorola page writer 2000 are two units that supply access port to send messaging through the pagers transmitter so long as the data is in a format that the pager protocol requires to handle the data (in special packet form). Other systems than the Flex and reflex Motorola paging systems have also been detailed in the earlier related patent applications. Other variations to interface with pager technology have been detailed. However with paging manufacturers (e.g., RIM providing the physical connectable systems and interface protocols to combine 2-way paging and GPS two-way telemetry has been made far easier than before and much more likely that multi-communication devices will share service in PFNs as well as interface with all sorts of activity controls and sensor system to provide data). This process has been detailed in earlier related patents and exemplified here for telemetry data (NEMA) for personal tracking systems.

A private intranet could be created with a calibrated software map library on a personal E-mail address equipped with a software program that processed the NEMA or text data delivered through the paging protocol to the Email address and place the two-way pager's location on the proper calibrated map for the solo user or small business user. Thus, two way paging with GPS is another viable means for Personal PFN Tracking or for the Machine messaging PFN's detailed more extensively in the related patent applications.

Cellular phones is the other technology utilized by the machine messaging PFNs and these personal PFNS and tracking devices. As stated for the pager technology, the cellular systems can

employ automated triangulation in some applications which can replace the need for the GPS system as a locating component saving space and power use.

This technology originally used the Complete PCMCIA Card TM for the cellular service to the PFN but presently details more options now and the fact that the service is primarily becoming digital and controlled by the cellular service providers. So, Kline and Walker LLC will seek out a coordinated effort to offer this service product in all three levels through the PFN detailed technology, which are analog, digital, with individually owned tracking software interfaced with these communication protocols for a total system approach where the software is provided by the cellular server on a web site or as a hypertext link through Internet providers. Much more detail on the cellular systems is through out the related PFN applications

A claim is made for a personally worn PFN or carried tracking device that is connected and operating with at least one of a RF transceiver/transmitter, pager transceiver/transmitter Cellular phone transceiver/transmitter or any arbitrary wireless transceiver /transmitting either digital or analog signals that reports location telemetry in real-time to at least one remote location equipped with at least one of an IP, phone connection or Internet web address connection computer, and monitor or at least one of a RF provider pager provider, or a provider of Telephony (wireless Phones) connectable interface to a TV system of at least one of a TV cable or satellite TV provider with IP interfaced TV software system and local device firmware to follow the PFN or tracking device on a calibrated map program and display a unique identity marker e.g. for the transmitting device's (ESN) or encoded digital ID, present in real-time, data application specific(e.g. physical telemetry) of at least a person, animal or arbitrary object affixed with the PFN or tracking device, present in real time audio data, video data or any arbitrary data as may be determined by application specific criterion in the construction and purpose of any personal PFN or tracking device,

According to Claim 1 a further claim is made for a protective restrictive attachment system which may be provided determined by application specific needs for any PFN or tracking device and fixed to a person, pet or arbitrary object in such a manner to require unique mechanical and electrical codes or means to satisfy the locking, securing and control system, so that only an authorized person determined by protocol will have access to remove the attachment system, belt, collar, bracelet, clasp, binding, clothing , or open any brief case, purse, box, container to deactivate or alter such equipped PFNs or Tracking devices running program; further, any tampering and or removal of the protective restrictive attachment system, or depression of a coded panic button sequence results in the immediate activation or alert sequence in the PFN or tracking device's running program to provide geographic position time of occurrence and any application specific telemetry, and also, operates any preprogrammed alert flagged activity controls or accessories including, any event memory storage either local or remote responsive in the system, alerts or notifies electronically (through wired or

wireless) a preprogrammed protocols determined by emergency response personnel, who have numerous connectable assets to activate as application specific settings in the universal PFN system.

A further claim is made according to claims 1 and 2 for a personal PFN or tracking device to be constructed in a manner (application specific) that creates difficulty in recognizing the device or to detect it's presence so that only authorized individuals can locate it and or access the device physically, it's data as well as it's controls.

A further claim according to claims 1, 2, 3, is made for personal PFNs or tracking device's to be constructed application specific with accessories for airplane occupants, boating occupants, land vehicle occupants to be used in rescue and recovery operations.

A further claim according to 1, 2, 3, is made for personal PFNs or tracking device's to be constructed application specific with accessories for activities including; Skiing (snow and water) swimming, hiking, jogging, biking, camping, golfing, exposed motorized vehicle use, all terrain vehicles, spelunking, caving, mountain climbing, sky diving, gliding, ballooning, traveling, touring, site seeing, schooling, employment jobs, family use, group use, military use, government use, correctional system use, automated health care use (mentally and physically compromised), for security use, for real time census or people accounting applications (natural disasters martial law scenarios e.g., earthquake areas severe weather approaching , hostel war zones for infectious disease control crowd control e.g. conditionally released youth offenders (timely community supervision and intervention for positive gang management and control), public gatherings and counting populous (without PFN/ESN IDs) however, for crowd control in riots or marshal law and accompanied by an accountable judicial public order part of a constitutionally approved process (PFN/ESN IDs available) for rough service use, medium service use, light duty use, for any arbitrary use with any arbitrary application specific accessories with any arbitrary connectable interface to any arbitrary device or system.

A further claim is made according to claims 1, 2, 3, to construct a PFN for any arbitrary application specific purpose of any configuration with or with out any or all the specified components, attributes qualities, properties or accessories within all the PFN claims and specifications in all the related PFN patent applications on file.

A further claim is made according to 1, 2, 3 to incorporate any COTS product that combines or interfaces PFN components as a PFN component and the predicted consolidation and integration process as detailed in PFN specifications in this application and all related PFN applications.

A further claim is made according to 1, 2, 3 to use at least one of a locating system or device or both in conjunction with at least one of the detailed communication systems and up to an indefinite number of them connectable to any of the accountable memory storage system to an indefinite

number of them solely connectable to one remote location to use of any number of network connections as described in the specification of all related PFN applications.

A claim is made for personal PFN or tracking device to provide a Trusted Remote Activity Controller and accountability of functions either in a closed intranet or generally on the Internet or as
5 part of the Federal Activity Control Technology FACT as defined and detailed in related PFN filings to incorporate a use through a national registry.

All prior claims through out all the PFN applications apply to these personal PFNs and tracking devices.

A further claim is made for the creation of any standard, code, rule, regulation, or law
10 governing the use, construction, accessories, frequencies, all implementations, programs and protocols either in general or application specific for any such device that performs personal tracking, or PFN functions as described to be found precipitous of this technology.

A claim is made for an arbitrary power pack or energizing system that as application specific for any Personal PFN or tracking device derived from any and all of the related PFN patent
15 applications specifications.

According to claim 12 is a solar cell power array charging system either place on a hat or as shoulder pads that regulates it's charge to the power supply by sensing temperature of Batteries of the PFN invention or any mobile and or remote electrical device and battery power pack requiring a wireless charging source.

20 According to claims 12, and 13 an additional claim is made for a human battery created by using two contrasting metals that when surgically implanted in the body creates a potential difference or a current gradient and electron flow in a circuit when connecting the two to provide charging power or energy to perform work.

A claim is made according 12, 13, and 14, to use both the body battery and the solar charging
25 to maintenance charge a holding battery in a personal device requiring long battery life.

A Claim is made for the use of a location system or device in a personal PFN or personal tracking device for any form of wireless triangulation performed with RF equipment, wireless pagers, telephony, or locating systems like Lorand, Lojack devices or GPS, dead reconing, or gyroscope systems along with any system software and algorithm that either develops it's position data from the
30 transmission signal it self or from another device's data modulated on that signal and employing system software and or device software or firmware to process the signal and recover that data in at least one remote location and present the recovered data on a TV or TV system or Computer and monitor, lap top, organizer display, palm top display, hand held GPS system, pager device or system cellular phone device analog or digital or Radio frequency device or system

A claim is made for any tracking according to claim 1, 2, 3 and 16 using at least one of a pager, or wireless device serviced by a phone provider responsively attached to a locating device or system that provides location data that is transmitted to commercial TV System provider so that an individual subscriber of cable, Satellite or web TV is provided a tracking service product, through the TV system providers software and individual control box software or firmware identifying the individual subscriber address to run the program through the ESNs or SNs or PFNs submitted in preprogramming for any personal PFN or tracking system, so with these individual means to identify their transmitting assets for their personal viewing and that data will appear transparent and secure in the IP service and TV software until received on the specific home TV through the TV control box, or web box, which will be running end user application level software for a private personal tracking service, which could require PIN or ID protocol through the remote as well as ESN of TV control box ect, along with the appropriate position of lock on or off function control on the remote tracking device or PFN before providing on home TV location data or other telemetry from the remote device. This system should provide minimal cost, with volume and time on the market.

A further claim is made according to claims 17, 19 for any personal tracking or telemetry data stream that is conducted through connectable components e.g. land wired TV cable (coaxial, ect.) land line telephone system (ISDN fiber optics, IP routing devices ect) wireless Radio frequency, or Paging technology and protocols or cellular telephony analog or digital Satellite phone or Satellite TV systems (Microwave ect.) and is responsive to one or two way communications or commands to provide personal telemetry and tracking products through TV systems, personal computers, lap tops, palm tops, Palm Pilots organizer products, cellular phone system products, hand held pagers, hand held tracking devices, mobile office system products with or without accountability or protective enclosures or a mobile power supply, or a permanent power supply, as well as any or none of the claimed arbitrary attributes of a Primary Focal Node PFN either personal or equipment in type.

A separate claim is made for an automated triangulation software package, that is provided distance and directional data with every signal received by a tower so that an algorithm in the receiving software package triangulates at least a two dimensional geographic position of the transmitting device by comparing system data retrieved from all receiving towers, additionally this formulated location data is encoded in what ever transmission protocol is being employed and transmitted with the transmitting devices ESN or identity SN to at least one remote location to be used for the purpose of tracking the transmitting asset and any movement.

A claim is made according to claim 19 for the synergistic use or combination of multiple location or position technologies like GPS, gyros, dead reckoning Lorands, LoJack and automated RF or Telephony Triangulation, but not limited to these locating systems, to fail safe or increase accuracy of movement for transportation navigation functions or automated guidance systems for vehicle and

equipment, including any short range sensing or dedicated short range communication technologies i.e magnets, reflective paint or DSRC beacons on an Interactive Highway.

A claim is made for any wireless communication or positioning technology that is personally carried i.e PFN, beeper, cellular phone, or wireless organizer, palm pilot, etc. on a pedestrian, a bicycle, ski mobile, ATV, or any arbitrary mobile or stationary object that can transmit position or velocity data through a signal or signal properties i.e. strength or direction to other equipment or vehicle PFNS or telematic controllers either by dedicated short range frequencies i.e approved 5.7 GHZ or bluetooth or any wireless mediums including sound and light technologies to process into warnings and operator alerts as well as reconfigure directional operations and speed for all affected objects to avoid collisions and or to coordinate movement.

A claim is made according to claim 20 for any short range communication from personal items to interface with vehicle operations through driver assist and driving algorithms to coordinate equipment use of personal carry on devices like cellular phones, personal computers, palm pilots, smart cards that can be interfaced through wireless means Bluetooth technology or require physical connections with the vehicle operational control systems to assist the human operator by organizing and managing these devices and system reduce driver work load or improve safety.

A further claim from earlier an related PFN filing and according to 21, 22 is made for voice recognition and activation technology in hardware and software interfacing to allow the operator to communicate and coordinate hands free access to information and data as it is determined safe to disseminate it with respect to the operation of the vehicle.

A claim is made for personal telemetry data from personal PFNS or any personal telemetry technology to transfer data either wireless via Dedicated Short Range Communication DSRC or by Blue Tooth technology to a vehicle management system for use in the operation of the vehicle or to transfer that data via the in vehicle telematic component to a remote location for health driver monitoring or conditional freedom scenarios and licensing i.e. prisoner release programs and business only driving privileges, etc.

A claim is made for a transponder or limited range transmission device with it's own power source and mobile connectable service power strip and solar/ vehicle charging system that is hidden and camouflaged in various places by, manufacturer, owner, etc. so that the transponder is capable of roaming the hollow frame structure with wired or wireless connectable interfacing to the vehicles electrical/ electronic services E/E as a communication gateway including any telematic system on board to transmit Identification data and ownership data, Mim technology or micro machines and systems on a chip can be employed for this innovation of the PFN/TRAC system.

A further claim is made according to claim 25 for these mini transmitters to be activated by the proper authorities with the correct receiving system to pick up a signal identifier message when the

authorized receiver antenna probe inserted into a receiving port in a sealed containment i.e. an overseas container to insure that no illegally obtained vehicle or piece of equipment / object or person is contained or hidden inside for the purpose of smuggling or kidnapping.

5 A claim according to 25,26 is made for a special access port to be made available in the overseas shipping containers to insert a sensing antenna and canvas transmitting transponders or PFNS or other telematics products that are illegally packaged, either objects animals or persons alive or deceased so equipped. The same technology for the short range auto door locks or garage door opening with Customs official dedicated frequencies could be employed and the system should be automated with a protocol that rotates officials and equipment that perform the surveillance or
10 respond to any automated monitoring

A claim is made for an Auto Tutor hosted on a server on the internet for equipment operator training, that is connectable to an in vehicle driver resource center or module on the vehicle or piece of equipment for evaluating learned operational skills of the piece of equipment, this combined system will be able to evaluate performance and prescribe progressive lessons and experience to
15 improve driving awareness and vehicle/equipment handling skill as an automated process, and perform driving and equipment operations in real-time for driver or operator deficiencies.

A claim is made for PFN communication routing of lesser strength short range communications to be re configured transcribed retransmitted and passed on by other longer range communication systems i.e cellular Phones and more powerful radio frequency systems.

20 A further claim according to claim 29 is made for a universal emergency message protocol and software algorithm for disparate communication systems to share a common communication language to increase mobile routing as detailed in this filing for the PFNS and other telematic systems to create a mobile matrix or machine messaging web.

A claim is made for universal interface and docking station in the vehicle, either protected or
25 not, either physically connected or wireless connections Blue Tooth or DSRC to interface carryon components i.e. navigation product, cellular phones, palpilots, laptops, personal assistants and organizers, but not limited to these item, into the driving algorithm of driver assist and accident avoidance safety components as well as any integrated safety systems as part of the driver resource module or center or PFN/TRAC System™.

30 A further claim according to 31 is made for this internal operations matrix to interface and integrate safety systems, driver assist systems, telematics and human PFNS, personal tracking or telemetry systems through the Driver resource module in the vehicle or equipment PFN to enhance human machine interoperability, and to aid individuals that are physically challenged or need close monitoring for health , safety or legal reasons.

A claim is made for an external communication and machine messaging matrix or virtual mobile web through the multi-scan function as part of the vehicle and equipment PFNS in the PFN/TRAC System TM, as well as an ability to interface and communicate with other telematics units and systems i.e. OnStar, Wing cast, TeleAid but not restricted to either through direct wireless communication and or Internet Protocols.

A claim is made for vehicle and equipment PFNS to maintain a running inventory of wear parts or repairs made i.e Tires, Brakes, etc. their lot number ,the service person or agency ID or SSN responsible for installation starting at the point of vehicle or equipment manufacturing to be down loaded immediately to mass data monitoring agencies, insurance companies and the appropriate manufacturers at the time of an event i.e accident., this can be merely statistical data or personally and legally sensitive data where law rules and standards must be written to govern the use and discrimination of the information, additionally one purpose is to post the statistical data on a public web site with the auto tutor to inform the public of public safety hazards, recalls and alerts immediately.

A further claim is made for the auto tutor to web site and server to retain driver and equipment performance in remote location.

A further claim is made for the PFN/TRAC system to also retain the same data in duplicate with statistical data and personally and legally sensitive data encrypted and protected physically and electronically with protocols to be determined by law rules regulations and or standards to provide a trusted system.

A claim is made for the personal PFNS as a health care tool to alert medical personnel and provide telemetry and robust health care delivery though Radio frequency, paging cellular phones, the internet by providing accountable administration of medications and automated procedures through remote controls.

A claim is made for any communication link , either physically connected to a machine's automated processes or without any physical contact to said same set of automated processes.

A claim is made for any physically disconnected, but uses any transceiver medium to provide accountability locally with an accountable system matrix that is acceptable and trusted to commercialize products, monitoring , data, from personal locating devices to vehicle platforms in transportation to protect bikers and pedestrians from accidents due to invisibility. The rf transponder and locating system can be in the form of a protective helmet with a reflective foil or appropriate protective screen for emw to protect physical body parts from irradiation, either for the head or kidneys if a belt or any body part from wear the transmissin device is carried on the body.

The Auto Tutor component in the PFN/TRAC monitoring system will connect through the in vehicle driver resource component in the protected primary gateway node.

A claim is made for a universal plugg and play security interface for all equipment that can be activated by personal smart card technology that is a transfer system and data mechanism that performs much like a key that additionally recognizes the driver. The user and the equipment and accountably and respectfully provides access to equipment and prescribes in real time and from history in data storage on the card and or in the vehicle the proper prescribed auto assistance to safe vehicle operation for the individual and society.

DETAILED DESCRIPTION OF THE DRAWINGS

Figure 1

Figure 1 depicts the first of three major different communication modalities. This figure deals solely with Radio Frequency (RF) equipment connected to GPS equipment and interfaced to modulate NEMA location data strings by modulating, either ASCII, TTL binary coded messages or any communication software over radio frequencies. This diagram depicts the modality used in the present personal PFN prototype. The drawing is general but clear to anyone skilled in the art to recreate this invention for personal tracking. It also should be noted that there are many modalities to achieve this same RF Product but any and all fall within the nature and scope of this detailed invention. Another important note is that these detailed modalities are also used in the machine messaging modalities applied to vehicle equipment and machines, but these are being detailed here as commercial variations and products as Personal PFNs specifically for people, pets and special assets as defined by the inventor.

Object 101 is a two way hand held radio in the case of the prototype it is a small family channel walkie-talkie operating in the frequency range of 462 mhz-467mhz. The dark line between 101(radio) on the left and 102 the modem on the right represents a mic. Line and a Speaker line as well as a signal ground line. These lines connect on the radio to the mic jack port and the Ear phone jack port and share the same chassis ground which in this case serves as a signal ground. The right end of the mic line connects to a serial input pin labeled TXD for transmitting data and the speaker line connects the RXD for receiving data from the RF component. 102 the modem in the present prototype is a Kantronics 1200 RF modem and it has a 9 pin serial connector provided in the standard configuration for receiving and transmitting data as well as supplies a pin for the signal ground the last connection for the right end of the left wire. Then from 102 the modem to the laptop or desk top computer N0. 103, the line to the right of the modem has a 25 pin connector that goes to a 9pin serial DB connector in the back of the computer #103. Because most GPS NEMA protocols run at 4800 baud rate the prototype is set at this rate in the computer 103 and uses comport 1. However the RF modem only runs at 1200 baud to transmit and receive over the walkie-talkie so this in the rate

of this prototypes system. Down below in this drawing is the belt system and GPS transmission section that sends the mobile location data stream to be tracked on 103's computer screen.

104 is a second walkie-talkie also having a Mic port and an Ear port set of jacks. This time the Mic TXD line from the radio is connected to a Tigertronics Module 105 which is a quarter of the size of the 103 modem connected to the computer. This is accomplished with a J11 phone jack the same as used for standard phones and also used in this technologies first vehicle PFN prototype to stop the unauthorized use of a vehicle detailed in earlier related patents. This jack has TXD, RXD and signal ground connections provided through a removable J11 connector. The input side of the Tigertronics module 105 has a 9 pin connector that can be connected to a GPS antenna object # 106 in the drawing. In the case of the Prototype this is a Garmin 135GPS receiver. However experimentation with Delorme has also been done. All the GPS antennas are not the same and they run different software communication programs in their firmware. For this reason it is important to know if you are working with Binary codes e.g. Rockwell serial or ASCII or TTL or reversed TTL in choosing the modulator 105 and the Modem 102 as well as the proper software programs to the GPS data at the application level for the calibrated bit maps on the computer 103. The hardware connection from 105 to GPS 106 must support the functions necessary to satisfy the GPS 106 receiver protocol for transmitting as well either with the DTR Data terminal Ready of the RTS ready to send signal as well as support the TXD and Signal Ground.

NOTE: Product hardware consolidations will combine the part 106 GPS receiver with the modulator and or demodulator circuits 105 and the radio transceiver 104 in one board in it's tightest configuration with special consideration to the RF antenna and GPS antenna for interfering with each others performance for the personal tracking belt and system. Ultimately, all systems will be reduced to one silicon chip processor using SOC technology; and this development of consolidation and integration is all within the nature and scope of the invention for equipment PFN Tracking systems, but most definitely for these personal units that must be small and consume less power.

Presently, for the monitoring function the modem circuit or demodulator 102 will be on the same IC with 101 the radio transceiver or receiver component. This system can also have a AC power cube /DC converter for 6-9vdc to either charge the radio/demodulator unit or just power it. However, this system would either have it's own power source or be able to receive power from the power pin on the DB9 connection on a laptop for mobile movements or Palm pilots . PCMCIA modems can be configured for PCs and special connectors USB and proprietary connectables can be constructed for any external receiver and modem attachments. With flash memory provided by Sony Memory Sticks and a protected in casement this system can receive and transmit not just location data but perform as an accountable remote control Personal PFN/TRAC unit and interface with an entire machine messaging matrix of networks

To reduce cost and provide a simplified first product to market, this product for personal tracking only has to communicate only in one direction . Which, means the personal tracking portion on the belt need only a transmitter and a modulator with a GPS receiver, and the monitor portion only need a compatible demodulator and radio receiver with an interfaced computer and viewing monitor.

Before returning to the computer software to run the tracking function with these connected hardware products and components, a moment must be taken to explain the power systems on the belt

Power is provided by either a rechargeable battery pack on the belt for the mobile operation with (accessory solar cell strips with velcro stick-ons for hat or shoulder pad mounts that plug into the belt power pack. A temperature sensor on the battery packs disconnects the solar cells if they reach 109F (experimental charge regulator process for Ni Cads, Lithium, and Alkaline. Temps for safe charge not equated at this time. Power first enters the modulator105 the passes though the power switch and fuse and then enters the modulators voltage regulator circuit and is passed out pin 9 on a standard DB9 serial pin to energize the GPS receiver. Battery ground exit pin 7 to the GPS receiver completes modem and GPS power requirement with additional 5 volt regulator installed to adjust power to energize the hand held radio unit that is interfaced as the transceiver. This basically is the prototype at the present time, however in the products to follow all sorts of telemetry is possible, as well as, providing accountable remote control and management though the two way communication and memory storage components. Other components on the belt system will provide a locking clasp and security line that detects the real-time removal of the belt or tampering and reports and records this activity for authorized conditional freedoms etc. Power circuits of course will also vary in design and architecture to the hardware being energized to include SOC technology that will have less power requirements due to consolidation and integration of circuits and systems on single silicon chip or chip set.

Returning to figure one to discuss the software used to create this feasibility prototype. The software running 103 the computer to utilize the NEMA GPS location data generated and received thus far are as follows. The initial software to handle the RF modems software NEMA code data is the Automated (Amateur) Position Report System (APRS) software shareware protocol. This program converts the received data into GPS coordinates to generate an object on a calibrated map. For the prototype, the Delorme 6 edition of Street Atlas is employed however maps can be created and calibrated as a library file and the APRS software will pace the tracked object on those Map . These two base programs place the object on the map but in most cases the overlay default map in these commercial products is to general and they do not support a continual zoomed in view on the personal belt or PFN location needed to update the small global movement of an individual walking, etc.

The zoom feature serves a most necessary purpose and function for these personally worn locating products, which is to instantly and continually acclimate the viewer to the area and small movement. To accomplish this, a third piece of software is required to make this a great and useful product. The objective was to zoom in on each update and hold the zoomed in position in the center of the computer screen and repeat this process at each update (timed at 9 seconds for the prototype -but adjustable). The present prototype zooms in from a approximately 7mi radius to an area of less than 1/2 block. This is accomplished by using a Macro and keying the computer key board function to zoom at the desired time to the most detailed bit map in the calibrated progressive map library. Of course a zoom out to a national view is equally obtained if so desired

Kline and Walker LLC, in the development of these products, will work directly with the calibrated map companies like Delorme, Garmin , Fagawi, Tiger maps and or any government mapping programs etc to accomplish these functions and make these personal PFN commercial products more user friendly for the general public. These functions will be easier to create through the proprietary software commands after knowing with the correct software key codes. This is the main modality to make these products user friendly.

Once again this is not the only modality to create a personal RF PFN Tracking System and any number of frequencies can be utilized through this present modality and many are named in this technologies prior related patents. But this is an easy to understand way to create a feasibility prototype of this invention to perform inexpensive short range personal telemetry of an individual or pet's movements. It also supports all the feasibility necessary to prove this technology as a personal PFN system for all the detailed communication modalities.

Additionally, this range can be increased by different radio systems, or repeating or digitpeating though other radio stations such as amateur radio or ham operators, or by repeating through other PFNS either equipment PFNS or these personal PFNS that can pick up transmissions through programmed scanning or by programmed digital transmissions which respond to emergency protocols or digitpeated commands as a transmission string. This software is running in the APRS shareware program. Additionally, the hardware consolidation into an integrated circuit configuration for these interfaced components or devices is a regular activity for anyone skilled in the art of reducing and drawing up IC boards for radio frequency equipment or SOC technology. Miniaturization is inherent and a predicted process for these personal tracking and PFN systems and all with in the scope of the PFN invention.

Note: From the first description of using short range RF systems in PFNs a repeater function has been detailed and described as a major function for providing long range capability out of small short range radio transceivers. In all the prototypes in this application short range RF systems are employing the 2 way family radio frequencies of 462. Mhz and 467. Mhz. These are by no means

expected to be the only frequencies for these applications . All of the applications will have to receive government approval from the countries and their governing agencies such as the FCC here in the United States.

FIGURE 2

The next two drawings Figure 2 and Figure 2A are first a new drawing detailing the two way paging systems(fig 2) and also 2A a previous depiction of two-way reflex paging protocols and GPS system for tracking personal movement. They are being shown together in this applications to substantiate the earlier filing of the idea and to bring all these personal tracking and PFN devices into on area for commercial development with in the PFN/TRAC™ System architecture. Both the old and the new drawings and descriptions will be covered in this pager section.

In figure 2 on the left side is a computer either a Laptop or a desk top computer with three numbers on the left side. The numbers are 201,202, and 203. These show the possible commercialized products that can be provided from a pager locating system. In this pager locating modality a GPS receiver is likewise utilized. But, also the pager service providers could use a locating system off the signal via a triangulation algorithm in the receiving system of towers as software run in their receiving and routing processors.

Note: So the use of a cellular phone or paging service software running a triangulation algorithm using the fixed position of the towers for cellular phones and or two way pagers, to locate a specific transmitting pager, phone or combination device's position in relation to the known position of the towers.

This technology is claiming this technique to locate a specific two way pager's transmission signal as an alternative locating modality for both types of PFNs (for people and equipment units) . This system will save space by removing the need for GPS and antenna in many cases where service is good and any need for a large battery to power both systems. This will be a much improved modality for this innovative locating device in the future which will be provided as a product improvement by inheritance for this technology. Kline Walker LLC will strive to develop this tracking modality (Systemically) with companies like Nextel, Motorola , Bell Atlantic and other pager companies, who are developing larger short radio messaging tower networks and multi-communication systems and devices. This has been explicitly stated here and now as an other modality for this same personalized tracking device or PFN and is considered with in the nature and scope of this invention in any evolutionary form. Additionally this system is being claimed as a back up system to GPS for Tracking and more accurately use GPS with a ground signal for automated driving of vehicles by having improved locating technology and timing data in a synergistic set of systems in local PFNs i.e. a car, truck bus, RV, plane train or boat, person or object.

Returning to Figure 2, 201 on the computer is a commercial web site that supports maps and tracking service most probably provided by the paging service. By using the paging unit's ESN from the paging service's system software the (two way radio, or wireless telephony) would generate useable earth coordinate data obtained by distance and directional sensing equipment or functions performed by the receiving tower hardware and firmware and send this data to a paging system software via paging system software protocols via micro wave or land line or fiber optics. During the processing of the signal reception the receiving tower employs an automated triangulation software algorithm based on known receiving towers fixed positions on the earth to provide at least an accurate two dimensional fix of longitude and latitude to be applied to a bit map or calibrated map program to be run as a web page, personal E-mail shared providers cable or Satellite (joint ventures with pager provider) or run on an individual e mail site through the persons Internet provider with/ IP protocols and application specific software (possible joint venture Internet provider and Pager provider) at the application level with all data transparent till the end user inputs user ID code Pin number password (any secure ID technology or encryption) to bring up the tracking and location telemetry on the bit map of a computer monitor or other viewing connectable device e.g. PFN assets as detailed through out this and the related filings.

Or as they received pager message packets transmitted into the system the messages would carry NEMA or GPS data in some format from a connectable GPS receiver that is interfaced to a two way pager (processing separate or as part of an integrated circuit), which when activated would allow the service software to pull up the correct calibrated bit map and pace the identified paging unit etc. as an identifiable Icon, number, symbol etc. to the computer viewer, when they entered the correct pin ID upon entering the web site as the correct authorized subscriber to the service. 202 represents the same process operated by government agencies, for conditional released of convicts or parolees. This application would allow the judicial and law enforcement to monitor restraining orders in real time along with dispatch medical staff and perform interdiction functions if need be. This technology is detailed in Figure 9. Also, victims can be given alert reports and visual updates, by automated Page messaging, Email, and telephone messaging embedded in the software command structure to be entered by the authorities. And the Government and community health organizations can help provide the program to cut health care cost by providing this service to the economically destitute in need of a watchful eye for the mentally handicap those with dementia, Alzheimer's suffers or the severely physically handicap where expensive nursing service can be reduced in cost and made more efficient and better from professional to family member involvement. More freedom can be given to the health care provider because they can monitor a disabled patient or love one in one location including vital signs while doing other activities nearby. Drug firms and Insurance companies could sponsor these web site inexpensively or free with other advertisements running to pick up the

cost and inform the public of new products and services. 203 can be a personal e-mail address where the individual has purchased the software to run on their personal equipment making it an intranet at the very least. And of course they would be capable of sharing this tracking with other agreed upon email web sites. Much of the technology has been detailed for this in the Radio frequency modality in figure one , however there is some other modalities possible to achieve this for all three of these configurations and product offerings 201, 202, 203. One of the simplest hardware configurations employs a GPS receiver 206 (Garmin, Delorme Lassen, Rockwell Jupiter etc. or a chip set and antenna Philips, Motorola etc with the appropriate op amps and connectable interface with a processor (Stamp computer) that is programmed to condition the NEMA signal into a packet of characters for the pager protocol and interface with the two way pager and send the command to the pager device 205 to transmit the GPS NEMA data packet in pager protocol to the paging service that has the software command to complete the programs described above. This of course is done by using a developer program from the paging service to interface with their protocols. Once again, Kline Walker LLC has detailed this out as a commercial undertaking with a number of companies because of specific geographic dominance in the market place. First contact will be with Motorola's flex and reflex protocol companies in the United States and with RIM pagers in the Canada . Nextel also does short radio messaging in both Canada and the U.S. In Europe the European Radio Messaging System ERMS with companies like Phillips and Erricson etc. . These companies and commercial plans are being stated to increase understanding and cooperation to achieve a working relationship with these manufactures to develop the entire PFN system matrix of personal equipment and vehicle communications and data routing as a world wide machine messaging network.

So the RIM pager systems and the Motorola page writer 2000 are two units that supply access port to send messaging through the pagers transmitter so long as the data is in a format that the pager protocol require to handle that data. Other systems than the Flex and reflex Motorola paging systems have also been detailed in the earlier related patent applications . So many other variations to interface with pager technology have been detailed previously. However, with paging manufacturing providing the physical connectable systems and interface protocols for the combination with any 2 way paging and GPS as well as two way telemetry have been made far easier than before and much more likely that they will be part of additional multi communication devices serving this technology's PFN's. Which is an effort to organize an interface platform that provides accountability for all sorts of activity controls and sensors. This to has been detailed in earlier related patents and exemplified here for telemetry data (NEMA) in tracking. Obviously, a private intranet could be created with a calibrated software map library on a personal Email address equipped with the software program that processed the NEMA or text data delivered through the paging protocol to the Email address and place the two way pager's location on the proper calibrated map for the solo user or small business

user. Thus, two-way paging with GPS is another viable means for Personal PFN Tracking or for the machine messaging PFNs. Along with cellular and pager automated triangulation protocols (product construction and commercial arrangements will determine locating technology employed in this configuration of personal tracking devices or PFNs.

204 in Figure 2 is another paging device capable of receiving direct two way paging and this device supports an LCD display and firmware for displaying tracking to display another remote location two way pagers location as well as it's own position from it's GPS connection or if a pager system is running a triangulation algorithm to provide location from tower distances rather than GPS.

Returning to the drawing as a RIM pager 205, specifically a IP-950 pager is employed in case a Trimble Lassen SK8 GPS will be used as the GPS receiver. Through the CommRegisterNotifyPattern feature of the pager the serial port will be closed and being charged through the PFN processor running this firmware. The PFN processor will be connected to pin 2 DTR output and pin 4 DSR in put of the IP950 pager .There is already a protocol written for the software commands between a processor, Rim pager and GPS receiver in the appendix of this application, which was downloaded from the Internet from www.fleetcommunications.com. However, the pager 205 interface communication in this modality to the GPS 206 is through TXD_A and RXD_A under TSIP/normal RS-232 for TAIP or other protocols. In this case the serial port communications take place at 9600 baud, 8bit data No parity stop-bit 1(9600,8 N,1)

The default protocol will be TAIP format. All hardware terminals and contacts as well as software commands and protocols are in Appendix I . Other two way paging products and protocols for locating systems through Motorola products like Page Writer 2000™, Create a Link II™,ect, have been detailed in related PFN patent applications

208 in Figure 2 is the belt 209 is the power pack 210 is the clasp for the belt and 211 is the security line and or antenna which is completely detailed in Figure 5. Figure 5 will detail all the specifics for the personal tracking PFN system and all the hardware connections. The belt bracelet collar or clasp system is in no way the only modality for the personal PFN to be deployed on an individual or and animal.

It may take the form of a concealed device in a garment or actually be surgically implanted in an individual or animal and powered though contrasting metals that would create a potential in the body fluids making the body a battery or have a power supply much the same as a pacemaker or an automated internal PAC or medication dispensing device. These modalities were discussed in earlier writings and details as to the protocols and specific actuators for these personal PFNs will be entered into any open PFN patent application for the technical specifications however, any and all actuators linear of rotational compete or fractional have been detailed so that anyone skilled in the art can readily construct any application specific actuator, control it and energize it Including miniature

machines MIMS. Of course, internal PFN implants, (Transponders) have to be small in size low in current demands, so actuators would be constructed from small actuators or these MIMS micro machines as small as lice. And created at the nuclear labs at Los Alamos. However, the same engineering for liner and rotational actuator applications for normal size electrically controlled devices would be employed. And obviously they would be constructed and placed with medical expertise.

FIGURE 2A

This figure is taken from an earlier related patent application and it is being entered here to use the figure and description to better detail the invention and to isolate out for commercialization the personal PFN and tracking system for people and pets.

2A01 is a belt buckle that has a special key to release the locked buckle or electronic lock or any kind of locking mechanism. 2A02 is a hard nylon or similar plastic flexible strap resistant to cutting in the most practical way, that has an inner liner of nylon strap so that one or two way pagers and or a GPS system like Motorola "Oncore"XT, XTsiLGT, UT, VP or Philips G.P.S. chip set mentioned earlier in this application can be secure and concealed in an protected enclosure between the two nylon straps to store these G.P.S. components along with differing levels of transmitting devices that can receive signals or messages, transmit signal or messages, and or alert of sound alarms on both sides of these transmissions.

Figure 2A displays varying levels of one way and two way pagers and C.O.T.S. paging protocols as well as voice paging applications. However, as earlier mentioned; this invention provides for short RF signal transmitters with their transmissions received by every piece of equipment that has a PFN and will ultimately all have RF transceivers to receive these emergency priority signals and condition the signals and repeat them in a pre programmed manner over what ever long distance communication hardware that exists in the PFN to the proper authorities. This is a repeater function deserving of special consideration and is not the same technology stated here for the pagers in Figure 2A. As has been described and maintained through out all these applications. However, these types of carrying systems, e.g., belt or bracelet or even clip or tape on systems and the qualities, properties and capabilities claimed and demonstrated for figure 2A are the same as claimed for the repeater technology as well. *(Note: this figure description is from an earlier patent application and is referring to repeater Rf systems and PFNs as mobile stations. For personal PFNs)*

And while they can perform many of the same tasks they are two distinctly different technologies, and are herein so stated, however equally protected in this and the related patent applications.

The G.P.S. chip set or IC board is represented in Figure 2A by #2A05. 2A07 is the patch antenna for the G.P.S. and this cable would be placed into the belt and follow the contour of the belt to

be concealed. 2A03 is an extra battery in some equipment variations and a way to give longevity to the entire locator belts functions. 2A06 is a speaker or a loud speaker if a monitoring protocol determines it to be the best option to send a message either via a pager or cell phone signal, e.g., Motorola reflex protocol to alert the person wearing the belt, e.g. , criminal leaving a restricted area, or child lost and a public announcement is desired to seek aid from responsible adults in the area. The speaker could also emit a loud electronic whistle or shrill all intermittently to attract attention to the wearer of the locator belt or band.

All of this would be initiated from a remote phone page or cell phone call. Some of the C.O.T.S. Pager products that will be used in the prototypes are the Creatalink pager processor both one way and two way, the standard one way and two way pagers (reflex protocols) using the interface technology detailed in earlier related patents e.g. current sensing as was done in the first patent and Binary/ASCII/NMEA BIN/Loran from the G.P.S. all processed into 20 bit data segments to meet the Motorola reflex protocols for transmitting return data. Either through soldered connections, or BNC connector DB9 for RS232 as already detailed. The software for these applications are available for product development for this product through Motorola and only the specific software commands must be written to create the desired functions. This is easily accomplished on the PC and downloaded into the chip set processors.

This is the case for all the interfaces described in these application and due to the many different types of combinations to achieve even this simple locator belt it is not practical to write the exact programs and in fact is much more clear to describe the functions verbally or with flow charts and list all the hardware parts and software components available for even the unskilled to write programs. Anyone skilled in the art and even a hobbyist who can read will be able to buy these parts and the software packages and write these basic controller programs in a matter of hours. This is why the functions are focused on rather than any specific basic programming command string.

2A08 is a voice recording chip to give prerecorded messages as triggered from phone pages as described in the first related application for the stop and control box. 2A15 is a processor if the Creatalink is not used and it could be a small stamp computer. A Stamp I or II; although Motorola and Philips as well as Siemens Tech, Radio Shack and a host of others all make micro controllers or processors to turn on the voice chip and speaker or hailer when they receive and recognize a coded message from 1404. Or if the water sensor sends a signal (the small square [W] in 1408 indicates a water sensor which would go off if the wearer of the belt was being submerged in water. And Of course all the electronic equipment is made water proof.

2A04a shows a C.O.T.S. standard one way pager with the inventions proprietary non intrusive battery peg 2A09 connected to a current sensor chip exactly the same as the first patent for the stop and control box to sense a silent pager vibration activation. The chip is connected to the voice

recorder chip so when a phone page is received it draws current down out of the battery peg circuit and creates a ground on one pin of the current sensor which triggers the voice recorder or howler or hailer through speaker 2A06a message or noise. And or a small micro controller with a EEPROM can run firmware programs to alert the surrounding public or in a two-way pager reflex protocol application monitor 20 character bit audio sound bite of what the wearer is experiencing. And the power is supplied by the battery 2A03a in the in the recording system. These systems could also use the same system as the PFNs and record the surroundings or report back sound and or data.. So with special monitoring equipment on hand these pager locator belt systems could call in if someone had a medical emergency or hit a panic button.

2A02 is a belt on a man walking on earth. 2A10 shows 4 satellite a minimum for getting G.P.S. coordinates and most systems mentioned use at least 6 satellites and as much as 8 channels are available for taking a reading in all the Motorola chip sets. 2A11 (SG) tower is a commercial server or land line phone node or gateway as has already been thoroughly described. 2A11 tower will pick up the page signal or RF signal or Cellular system, if these technologies are employed and convert them through phone modem and transmit that signal down a ISDN phone line or comparable to at least one computer 2A12 that is running a G.P.S. program to monitor the Bin/ASCII/NMEA earth coordinates and time coordinates data transmitted to 2A11. Also, as was described earlier, the coordinates could be monitored from the car 2A13 if the car was the phone data node or the car was able to network with 2A12 to receive down loads for the data of earth coordinates. All easily accomplished as described earlier .The second figure down in upper left is the belly belt locator belt laid out flat. And 2A01 is the lock buckle 1403 extra battery 2A04 is the pager 2A05 G.P.S. 2A06 speaker or hailer or howler. *(This description of figure 2A relies a lot on the detailed technology of the entire earlier patent for the equipment PFNs so in reading this description remember it is necessary to read all the specific modalities being detailed in this application for pagers, RF equipment and Wireless phones . The drawing and concept are the main points of this figure and that the personal tracking device or personal PFN was an early parallel development with these varied communication systems and locating equipment as well as varied configurations detailed earlier as consolidations of devices into multi-tasking equipment arrays involving Telephony and location equipment including such product as mobile office units, which were designed to plug program and play with the equipment PFNs)*

FIGURE 3

This figure is the basic cellular tracking system that has always been a part of the t earlier related patents and uses the PCMCIA Complete Card TMfor the cellular interface which is 305 in figure 3 (RIM also makes a comparable PCMCIA card with is a cellular transmitter, a 386 processor for the modem and an antenna). The PFN technology has been detailed through out the related patents for anyone skilled in the art to construct each COTS component that is used to create the

feasibility prototypes. But additionally, a crucial component and quality of this PFN technology is to be constructed to be user friendly and produce an accountable electrical interface platform of plug, program and play with forward, present and backward engineering capacity to accommodate a large variety of devices and achieve as universal interface as much as possible.

5 So, either of these cellular modem transceivers will function well for this variation of the personal tracking belt or device. There is also a myriad of newer cellular modems coming on the market everyday and some have protocols that provide programming for DTMF functions or automatic dialing. However, this invention was also designed with an additional mini computer 307 which would perform the preprogrammed dial up functions to report the GPS 306 data to a phone line
10 connected 304 or wireless connected 302. 307 will have local memory to perform accountability for activity controls communication and the verification of data reported for complete personal PFN functions 306 is the GPS receiver, which in some cases will be connected directly to the RXD and RXT as well DTR RST terminals in the PCMCIA card connector and the proper electrical connection to energize the card to the battery 308. Many battery pack and charging systems have been detailed
15 in this application and the related patents and will be by passed in this discussion presently as obvious to anyone skilled in the art and as inherited from one communication modality to another as detailed earlier. 309 the belt and 310 the belt clasp either locking or not (this will be described in figure 5).Of course if the mini computer is in the loop then their would be software to process the incoming data from the GPS and outputting it to the cellular modem and calling the correct number. Once again if a
20 software protocol and standard is being used by telephone company systems many of these communication functions will be handled there including IP protocols and final application programming to display tracking or report other reported data streams. These protocols have been named and the developer programs have been named. But as welcome as these advancing phone technologies are to the PFN system they have been predicted and described as consolidations of
25 communication and processing in all the related PFN patent applications and still fall within the nature and scope of the invention when employed for these purposes of accounting, locating and remote management or control. Garmin came out with a GPS phone recently that when coupled to an other companies software can track the phones location though polling the GPS phone through call to receiver dial tone response to perform a look up function on fagawi software and maps that are
30 calibrated and will correlate the tones to latitude and longitude which relate to a specific bit on the map. These of course originate from the Garmin GPS receiver in the cellular phone and are processed from NEMA data or Binary code ASCII or HEX to the dial tone sounds in a micro processor which has burned in firmware. Then they are transmitted over the phone where they are recovered with the Fagawi software operating with an IP phone connection modem and computer plus monitor. This is
35 two companies selling two products that can be put together to perform this function and this

technology has been described in the PFN'S earlier patent applications and is considered another prior modality to be used with analog cellular phone RF and Pager systems to send data DTMF of any type of wireless. For this technology of course the limitation is speed and the amount of data but it is suitable for tracking. This system has been used basically for analog signals and PFNS will be capable of interfacing these systems.

The real need of the PFN requires digital communications for efficient data handling. Presently, most all the wireless communications are being converted to digital DMTD or CMTD for the major phone providers. This of course provides greater security, which was one main reason for the change. More data capacity was another. This security is needed for the PFN functions as well. The next drawing is a detailed consolidation of communication systems involving two way radios, telephones, and paging systems in one wireless phone system Nextel.

This is one combination of communication systems detailed through out all the PFN related patent applications and fits right into the multi-communication array and plug, program and play capacity as a consolidated improvement.

INTERNATIONAL COMPONENT NOTE:

Research In Motion Ltd. RIM is a company in Ontario Canada and the manufacture of wireless communication components that can be utilized as an other modality in constructing this invention . Either the personal PFN and or the equipment PFN. Even though some of their components have already been detailed in earlier communication modalities e.g. RIM Pager-IP(Internet Protocol 950 for pager tracking in figure 2's description they like Nextel have many of the communication capabilities to provide either singular communication components or a combined array in the PFN. Plus they have different market concentrations and slightly different product quality offerings in their respective markets.

Before entering the combined communication array of Nextel and it's modality in the PFN technology a close look at Rim's OEM Radio-Modems prove to provide some other components for yet another modality to perform all in one cellular, processor interfacing that can support GPS or data streams to be handled as Telephony gateways to IP computer monitoring for tracking by placing mobile GPS/Nema data objects on a calibrated map. Through a tracking software program either running in the computer or a system software transmitting data to an individuals computer or even an other wireless Ip device. Once again just by running a triangulation algorithm that factored the reception towers position in the providers software rather than to have a GPS component with it's additional size, power requirements and difficulties in receiving in buildings, makes this triangulation system software technology have some very important attributes that can be a great improvement or enhanced in any product offering for these PFNs. Especially the personal PFNS or personal remote

tracking devices. Or in conjunction with GPS provide a ground signal component to the inaccurate commercial version of GPS in PFN applications that will require pinpoint location accuracy in 3 dimensional tracking (much like the 4th earth reference signal used for military accuracy with GPS to adjust for the ionosphere deflection of the satellite signals sent to the earth bound GPS receiver units.

5 This is accomplished with through a software algorithm using both sources of location data and (fuzzy logic). This system will be used to accurately guide vehicles on the roads with other sensors communication functions and video imaging as has been detailed in earlier equipment PFNS.

Returning to the Rim high performance RF transceivers . And the first point is that these could be used to provide Radio close circuit systems at an approved frequency and in embedded in a system as described in figure 1 to give great range to a close circuit system with 2 watts of power to the antenna in essence these units would replace 101 and 102 and 104 and 105 as two combined radio/modems on either end of the communication between the GPS unit and the computer from bottom to top in figure 1. Of course the software and firmware configurations would be essentially the same and there would not be any reliance on towers in general. However this also could be a possibility.

15 The main purpose in naming these Rim Radio Modems 902M and 801D and 802D RIM Radio Modems is that they are operating on 900mhz and 800 Mhz and function through basically cellular or radio messaging frequencies and protocols used by the wireless telephony industry companies and their provided IP gateways. This of course is another communication option for the multi-communication array capability of PFNs in general.

20 For this reason Kline and Walker LLC will seek to develop this inventions products. That will employ these components through the modalities in this application and the related application in the respective geographic market areas. This would include in Canada Research In Motion LTD , The owners and operators of Mobitex packet-switched narrow band n s t work, which is designed for wide-area wireless data communications. The operators or service providers would include, BellSouth Wireless data in the U.S. Bell Mobility in Canada. Also for the 800MHZ RIM's 801D and 802D where DataTAC® is the narrow band wide area wireless communication network . Kline and Walker LLC would seek in the commercialization of this PFN invention ARDIS in the U.S. and Bell Mobility in Canada. Others would be sot in other international markets like Asia Australia and Europe as they employ DataTAC® or Mobtex or a compatible packet radio software for these frequencies or one those wireless systems so designated by the governing authorities.

30 It is important to remember that much of the PFN system is designed as a data acquisition system, as well as, an accountable remote management and control system that's primary objective is to aide in the responsible use of resources and equipment both environmentally and economically for all societies in a fair manner. This is why the use of various manufactures in their areas of market

dominance are named and indicated as part of the PFN'S technology business plan and market strategy. Also and especially, for the equipment use PFNS Kline and Walker LLC will seek out the World Bank and the International Monetary Fund to aid in addressing economic and environmental impact issues with the use of this PFN technology . The PFN system was created to prepare accurate data for the public and private interests groups to review in real -time so that the most cost effective beneficial decisions' based on real data, education, deliberation that result in an all points bottom line reality check presentation can be used in making proficient commercial, environmental and social decisions, regarding investments and projects so that the cost of negative public opinion is reduced, while encouraging private, and public investment and understanding in the process that is presently receiving poor public review. Ideally the PFN system will reduce time, cost and resource waste on policy that is clearly un-beneficial or even corrupt and badly in need of public trust; and conversely help to educate all to support those worthy pursuits that are beneficial and develop a better quality of life. The PFN can be an economic tool to relieve social tension and aid in peaceful coexistence. The PFN factor can become an accurate economic tool for appraising any financial endeavor or investment made by any company, government, bank, or project, etc., especially the equipment and environmental PFNS detailed in the earlier related filings. The PFN system could be a condition for securing and regulating investment funds. This accountable data acquisition tool can aid to provide financial stability to the investment process including the stock market.

Definitely, when used by responsible individuals in a free and fair world the PFN system can be an optimum tool to develop trust, and a quality life as is so greatly needed in this populated earth where population management, environment and resources are fairly and efficiently balanced for humanity to be supported in its physical existence.

Figure 4

Motorola's Nextel systems as combined COTS products Integrated Digital Enhanced Network service (iDEN)® Combined digital Cellular with Motorola's Nextel Direct Connect® a digital 2 way radio for instant private and group conversations and text numeric paging in a single phone. This system has greater security for communication data. As a primary communication device in both the personal and the machine messaging PFN's these Nextel and Motorola protocols will be a good step in interfacing and organizing COTS communication products in PFNs (both personal and for the machine messaging systems).

The Nextel Direct Connect® system operates like a two way radio through the system routing function deciphering digital message headers of preprogrammed ESN address and quickly routing a communication link to the correct hand held unit or units. This technology will function well to create intranets for machine messaging in the PFNs involving machines, vehicle and equipment and

for personal PFNs, such as the ones detailed in this patent application and the related patent applications

However, due to Nextel's use of a limited range of carrier frequency for all their functions, most communication systems in PFNs will still require a transceiver unit with scanning capability and function covering at least some other specific radio frequencies (emergency channels etc), pager
5 frequencies, and cellular phone frequencies(that have emergency protocols that will be handled by the PFN processor or have software or burnt in firmware (for repeater functions or digitpeating signals) in a combined communication device constructed in the future. When these combined communication function with locating systems that can be consolidated and integrated to perform accountable
10 messaging. They fall within the nature and scope claim of this PFN technology and are also claimed as COTS interface products which have been described in earlier related patents prior to these latest Nextel phones products e.g.(i500 plus™,i700plus™, i1000plus™.

Shot Message service SMS paging in a PFN when interfaced with the PFN is one modality to provide one and two way paging to any PFN, and as part of a Nextel product offering secure cellular
15 digital phone service and simulated two way direct Radio protocols a most ideal way to perform accountable remote control and management. These systems are conserving space in the PFN. And with an additional memory function available to the paged messages in Nextel's SMS this could act as a local memory loop required in the PFN for accountability . Of course, the entire phone or this memory function part would have to be contained in a protected area physically and electronically
20 from tampering. Also, the web page control system could utilize Nextel software to send a remote control page to a PFN either personal or one attached to a piece of equipment to perform an accountable remote activity and record that command in the system buffer (Mass data Storage System) as well as in the local memory supported in the PFN. Then other software Macros can be written and employed to key stroke commands in these running software programs on web pages to
25 further automate the process, or by knowing the appropriate key code for the software program enter the commands to become an operating component of the running communication software program. Of course for PFN mobile tracking any of the communication systems can be employed to send any NEMA /GPS data back to a personal web site so long as the software is appropriate at the application level to place the coordinate data with the right identification data as an object on a calibrated map on
30 a computer screen, monitor or interfaced TV with Video Game Map Program. Or processed by commercial TV server boxes. (This is a new concept for a cheap product for those that do not have a computer.) (a video game software program that is a calibrated map program and could be hooked to an RF modem interface w/proper connector, or inexpensive phone modem interface, to receive the Personal PFN's locating data and place the located object position on the correct map on a regular
35 household TV, or this service can be offered by the cable and satellite TV people in conjunction with

cellular phone and pager servers through communication links (IP, etc.) that routes to the subscribed recognized PFN ESN signal with NEMA GPS or any location data. The PFN / ESN signal is ID by the communication device being served (may also carry PFN/sn) then the communication server sends the data stream to the subscribers cable, satellite, or computer provider or website or E-Mail address (as directed by an accompanying command communication string that is created by the subscriber at the time of acquiring the service – this is entered into the systems operational software so that the location data (or any other telemetry) becomes available to the account holder or their authorized persons, when accessed by a specific pin number or security code, which will unlock the transparent data or encryption in the final application software (either local or systemic run) for these end users to view location and see any data telemetry from their mobile PFN asset. Either on their regular TV, or computer monitor (other such viewing devices may include wired or wireless lap tops, palm tops/pilots, organizers, GPS handheld units with communication capability, cellular or wireless phones or pagers with displays and appropriate tracking software named here as separate personal PFN technology devices and variations, or displayed by a PFN system equipment or personal version). These descriptions have been detailed as a PFN priority system for tracking assets inexpensively for people, pets and their personal objects involving and employing a variety of devices. It applies to both the personal PFNS and the machine, vehicles and equipment PFNS. It can be operated as an intranet on limited RF equipment for limited distances or it can be a limited intranet through repeating or digitpeating through other PFNS as relay stations. Or, it can be a closed circuit intranet by IP protocols and proprietary protocols detailed above until the data reaches the subscriber at the application level, where personally owned and operated with a phone modem computer and software. Or the subscriber can authorize their communication provider to route their personal tracking or PFN telemetry for any data through an IP gateway to the Internet via commercial private, public(Gov. or Non Profit gateways) or, the inhouse communication provider's IP gateway link can be the route for sending the data to a common company owned web site for general viewing. Or subscribers personal e-mail wear the Internet provider supplies the posting software to convert the signal to display the telemetry data through the correct software and viewing screen architecture for e.g. tracking (maps), physical telemetry (graphs heart rate, BP, etc.), multimedia ,video, audio etc.) (windows based, etc.). Or servers sponsoring advertisements can provide this service for a nominal fee, either with individual security (transparent and encrypted, etc. which displays individual views of subscriber assets, or as a mass posting with zoom in clarity on a subscribers particular asset that was made as a personal request to see location (by clicking on) – (all willing responders presently being displayed could be viewed or cleared from the screen by viewer preference).

NOTE: All transmitting devices for 911 protocols such as emergency systems manned or automated, would possess this application level software in their system to process or view all

transmitting devices or to activate their FACT public service section to route repeating or digitpeated PFNS in an emergency application. These tracking or telemetry subscriber services functions are preprogrammed with the ESN communication number, PFN SN, etc. to be used in a transmission header (transparent digital binary code, etc.). And also preprogrammed is some form of personal identity check for authorized users of the system and function like PIN numbers, etc. all of which is submitted and programmed at the time of application during the service purchase. This is where the communication command strings are entered to create this PFN network communication and information technology, ideally handled by accountable PFNs, because of remote and systemic redundant memory storage for catching fraud and hacker criminals.

These two above proprietary tracking system were detailed here as a set of product lines that can be accomplished though the web using GPS or wireless Cellular (or RF or Pager) automated triangulation to derive location coordinates. And it is a good initial set of products for co-development with Motorola or Nextel, etc.. to be a part of developing this technology to provide accountable PFNs for personal and machine use world wide for better management of equipment time, environmental resources and the control of waste from the individual to the largest corporations, banks and governments. Kline and Walker LLC will be seeking out Nextel Developers Program in an effort to work collaboratively in this above development. Also many feasibility components are Motorola parts.

FIGURE 4

This drawing shows multi communication systems interfaced, which is one major organizational function of the PFNS. So the drawing incorporates Nextel's present technology and protocols as another Commercial Off The Shelf (COTS) Product for multi – tasking communication in the two different categories of PFNS; Personal or Equipment PFNS. It is not a panacea or optimum multi-communications service for the PFN protocol, but it is a step in the correct direction to offer a organized accountable scanning function for dedicated RF, wireless telephony, and paging systems designed for PFN protocols. Plug, Program and Play consideration will of course be designed into all PFNS to utilize the Nextel system and Kline Walker LLC will seek to construct PFN product and protocols with Nextel and the prior Motorola to provide the PFN convergence scanning devices and system for a multi- communication platform in the PFN along with the FCC (other related government agencies) and standards committees to assign frequencies and protocols for a communication convergence emergency cellular network (a PFN system protocol and part of the TRAC/FACT program functions detailed in earlier related filings). Figure 5A is an earlier patent application figure detailing the convergence of paging radio and telephony wireless in the PFNS.

The top half of the figure details the use of computers, and or TVs as everyday monitoring systems to operate personal tracking in the least expensive manner and to add product to this

technologies base systems and grow sophisticated accountable personal PFN for remote management and control. This is done to provide product to all economic levels and systems that can be built on as one has the capability or need to do so.

401 is a home based PC either lap top or desk top model. And 402 is a regular house TV. 401 is connected to an standard land line phone in 413 through an internal computer phone modem and is capable of receiving any telemetry data from a personal PFN GPS tracking along with other data streams though Internet protocols interfaced with varying types of Internet gateways basically Packetized RF, Paging, cellular phones or wireless phones analog or digital systems CMTD and DMDT by operational software products provided by service providers and prepared for Internet protocols (IP). These personal PFN products and personal tracking products will be constructed in conjunction with Nextel, Motorola, Research In Motion LTD and will range from recreational tracking and hobbyist devices on isolated systems to serious accountable systems connected to intranets and the Internet initially starting with tracking functions but capable of expanding to complete all the functions of a PFN universally constructed to accept all applications. *For these commercial carrier products cost will vary with function and the extent of the system. All the technology is defined within all the related patents. The cost, profit and product pursuits will be determined by market strategy and knowledge of public desire for these product offerings.*

412 is a serial RS232 modem that is capable of handling packet identified or binary Data, Hex decimal data ASCII NEMA protocols and or TTL. This 412 modem has the option of being connected to 409 a radio frequency either short or long distance but most generally local unless operated by a licensed amateur radio person using short wave equipment etc bouncing off the ionosphere around the world. These systems

Programmed to digitpeat though an APRS system to connect to an IP Gate way has no limit to sending long distance tracking, either by programmed RF stations or the above Telephony and IP providers however transmission conditions may create reliability constraints in some circumstances.

409 short range tracking (Tot Spot) communication can be obtained inexpensively through another modality for the economically compromised (not owning a computer) through the TV and a game style software program caring the calibrated map library the APRS software along with desired zoom functions retrieving the digital data from the 412 modem connected to the game control input connector. Of course 412 would be connected the same as is done in figure 1 and the short range RF would be the personal tracking belt would have the same as the protocol and architecture detailed in figure 1 as well as commercial products consolidated in integrated circuits.

The service providers for the two way Pager systems, and wireless phones would use triangulation locating to the known towers and provide the IP hook up through a intranet to area cable providers as a product to sell to cable sub sscribers where they would run a software program for the

subscribers to view their children on their own home TV or make a request for specific alerts for when their children were past a certain distance from e.g. the house. The cable providers would run this in a mass data management computer and the base technology of tracking an asset on the screen is the same as figure 1. This would also be a service sold to the satellite companies where they are dominant in the market place .

Up-links and requests are possible for Cable Satellite and Web TV to personalize program service even through TV remotes, and phone land line

COMMERCIAL NOTE: Kline and Walker in the development for the personal tracking and PFN remote monitoring, management and control claims sole proprietor ship for any variation of this product. Which is to track a person pet or a piece of equipment though any wireless pager or telephony systems that is interfaced by IP ISDN ISP or any fiber optics phone routing system or device, microwave light transmission and provided as a cable, satellite or web TV product to a subscriber to either the TV server or the phone provider or both this also extends to any machine messaging and or monitoring management data as defined In any to any of the related PFN applications. This also extends to any two way component either involving the phone systems or the TV systems either as a combined software interface or as hardware connections .

Kline & Walker will seek out all the same phone systems and pager system as well as Direct TV and Media General Cable etc. and the Internet providers AOL, Erols etc. for the computer area. This is one way to allow parent of all economic strata to afford inexpensive device to track their children and pets on their own TV as well as receive other Data streams from their child's life experience, when they are not able to be with them or want to be in the back ground. Ultimately the least expensive will be the two way pagers that are tracked through triangulation from the receiving towers and processed by the paging provider and transmitted to the correct TV provider for the pager subscriber for tracking. Still a new technology in the locating system might keep this cost up presently but it will quickly go down with volume. (Of course as detailed this can be done in all the modalities detailed in this application as well as all the related PFN application.

The software will be written to allow a parent to switch to their family channel on their TV and poll their programmed ESN PFN family units and watch their real-time activities. The tracking and object placement of a specific PFN will be accomplished by the same method involving calibrated maps and building architecture as previously detailed. Split screen application will advantage those that have to monitor the disabled, while viewing regular programming or those that need close guarding. And, of course, government tracking of conditionally released people and animals that need to be sent to involved parties can be sent to those individuals directly through their own TVs . (Also monitors can view both parties simultaneously)

Returning to figure 4 405 is the belt that is completely detailed in figure 5 406 is the Nextel Radio Phone Pager combination or a radio or a cellular phone 407 is a pager basically two way and 408 is a GPS receiver if this is used for locating the personal tracking system or PFN.

FIGURE 5

5 This is a drawing depicting the many attributes of a personal PFN in the form of a belt , collar harness bracelet, bracket or circular securing device. It is not meant as the only modality or the best modality for carrying out the person or animal PFN set of systems. It is merely employed here to display many of the functions, configurations and uses of this versatile invention. And primarily all personal tracking with accountability and or remote control and management for such an individual device fall within the nature and scope of this invention.

10 In Figure 5 the belt or collar system is displayed in the closed attached position as viewed from the top as if attached to some one or an animal. And it is also displayed as laid out in a lower view. The belt has a lot of accessories and it should be kept in mind that in many cases not all accessories would be used however the design of all PFN systems is to universalize a base system in which inexpensive plug and play

15 accessories can be added to the system as desired. The belt systems components will be constructed to allow for varying bracelet/ belt/collar/harness sizes to use the same electronics.

500 in the belt itself shown in both configurations top and bottom of the page, 501 at the very top is the buckle which will be detailed further as 510 and 511. 502 in the top and bottom vie is a video cam system with audio pickup (Digital or analog -size and cost will determine component) 503 shows a top view of a finger thaw for an individual to place their index finger, etc. into upon an identity request either self-generated locally by the personal PFN processor on the belt or as a remote communication request from an accountable monitor management and remote control system (Gov. Police agency, hospital or monitoring medical staff. The finger thaw can also be used to determine pulse rate. Of course the sensors are different and if both functions were used simultaneously different transmission circuits would be configured if not hardware wired separate functions would be completed by switching components such as IC's microprocessors and firmware preprogrammed. The main PFN processor will be capable of coupling up to a desk top/laptop desk top and have flash memory burned into EPROM's to run different accessories or accommodate change in functions. Of course, if this is a security system crucial code keys timed access and pin numbers as well as any number of security measures will be employed to insure only the authorized personnel make any programming alterations. Programming will also be employed to ready the mechanical lock system in 510 to open . This system might require one key with a resistor in it much like the GM vehicles or a card swipe like hotel doors with a magnetic strip or the use of a smart card or chip and reader

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or a signal sent remotely or inputted through a restricted connection port on the personal PFN system. All of the technology to construct these modalities is detailed in earlier related patent applications as preventive means to restrict the unauthorized use and access to equipment PFNS. So these same or similar modalities can be applied by anyone skilled in the art to construct a secure locking mechanism for the mandated belt application. Of course all these systems would be tamper resistant and capable of detecting and initiating an alert mode that can be configured to alert locally and give prerecorded voice message instructions or alert the remote monitoring addresses and they would be capable of sending preprogrammed messages (either from the remote management system or stored locally) or communicate real-time communication instructions from remote operators either audibly or by text message to an LCD if an accessory or part of a component COTS product service for instant message or text messages. (earphone and collar Mic will be also accessories to help the individual wearing the belt with instructions and directions in a discrete manner—e.g. a useful protocol for the recent parolee and mentally or emotionally challenged. Of course 519 will have a panic button to get help from the remote management support system in real-time for the wearer of the belt system.

519 is a sensor array which will have a serial RS232 or comparable protocol more probably a USB system connector (at present), nevertheless, all such possibilities are well documented in the prior related PFN applications. It will connect with a unibus cable system running through the belt labeled 507. 507 will be capable of supporting physical connections in various positions around the belt for accessories and the PFN processor or COTS component processor system will be able to drive the components through burned in software programs installed through a computer with the specific commands that are appropriate for an explicit application. The reason that COTS processors are mentioned here is because as has been detailed through out the PFN invention for man and machine is the continual consolidation and increased functions of product offerings and the PFN platform is designed to be an accountable organizational interface to perform remote control and management for society. So, it is important to point out that these COTS products and integrated circuits of multitasking devices are all within the nature and scope of the PFN invention.

NOTE: For this reason Kline and Walker LLC will seek out all these named electronic manufactures and service companies in a cooperative effort to marry up and interface in the most economical fashion and commercially beneficial means for all including the end user. (in other words if there is engineered product that can be obtained through a specific modality preferable to a specific manufacture and their engineering staff that full fills the PFN protocol and any standard for such product application Kline and Walker LLC will cooperate, license and work to enhance and complete these products and systems in as amiable manner as possible for all. The major objective being to organize the PFN system and networks to provide accountable activities and management so badly needed for public safety and the environment, while insuring a good fair and just respect for

individual's rights and their privacy. These PFN systems are designed to enable and provide more freedom for life's learning experience, while helping to safe guard public and personal safety through real-time remote management and control when needed. Objective PFN Accountability is the management tool for respect for all.

5 519 is representative block of many possible sensors e.g., water sensor, breathalyzer, body temperature, radiation or hazardous material detector e.g. the Nose, drug detector, pressure detectors and any measurement transducers that can create a unique electrical signal (Analog, or digital, current sensing, TTL, or digital Binary ASCII Hex decimal or any special data protocol like (NEMA) to provide data to the PFN processor, 513 which is handled by the software and firmware
10 preprogramming for response locally and systemically through reporting these data streams to any remote location. This process is well documented with many modalities throughout all the Prior PFN related patent applications

501 the digital camera is also detachable and can be held up to the eye to transmit an image of the iris of the eye to allow for system software presently IBM, Lockheed, or flash 21 digital to
15 confirm identity through secure wireless transmissions timed and reported with GPS location coordinates. This has been discussed in earlier related patent applications for equipment PFNS. With processing and memory continually being reduced in size identity software will be running local as firmware burnt in as application specific software in product protocols to complete on location identity checks as well as needed.

20 504 are contact nodes that can press or conduct through fabric or are provided portholes to make contact with the skin either as sharps or liquid conductant released at the appropriate time to enable a low current of amps and high voltage to disable the wearer of the belt e.g. a Tazer gun function either by a commercial COTS system adapted for this purpose with the trigger mechanism wired to an output function pin of the PFN processor and pulled high or activated to dissipate the
25 short high voltage charge to disable the person or animal. In an other modality this invention would construct this entire system out of a capacitor and relay system with Toshiba driver to operate the relay triggered by the stamp computer or processor (this process already detailed for other applications. The capacitor is energized from the power pack and re energized automatically each time it is fired or dissipated. (Of course if this system is employed the wearer would be informed and
30 medically examined to insure that there is no risk for mortal or fatal damage e.g. heart attach or seizure in an activation. – This is an extreme measure system and would have strict protocols and rapid response teams accompanying this action.) (The system would be made as impregnable as possible and tamper resistant with alerts accompanying any attempt to deactivate or compromise the system.

517 is another extreme Personal PFN control measure. It is an automated medicating device in which a sedating dose of medicine is given remotely or locally by the appropriate authorities with much the same response protocols for it's application. Of course the wearer of the belt would be evaluated for tolerance and effectiveness of the medication used and their general physical condition.

5 On top of 513 the PFN processing and memory unit is another connection point indicated by a dark round oval. This connector is also a multi-pin connector and would support telemetry leads attached to sensors for a heart rate and a blood pressure transducer cuff around the ankle to retrieve blood pressure. These electronic signal would be sent to a remote attending medical staff and recorded in the accountable memory both locally and remotely with audio video location data and time and
10 date markers. The remote management team would monitor the effectiveness of the dose and have a second medication available like adrenaline or steroids to reverse the dose or halt any allergic reaction, while the emergency behavioral response team was in route.

Of course these medications are just an example and medical protocols standards and regulations would have to be set by the appropriate authorities and medical personnel. PACs and
15 automated medication system already exist but this technology has created many remote actuators and anyone skilled in the arts could construct the proper device to complete a successful calibrated injection. The proper dose would be already known and installed in the injection cartridge. If 506 alcohol sensor, the breathalyzer or chemical and or drug sensor flagged positive only minute sedative increments would be possible by the program if a violent state was still in progress, while constantly
20 polling heart rate, blood pressure, and respiration through an elastic sensor on the belt. Or possibly 504 shocking system would be used as an alternative or a guided pepper spray canister or compressed tear gas would be activated from the top of the belt buckle. Any and or all would be available to the remote and local behavioral teams to help save or minimize injury to a victim while regaining control and management for a negative situation involving the conditionally released during re- assimilation
25 or managed freedom into or with society.

*Note: Of course this is not being recommended for those that are considered a threat to society e.g. the criminally insane, etc. But those that have marginal social problems substance abuse (intermittent or questionable tendencies toward violence, but are not jailed or found guilty of a crime or are awaiting trial (Bond condition) and can use help, guidance Or those that are going to be
30 released early back into society and or those that know they have a problem and ask for additional help by in watch dog situation .*

506 leach ate alcohol sensor is placed in the small of the back (lumbar) region and sponge covered to allow perspiration to collect and be sampled for pH and aromatic changes that take place during the consumption of some drugs like alcohol. This sensor another transducer will generate a
35 specific signal back to the Personal PFN computer and resident software program for an appropriate

preprogrammed and or remote controlled response or for monitoring and management decisions for the conditionally released as an early warning to a possible at risk situation for the individual and or the public. Coupled with real-time ,time/date and location data from the GPS 514 through 513 the processor and 512 the communication system in use on board the remote management and control behavioral response team can be there at the critical time to give protection and serve all parties. 515 is a power pack to be determined with a solar cell for recharging. However, the solar cell would be connected to a area of the body most likely to be exposed to the sun like the shoulders or head. This is discussed in this application and earlier related applications.

518 is to be a event memory storage for applications that require a larger event storage that is provided in the 513 processor area. These memories storage devices could be flash memory, or Sony Memory Sticks™ or any of the memory technologies detailed in all the related PFN patent applications. Also they are protected for accountability comparisons with redundant off board memory storage.

509 just below the uni-bus 507 that connects all the components physically and supplies power to all the components is a large black line. It can be seen in the top closed view as well depicted as one continuous line. For the mandatory wearing of this belt when the buckle lock is closed and sealed this line is a continuous connection through the buckle and impregnated into the PFN computer compartment which is also enclosed in a tamper resistant package with alert systems(local and remote- a topic well covered-because it is the same application specific protection for all essential components as detailed for all PFNs to be of practical service to be accountable systems) Here 509 carries a special signal generated at one end of the line on a out put pin from the 513 processor and received on an input pin on the other end of the line and the pins reverse their function from input to output by a running program in the processor that also measures the resistance or current levels to detect if anyone has interrupted it or attempted to jumper any connection. Many random signal oscillating firmware programs could be utilized and this is just one modality to insure that the secured belt is not tampered with . Of course any such tampering would set off a flag in the tamper program and all alerts would be activated. 515 power exchange for recharging is accomplished by recharge able batteries at home and an emergency power source enclosed in the protected processor part. This emergency power system will be capable of powering all essentials as determined by application specific protocols. With all the detail in all the related applications anyone in the art can design an appropriate power circuit for the application. Once again, 510 will be a physical locking system as well as an electrical system and will also use many of the same physical and electronic circuits for locking applications as have been detailed previously. These systems ma be pined and riveted or secured like police manacle locks and chains with harden steel. There is no limit to the best way to achieve a secure system. And all of are within the nature and scope of the invention.

The basic focus of the belt system thus far has been for incarceration or early release or mentally or emotionally compromised with social disabilities. This belt system or any of the personal PFNS or tracking system have great purposes for just about everyone. It is important to remember that not only are there different modalities to perform tracking and accountable management and remote control for personal PFNs but there are varying degrees of product that can be bought in sections at different times and interfaced through different communication paths for all kind of needs and reasons at different times in a persons life. This is one of the major goals in developing the personal PFN structure with the many manufactures and service providers and to develop a universal plug and play system that can have software burned into it at anytime for different purposes. The Federal Access and Control Technology FACT is well documented as an intricate part to the PFN technology and will not be detailed here, but through the PFN organizational system of accountability PFNs can be configured in anyway for most any purpose, not just used in this belt configuration.

Additional Sensing Harness or Apparel to be Worn.

Just like the collar or belt system the under harness or wearing apparel will have wiring and sensors that can provide physical telemetry back to a PFN system for processing , recording and reporting to the proper support staff. The system will be able to support automated medicine application systems through secure communication links that require close monitoring while giving real time data as to how the patient is reacting to the prescribed and administered medicinal therapy. Conformation of all orders and telemetry will provide accountability both locally and remotely. These systems can also be used to monitor individuals found to have legal social problems due to substance abuse to help manage and control dangerous human behavioral situations where there is a clear legally acknowledged and confirmed problem recognized by all parties, society and the individual and the use of this system is a condition for increased social freedom with legal and qualified monitoring control and management staff available in real time to all parties at risk. This is not proposed for those found to have uncontrollable violence problems and the use of the system would have to be closely planned regulated and watch dogged by legislators, the justice department and civil liberties.

This system could also serve well for the mentally incompetent
From the second PCT patent many personal PFN product offerings are discussed and this section is being quoted here to merely display the early variations and configurations of the PFNs and that the Belt configuration in figure 5 is merely just one such product offering.

PERSONAL PFNS FROM PRIOR FILINGS MODULAR COMPONENT INTERFACE PRODUCTS

Another configuration could take the form and still function as a small carrying case (like an entire brief case or woman's purse) which would hold a persons desired electronic device array (a

mobile office, etc.). This entire case would have a connector (USB) probably on the case or an IR communication port so that it would either jack right into the vehicle secure box or optically communicate with the interface system either where a space was provided for it internally or connected to the connection array bus or (USB) on the front of the secure compartment. And this way the owner could use the interfaced case, charge its components or individual devices and, if so desired, protect it in transit or when s\he was out of his\her car.

There are many manufacturers creating mobile offices out of brief cases that have cell phones, modems, laptops and G.P.S. system for the business man to use on the road , but none that report back location per/se. Ideally these personally carried component systems would be stored and used in the tradition and protection of the invention's secure containment system because of the high cost of the devices. Some existing briefcase products do have chargers but they are not interfaced with the automobile's TTL, analogue or digital logic control system. This is a great benefit to the consumer with this personally owned and operated vehicle diagnostics system and interface. S/he immediately has accountability for any actions taken in the repair of their vehicle and they can have direct contact with any service provider, who can look at the same data give advice and prices or dispute another service providers diagnosis and pricing.

Basically this was taken out of the earlier PCT patent application to show personal PFNS as mobile offices and their ability to interface with the machine messaging PFNS to provide diagnostic functions. The main point being that personal locating devices that report their location to an other location and different forms of personal PFNS that perform accountable remote management and control are all with in the nature and scope of the PFN invention no matter the configuration.

FIGURE 5a

This is another prior configuration of a Personal PFN from an earlier filing
It is a product to keep track of provisionally released parolees. The numbers in this figure still appear with figure 22 numbers. The illustration will be changed and the text edited accordingly in the formal filing.

Track a Con.com This system would allow for parolees to be back in society while their movements and activities were monitored and governed by an automated computer system that would track physical movement through GPS, or LoJack or Cellular and or RF triangulation on a personally carried device that monitors body temperature, pulse rate and provide for positive Identification e.g. Finger Print or eye iris evaluation

The device would be controlled by the master controller and support local Web page access and hyper-link capability. Tactile and galvanic sensors would be capable of detecting chemical changes in perspiration and determine the chemical equivalent for a specific person drinking and provide a specific electrical signal that is transmitted back to the parole center for a con beep and

direction to either report in or take a skin prick check or a breathalyzer. Locations of area liquor dispensing or known drug activities would be plugged in as trail markers on the GPS calibrated maps and flag a convicts questionable activities at these locations or ask for the above checks.

Prior victims of crimes that an Ex-con is convicted of will be notified via a web site and early alert notification program or system called TRACK A CON.COM and or Track A Con. Gov (or any other similar name or.Com for this purpose is here by claimed and reserved). This program will give a reasonable distance to stay away from,(procedures and program parameters to be determined by the appropriate authorities) weather it is prior victims, victim types,(children, etc) or just trouble areas for a particular parolee including other old friends (other criminal types) or geographic areas that can be tracked and or trail marked in reference to the parolees known movements, and or others in real time. Once again the appropriate trail markers will be posted as GPS, ECT. Geographic coordinates and will notify authorities and victims of flagged improper movements in real time. The convict will be alerted as will and warned to report in and move out of that area. Also, the victims can be outfitted with a mobile page and or Track system and warned directly of a past ex-cons close proximity as law enforcement is detached to protect and serve the victims safety first as a 911 response. Additionally the victim and community can track the parolee on the system by contacting the web pages and or a tranquil audio sound or message status can be given to a victims pager, phone radio and computer system to assure the victim of the known location of the Parolee. Special situations like school officials and security staff could be paged phone called or given a red Icon on a IP connected monitor or TV server (cable or satellite as detailed in this application) The alert would be given because all schools are trail markers in the program for this particular criminals parole. (a former pedophile, etc.). On the school monitor or in the phone page or text message photo and descriptions would detail the parolee in the area. The alert would be given to the parolee as well if this is determined the proper procedure by the experts and authorities. Ideally, a behavioral and medical response team would be dispatched to both parties along with law enforcement and parole officials. This unique and powerful public service tool can be provided less expensively, because it is dispatched in a specific strategic manner by operational protocol to be determined by the appropriate authorities specialists with constitutional and public acceptability. Commercial products can be provided as elements of this Public service tool. This will involve Insurance for all parties and governmental risk management. Bail and bonding insurance for the parolees and advocates (family or general public or governmental early release programs to reduce cost of hard confinement incarceration.)

Note: this has been detailed for possible violent criminals for controlled release into society as a tool to help evaluate if corrected behavior can be practiced and has been learned during the punishment phase earlier. It is also meant as an accountable communicative tool to aid a released parolee with adapting to a lawful way of life by recognizing the inevitable difficulties in re

acclamation in society. This same technical system can be utilized for any situation where people or animals require close observation as a public or individual recognized public safety threat. This is not a panacea but merely a state of the art tool that can cost effectively be interfaced into society's legal structures to increase safety while better spending it's resources. There is no claim of perfection here and it requires the best out of all to perform correctly and constitutionally . Ideally the PFN's inherent accountability through local and remote event storage can help to insure evaluation and reevaluation of use and performance of all parties to help insure an optimum use. This should yield cost savings for the public and increased public safety by lessening incarceration time and help to decrease antisocial behavior developed with long time exposure to other criminals warehoused in confinement, rather than being closely guided and aided in near normal life conditions.

Earlier in this description the word automated was used . That is not to imply that this system of monitoring and remote control and management in unmanned. There is a monitoring staff of counselors, medical staff and law enforcement both in the remote monitoring centers and on the street at any interdiction.

Note: an important point and difference in these personal PFNs and tracking systems is that these systems interface and communicate with equipment and vehicle systems both by physical connections and by wireless connections i.e. DSRC, Bluetooth, etc. and can transmit their personal data to the equipment PFN for storage, for automated vehicle and equipment operations and to report back for emergency services.

FIGURE 5b

Is the a drawing from a prior patent application detailing a universal PFN with Cellular Pager and Radio frequency communication service . This figure also shows the service providers and many of the applications for the equipment PFNs. For this Personal PFN provisional application FIGURE 18 from PCT will have it's items labeled with 18 numbers and this will be changed for the formal application. None of the technical content will change , however in the formal filing this drawing will show that these communication service providers lists will be all able to support this technology's personal tracking devices and PFNs

This figure depicts a universal PFN system with some usual device applications and varied hardware hook ups to communicate with the remote locations and physically perform the Accountable Remote and Automated Control for society and it's institutions. The bold black line with universal PFN enclosed is to indicate that this is a protected area not just physically but legally. In the enclosure 5B01 is a commercial off the shelf COTS cellular phone. It shows one wireless communication modality through a PCMCIA modem connection to the processor and internal TRAC\FACT software. In this application all the software is commercial off the shelf supplied by the cellular phone company and or the PCMCIA modem card interface. Obviously this preprogrammed software would be down

loaded and the appropriate dial out phone numbers installed in the command string. These would be for commercial servers and or public providers as illustrated by the little man at the computer 5B300C, 5B300 L and the whole 5B300 networking system.

Below the PCMCIA connection block is the block called Complete Card. This is a desired modality for cellular phone use in the invention. It employs a commercial off the shelf COTS product a PCMCIA Complete Card TM. The complete card also supplies its own software and hooks up in the same manner as a PCMCIA standard modem card. However, this system also incorporates the Cellular phone system and antenna. The appropriate hardware is known in the industry and the appropriate configurations can be accomplished by anyone skilled in the art to link up the euro100 boards with the PCMCIA connections. The bottom box is modem and can be part of the top box PCMCIA connection when used with telephony or with any application from the lower box 5B08.

Number 5B08 box shows all the different types of communication devices employed in the PFN's. 1 way Radio, 2way radio. 1 way paging, 2way paging, light or sound and GPS or locating systems. These different communication devices are well covered in the in figures 3,4,5, and 6 and will not be revisited at this time. However, as this drawing illustrates they would process their data streams through the modem and on into the processor to be handled by the TRAC/ FACT/CEW programs etc. The modem would be capable of converting the applicable data steam and communication source to be used by the PFN processors. In this same block light and sound as well as any other electromagnetic wave that can be used to transmit wireless or hard wired to a converter or modem to deliver control signals to the PFN system are hereby included by reference as another modality of communication. In earlier related patent applications traffic control devices were described for authorized personnel to control in real-time a particular vehicle by pointing such a tool to a specific target vehicles receiving plate and to control a slow guide stop and secure sequence for a suspect vehicle.

5B07 is the uni-Buss connector that has also been discussed earlier. However, ideally an accepted industry standard will provide a universal plug and play capability and the TRAC/FACT software and TRACS management system will insure accountability and real-time control as needed. All possible present connectable hardware was detailed in the related application docket No. 112756-202. However as stated before the plug and play capability for power, control signal is part of this technology as described in figure 6a as natural evolution of this invention. whether it is for a mobile application (car) and or a stationary device the control power and signals to the processor will basically use the same kind of plug and play buss in the future , however presently a three speed can bus systems is used in the automotive industry that make the Primary Focal node a gate way for these buses and for the telmatic system. 5B03 is the mini-computer containing the TRAC/FACT programs. The round circle is for the CEW program Commercial Encryption on the WEB . This software

program is provided by the credit card companies and will have a special modem capability and handle 128/64 bit. 5B02 is a card swipe or reader that is connected to the processor either through the uni-buss or the old R232,TTL, or PS2 type of connections. These three are shown here as the present standard connectable modalities known to present industry. However the un-Buss connector would be a more ideal modality for space greater data flow, and efficiency. These old standard connections are shown to be available to other components interfaced in the PFN and can be employed to give forward and backward engineering versatility. These would be limited in number as time went on and would have separate software command strings, with the appropriate drivers to access this different Communication Port and coupled device to complete the interface with the PFN. The device would still have to have an electronic FACT ESN or identity system or would require special registration to be interfaced. 5B02 the credit card reader would be able to handle commercial credit cards and driver licenses and FACT SYSTEM identity cards.

5B05 is the hard drive on going memory storage. For size reasons in this drawing the FACT application specific event memory is not shown but it is a redundant memory to the continuing running on the hard drive. The event recordings are controlled either automatically by resident PFN programs, remotely activated and controlled by an authorized external source (Logged command string) or by the resident operator or occupant. In any event all machine and man actions and interactions are recorded and logged in the FACT Memory preserved in the protected restricted access area as depicted and detailed in figure 2C , 2F and 2G.

5B09 is a big dotted line which is the unibus going out of the PFN and going to activity controls video cameras (or Digital) microphones and activity sensors as well as generic host control connections. Some of these sensitive control and sensor leads will be provided PFN protection special and or utilize the host vehicles strongest architectural structure (e.g. the frame) to protect these critical transmission lines. This should be determined application specific and as part of a standards effort. Much effort has been taken to detail all the properties and qualities and give modality examples to provide a standards effort a good clear organizational system, structure and electrical interface platform to provide Accountable aggressive remote and automated control for society and it's institutions.

300C in figure 5Bis the commercial server who can be any gateway node the customer picks or can be a service provider for the OEM host equipment or an energy provider or a bank card provider or a communication company or any type or number of these commercial servers. However they must be licensed and provide enough mass storage to handle all critical TRACS/FACT data to operate in any geographic area. They also have to be able to handle it in a secure accountable manner. For simplicity purposes the 300C have been placed at the bottom of the 3 basic different types of present wireless communication. To the right cellular phone system ,to the lower left of figure 5B is

the present one and two way paging systems and for the lower right is the Radio frequency systems. All of these systems connected to land lines (fiber-optics, ISDN, etc) to perform any hardwired Database connections they are computer operated and act as gateways to isolated computer networks and can provide web access on the Internet. (if need be encrypted). A sample of the types of commercial businesses that would utilize each type of communication technology has been listed under their respective areas. This is in no way intended to represent all the possible commercial uses as the PFN will ultimately be on every piece of equipment.

In the middle right the rest of the 300 system is illustrated by the large computer stations manned. The one with L.G.A.&C. SYS. Stands for Local Government, Access & Control system. And the one labeled N.G.A. & C. SYS. Stands for National Government Access & Control System. In all communication areas and in the extreme lower right hand corner is satellite and a satellite dish connected to land base phone lines. This is to show that the national registry can provide complete critical TRACS control and FACT data to it's entire geographic area and is also capable of transferring Data internationally at the proper authorities desecration. Some of the proper government agencies are also listed but all government agencies could access and create data as could even the general citizenry for total accountability. of course specific data on individuals would not be obtainable or used unless authorized by the individual or as the result of some legal action as is the present case. Any such misuse or access would be reported to the individual and alert the authorities and the person violating a persons individual privacy would be criminally charged and subject to civil action as would any agency or commercial storage area. This means total accountability. This system has been designed to respect individual privacy. Which means that the individual has to release any licensed storage facility public or private no matter if they provide the service free of charge or not. However, Gross non descriptive data can be sold and discriminated as long as an individual can not be identified or compromised in life the pocket and the pursuit of happiness. The exceptions to this rule is that if through the course of operation a piece of machinery they endanger others (public Safety) then the proper authorities and commercial insurance agencies can access these personal records. However an individual can give permission electronically in real-time if so desired with a signature of a PIN number for consent or a verbal voice recognition or the fingerprint steering wheel, video snap shot, or a signature on an electronic pad or the iris reader and voice recognition or any combination of the above. Free service can be provided and personal data can be acquired and used if this is agreeable to the individual

Statement: This details equipment PFNS and also how they can be used with people. All the modalities are using the same belt system to depict the personal tracking and PFN accountable telemetry remote management and control personal product offerings. At the end of the figure descriptions there will be some product break outs and names for the personal PFN commercial

development and focus of this application. However, this is not all the products variations and configurations nor is it all the names the products will be marketed under.

Another application involves Cellular telephone communication. This system can employ the same collars belts and bracelets, but they will transmit the location data via the cellular phone system. In some incidences these will be closed systems and in other cases they will be open to public access. Cost will be defrayed by commercial advertising supporting the network tracking software and providing security software protocols for the general public to use the two way paging system. These systems will also employ the same kind of belts and bracelets and utilize 2-way paging to communicate packets of GPS NEMA protocol data to specific E-mail address where subscribers or commercial advertisers operate a web site with the soft ware to provide secure individual tracking for a commercial operation-----While for the most part these systems will utilize some form of GPS NEMA protocol for obtaining tracking data and transmitting it to another remote location , this technology also plans to utilize cellular triangulation for both cellular phones and pager systems to improve indoor tracking by basing the triangulated data from powerful local transceivers with fixed positional grids and running a triangulated algorithm to provide more exact and continuous locating ability.

Note : The TRAC/ FACT program and system mentioned in this last figure will be in more detail in the formal application and is already incorporated in this application as it is detailed in all the prior PFN applications . TRAC means Trusted Remote Activity Controller and FACT means Federal Access Control Technology. These are the corner stones for providing accountable remote management and control for society and it's institutions both in equipment PFNs and in these Personal PFNs

Figure 6

This figure is a product list and a check list of suggested modes to carry out any particular product offering. Keeping this in mind, any combination of technologies and modalities covered here and in all the related PFN Applications are possible modalities to construct product offerings as determined by any licensing.

Agreements created to commercialize and exploit these PFN patents and product offerings; also the product names here are considered proprietary in every venue and market including any WWW or Internet Address, or web page or listing or search engine.

NOTE: specific names set aside for the radio repeater or digipeater technology are as follows: "TOT SPOT", "HUNT WELL," "PET POINTER", FRIEND FINDER, ". This is not to say that other PFN technology like pager or wireless telephony may not create products bearing this name, but it will be solely reliant on the discretion of the licensing authority of Kline and Walker LLC.

NOTE: The Paging and cellular phone technologies have “FAMILY FINDER”, “SKI SEARCHER”, and “PATIENT PAL”, TRAC A CON(EITHER . COM OR . GOV OR LOCAL POLICE AUTHORITY. Once again these names may use any of the technologies detailed in this application or any of the related patent application, at the discretion of the licensing authority of Kline and Walker LLC. The rest of figure six is a list of areas to create market product and names from listing activity controls, sensor systems, and functions.

Short Description

TOT SPOT is a tracking device to a send a child’s geographic position to a computer screen organizers palm tops (with wired and wireless modems) or a TV using any of the modalities detailed in the PFN technology through out this application and the related filings.

HUNT WELL is a location system that provides map placement on a hand held wireless LCD communicator screen of no shoot trail markers e.g. (locations of other hunters wearing or carrying location equipment and supporting a beacon, houses or farms, supporting a trail marker beacon that appear on the screen, before shooting. This system and the complete product construction may use any of the modalities in the PFN technology to provide many different qualities and properties to this product. People can see hunters in area and hunters can see all beacon PFNS or locating transmitting devices (FCC and Tobacco and Fire arms should set special Frequency for this application and PFN beacon transmitters should be supplied to schools, public gathering places etc. roads and known populated areas by the fish and game people in all the states) These systems could uses solar cells and wind generators to provide powered where land lines or batteries will not be a total solution)

PET POINTER, of course, can be used with other animals (application specific attachments to the animal a consideration of course). But is basically a way to track pets on a computer or TV screen or palm top or GPS or Cellular Phone or pager system if they support a display and a map program any are capable of receiving another’s device location transmission signal, through any of the modalities detailed in the PFN technology and these devices are all considered to fall with in the nature and scope of the invention (personal PFN and tracking devices).

FRIEND FINDER or FAMILY FINDER or PEOPLE LOCATOR are all personal tracking devices to track people through any of the technologies many variations detailed for the PFN systems. They may be belt systems, purses, brief cases, concealed in personal valuables that normally accompany the person. These name are being applied to locating system for this purpose. Other names like

LOST AND FINDER or BREAD CRUM BOX or CRIME TRAIL BOX or THEIF CATCHER KIT are reserved for personal possessions that are placed in to a lockable container that will give it’s location remotely once stolen either activated automatically or by the owner or the

police. The systems used here can also be any of the PFN modalities to be determined by practicality . It might just as well be a secluded apparatus that is hidden in a valuable or camouflaged. (These systems can be outfitted with accountable recording equipment all part of this technology's PFN systems.

5 TRAC A CON . COM OR GOV this system can use the any of the technologies detailed in the PFN technologies but is a operated in conjunction with law enforcement and has a protocol involving medical expertise, behavior expertise and law enforcement expertise as well as educators and counseling for the public and the parolee or conditionally released. RF systems used for this purpose might well include companies like LoJack and there RF systems.

10 SKI SEARCHER OR (SKI SEEKER) OR HITCH HIKER OR CAMP TRACKER this system may also use any of the modalities in these PFN applications and it basically is a way to track skiers on the slopes or cross country and for them to call for help from the ski patrol operators of the ski lodge or the authorities. Can be a limited range and a system operated by the lodge or tracked by the lodge's monitoring system and personally owned transmitting systems (personal tracking and
15 PFNS)using commercial communication providers that are IP linked or phone linked to the ski lodge. Ski patrol location system monitors all incoming sources and places ESN objects on the map as skiers. (software program monitoring all modalities of transmission can be used for other applications as well) converged is accomplished by a multitasking communication operating software program in the monitoring computer at the e.g. lodge or ski patrol headquarters and using the computers Com Ports
20 for RF and IP phone connections for pager and phone or even monitoring through a TV cable or Satellite provider. (Satellite and Wireless systems will prove more reliable with severe weather considerations).

 SWIM SEARCHER OR (SWIM SEEKER) this is a tracking system that is waterproof – All
25 PFNs are to be in protective containment but this application is of course made water proof, also the power section has a solar cell so that when the swimmer has to float the solar cell can be exposed to the sun to recharge the power source. These systems are made water dynamic or stream line and can use any of the modalities.

 PASSENGER POINTER or BOAT BUDDY this system will be placed in seat cushions life
30 preservers or given to passengers onboard boats, buses, subways, trams, trains and planes to be attached to their person as a beacon to rescuers in the event of a mishap in travel. The system is normally inactive and can be activated automatically or by rescuers or the individual carrier— (protocols to determine best procedures FAA NTSB DOT) (FAA is not going to want transmission in flight. (FAA and FCC will determine frequencies used so as not to compete with black box signal in air travel or accountable PFNs on board).

PATIENT PAL or HEALTH WATCH this system and accessory arrays track physical location time and date of application specific commands provides an interface platform of monitoring equipment , for remote telemetry and activity controls for medication actuators aggressive remote control, while providing Accountability systems including audio and video, etc as well as a record of command received prescribed therapy in two locations at least. Also a special automated 911 message can be individually programmed by medical experts or real-time voice communication can take place for the mentally lucid. All the systems are augment incrementally for patient condition and accessories are prescribed as needed.

STATEMENT BY INVENTOR AND ASSIGNEES

These product names and descriptions are listed as first products to market as envisioned by the inventor Richard C Walker. The names are considered proprietary by Kline and Walker LLC. Once again, they are not all the areas this technology can be applied to, to create product nor are all the possible products named here or listed .

FIGURE 7

The equipment interface of Personal and equipment PFN system

What PFN/TRAC is and what it means to the FCC

The purpose of the PFN/TRAC System is to organize wireless communications with automated vehicle controls and Human-Machine Interfacing (HMI) in an accountable and manageable architecture for government, the public, the insurance industry, the electronic payment industry and our legal system. There is no doubt that humanity is evolving to a future of more automation, remote control and robotics, which will require traceable, reliable and secure communications to provide accountability. A primary example is the DOT In-Vehicle Initiative IVI-OEM's accident avoidance systems. One great advancement is that vehicle speed can now be controlled to avoid a front-end collision. This seemingly benign activity is in actuality a serious action in which an automated system takes aggressive control of the vehicle, and for a short period of time, becomes the "driver" of the vehicle, replacing the duly licensed and insured human driver. This "machine action" presents totally new challenges in the legal area in terms of liability for such actions, and it will not be long before systems are developed for law enforcement, which can take full control of a vehicle being used in an unauthorized or unsafe manner. It is for this reason an organizational platform needs to be in place now with assigned frequencies, protocols, codes, rules and laws. The PFN/TRAC System was created to provide this structure for mobile vehicle platforms and for stationary equipment as well and for human machine interaction. It is a way to organize and standardize on a protected, accountable architecture, along with the appropriate plug and play interfaces as part of a remote monitoring and management system using an accountable machine messaging net work.

Because there is an immediate need for development in the mobile area, we are presenting a summary of our work currently in progress with the Department Of Transportation as an example of some applied PFN/TRAC applications. additionally, we will coordinate with the FCC in developing the PFN/TRAC System to structure wired and wireless communications for both mobile , stationary and human machine interfacing. This standardization effort would encompass Internet Protocol (IP) integration for government agencies that would use repositories of information, i.e., large databases and database management systems resident on government, public and commercial servers and accessible through commercial service providers. In a parallel, we are generating interest with OEM electronics manufacturers and organizations like CEMA for the PFN/TRAC System. These next pages detail our efforts to coordinate with the Federal Communications Commission. We have a cost-effective approach for all government agencies to review and assess the value of the PFN/TRAC System. PFN/TRAC technology enables government agencies to facilitate and coordination, integration and management of the disparate and sometimes conflicting technologies of communications, computers, machine control, and Human-Machine Interfacing (HMI). As systems evolve towards increased automation and more distributed control and complexity, and use data and technology in larger numbers of public and private entities, issues of security, accountability, and liability are also intensified. The issue of who is responsible or "at fault" when systems fail will be more difficult to resolve. New "accountable" systems that respect everyone's rights must be the plan for the future. The PFN/TRAC System is the right future for responsible and accountable machine management in our society.

FIGURE 8

This is basically and invehicle communications router. Figure 8 describes a multi-band / multi-functional transceiver interface and the scanning function integrated with the PFN TRAC/FACT controller which is integrated as a system on a Chip or SOC. On the left, various communication links are combined and interfaced to the PFN/TRAC System, including the recent FCC allocated DSRC frequencies and Blue tooth protocols for mobile applications. The Primary Focal Node (PFN) is protected both physically and electrically via a containment structure, which also houses the Trusted Remote Activity Controller or TRAC. FACT stands for Federal Access and Control Technology. This technology implements industry/government standardized algorithms and protocols that provide the data storage, accountability, reliability and security functions needed for "trusted" operation.

TRAC's "trusted" operations are to be performed from this consolidated management center with a versatile communication interface and routing function . The operations primary objective is to assist accountably, in real-time vehicle activities to better serve: public safety and national security while respecting an individual's civil rights. To achieve this objective the system initially manages and routes communication systems with respect to driver capability and driving demands and

activities. Government, Industry, The Insurance Industry and The Public have to participate in the critical issues of a more technically filled life of remote control, robotics and the necessary data acquisition needed for accountability . These issues and actions have to be addressed, approved and accepted by all parties for the PFN/TRAC management system to be truly “TRUSTED”. But the time is now and the need is great for a local management and communication routing system to coordinate and organize the rapid technical advancements that are continually flooding the various markets virtually blind to their cross environment use and impact. A government lead here is important, and this system can be a crucial first step in recognizing, organizing and guiding responsibly these commercial and technical developments safely in a free society like The United States. PFN/TRAC has been designed to assist government maintain this free society with free enterprise in a commercially efficient but responsible manner with greater real-time or near real-time service capabilities, safety and quality of life.

Figure 8

PFN/TRAC Scanner In Depth Description

Communications, computers, and machine controls are merging their components and capabilities to perform more remote control and robotics in every field, but none more rapid and influential to public safety than in the transportation industry. Figure “8” depicts the properties needed to have a central universal local interface that can perform accountable machine messaging and manage traceable wireless communication routing.

The PFN/TRAC/FACT system has been created from a deep look into the future of vehicular travel and wireless communication to obtain the correct components and structure to assist in interagency coordination and management through a network of accountable nodes (short for Primary Focal Node or PFN) located on each vehicle. These nodes or PFNS primary gateways perform optimal local routing to the various wireless systems through remote wireless IP gateways as part of an inexpensive national machine messaging network or matrix. So that the proper governing agencies can perform their respective services and duties more efficiently, with accountability for the public in real-time or near real-time. Figure “8” serves to illustrate the versatile organizational platform to accomplish and manage growth of these merging technologies in a publicly safe and commercially sound manner.

The Figure depicts a local vehicle communications control center that will monitor and route all wireless communications with special priority given to the Dedicated Short Range Communications (DSRC) for the Intelligent Transportation Services. This is accomplished through operational vehicle programs, utilizing the recent FCC allocation of a 75 megahertz spectrum between 5.850-5.925 GHz for mobile applications. The PFN/TRAC scanning function will manage multiple-frequency use and routing, which can help to coordinate communication frequency changes to

accommodate the present International Interactive Highway (IH) systems across the continent. Additionally, this virtual mobile network of machine messaging can be programmed to communicate to each mobile node or PFN in real-time the best data pathways for the most efficient use of wireless transmission options onboard. This kind of management can also assist the use and reuse capacity of a specific frequency from the assigned 75 MHz for mobile applications, including prioritizing emergency communication messaging. This way local geographic areas can control their noise and further complete and organize enhanced 911 connections, including processing DSRC messaging to the best local access of NENA numbers either stored locally or remotely provided to the PFN/TRAC scanning management interface. DSRC coverage will be enhanced by being retransmitted through longer range communication systems onboard like cellular phones, etc. This would be of special value where DSRC service is inadequate to reach a wireless IP gateway or specific wireless phone node or land line connection. Even though the primary broadcast might be from a short range communication system like a DSRC only unit; it will have long distance routing capabilities through the virtual mobile matrix or web created by all the PFN/TRAC Systems working on each vehicle and interfacing short range communication with long range systems onboard.

Standards Notes:

1. A Further interagency standards effort is required to define hardware and software architectures parameters: that will provide modular and programmable connections and interfaces as an excepted universal plug, play, and program modality to accommodate versatile manufacturing, including forward and backward engineering concerns for all the merging technologies.

2. Additionally, as part of the enhanced 911 initiative a communication standard is needed to provide a generic data conversion algorithm to transcribe and process emergency messages from and through the various available wireless protocols. (This is further detailed in the PFN/TRAC writings)

3A

The various communication systems listed on the left of figure "A" under communication links include: radio frequencies (DSRC) dedicated communication systems for special traffic alerts or automated driving and or law enforcement which additionally includes light or sound communication systems for law enforcement traffic control tools to perform public safety remote control by Remotely Piloting Vehicles through (RPV tools); Other communication links are: GPS, satellite, cellular telephone and paging systems.

Question : Why so many interfaced wireless possibilities in a single vehicle control Center?

Answers: To provide a manageable Universal Plug, Play, Program versatility- a skeleton for interoperability for consumer options and use.

5

To provide local organization, management and accountability for future technical advancements and legacy vehicle and equipment upgrades.

10

To interface carryon devices with smart vehicle operations and driver activities. (safer cross environment equipment use and accountability)

To provide back up communication links to fail safe remote control functions.

15

To provide communication versatility in the mobile or vehicle setting.

20

To create mobile communication repeating/digipeating networks for weaker transceivers to be interfaced with more powerful systems and provide future enhanced wireless systems for personal com-links

To enhance the 911 system to cover low power personal tracking devices i.e. for lost children, RC for patient care and the conditionally free or guarded individuals.

25

To provide an organized, local and national accountable virtual mobile communication and machine messaging network.

To maintain commercial versatility and freedom in the market place.

30

To coordinate the safe use of the various technical devices interfaced in real-time for public safety.

To help manage frequency reuse through local automated routing to control over taxing frequencies and controlling noise.

35

To match in real-time the best communication protocol and route for each communication application.

To provide traceable pathways to authenticate remote commands and accountably store essential event data locally and remotely.

To ultimately provide broad band wireless access to the last foot if need be --anywhere-- for everyone.

Obviously, this list will go on and on- The point being that all the future technical advancements and applications will have an organized, accountable, management structure in place for remote, messaging, control, and robotics. This way each agency can write protocols, rules, regulations, codes, and law for real-time- monitoring and management involving their duty realms. The system will provide operational and statistical data back to the proper agency, manufacturer, insurance carrier and the general public as protocols prescribe. Personal, private or legally sensitive data will be protected and encrypted requiring personal release to access it. Additionally, commercial service providers will have traceable communications pathways to assess fees. And this will be monitored in real-time by FCC computer system and algorithms if determined appropriate and necessary.)

A 3rd standards point for FCC consideration in the future; might be to have an ongoing process in place to manage and allocate use of automated multi-frequency scanners that are integrated activity controllers and perform local wireless routing like this purposed PFN/TRAC System. This ongoing process will be needed to provide other agencies the capability to perform there duties in real time to better serve the public and to evaluate their functions. Additionally, commercial practices will need accountable safe guards for the FCC to insure that the best interest of the public is being served in the proper use of the airwaves and that the appropriate fees are being fairly charged. The PFN/TRAC System is an accountable local focus center that is needed and needed sooner rather than later in the planning process of all government agencies. It can assist in good governance, guidance and management for all the merging technologies of telematics and in vehicle driver assist systems and it opens the markets up in a safe and responsible manner.

A 4th standards point: Below the left column there is a box called Remote Memory and IP connections. This is not related to the onboard PFN/TRAC System, but a part of the entire accountable machine messaging network, which will require another standards review for wireless gateways, routing and Internet Protocols involving data management and storage for traceable commands, authentication, and accountability to assign the proper codes, rules, regulations, and law.

The reason the architecture calls for paging interfaces/connections is to provide a spectrum of progressive economic communication choices through the same plug and play trusted control center for various vehicle models and needs. This will allow for greater plus less expensive communication products to be offered to the public and continue to stimulate and organize commercial development in each of the wireless venues. As always the FCC and other concerned governing agencies (in this case DOT) will determine any application specific dedication or restriction on wireless service use and purpose. Regardless of this fact, if the device is to be used in the vehicle, while the vehicle is running, it should be interfaced through the central operations controller (TRAC). Because, TRAC is monitoring equipment and vehicle operation as well as, driver condition and response to assist in optimum driving by managing these extra activities with respect to driver distraction and vehicle operation. Driver sensing can be non invasive personal PFN technology and accomplished through in vehicle short range wireless communications like DSRC or Blue Tooth or wired connections in the seat steering wheel and video and audio monitors

In Figure 8, the box to the right of the communication box labeled "Scan Function" continually monitors the wireless communication system to process data in a priority protocol (forthcoming). It can send a verbal hold message for voice communications. It will store (alpha/numeric) data messages in available data storage per onboard device inventory and/or carryon equipment interfaced; until safe driving parameters in the operational vehicle algorithm have been achieved. Then the message would be displayed in a heads up display set to real-time personal attention chunking levels as determined by the driving algorithm monitoring vehicle operation, driver attention, driver action and alertness. Voice recognition algorithms running in TRAC would allow for the driver to interact in this process. Voice communications would be monitored by the same operational driving program and conversations would be interrupted and progressed within safe operational driving parameters, where driver interaction was a factor in safe vehicle performance. The communication scanning algorithm would initially relegate in real time communications relevant to the safe operation of the vehicle and the condition of the occupants (i.e. DSRC driver alerts or warnings and automated highway instruction systems for vehicle response and or direct commands from authenticated law enforcement, etc.). This would be a main part of any vehicle operating algorithm controlling all devices interfaced and all activity controls under the central management system (PFN/TRAC). The second priority communication processed from any source would be to transmit or process and retransmit emergency message protocols, that were received during a first priority driving function. This crucial data would be stored in an immediate recall memory for near real-time delivery and preserved in permanent event storage. Once again the actual protocols, rules, code, regulation and law would be part of a standards effort with government, industry and public approval as an intricate part of this process. (a necessary step to create a

TRUSTED system for all) The PFN/TRAC/FACT System box is shown here as the box to the right. It is the processor/controller/computer/(SOC) component responsible for all the functions running all the programs detailed to the right of this box. The programs being run by this integrated system on the right show the operation and management of communications described earlier along with the vehicle activity controls and HMI concerns. All these activities will have feed back sensors for accountability. The other resident programs provide for electronic payment devices, like card swipes and financial transaction software with PGP and other forms of encryption including other high security encryption technologies like (DES as required for Military & Embassies etc.) . Other security programs will involve authentication and identification programs with the appropriate interfaces and connected input sensors and devices.

Not mentioned earlier PFN/TRAC/FACT system performs an electronic vehicle component inventory in real-time when the system boots up i.e.(vehicle ignition is one start to this process). Additionally, any service work component replaced will trigger tamper and secure sensors for essential moving safety components; (triggering trouble codes) requiring new components to be logged though scan sensors (bar code or key punched) into PFN/TRAC's near real-time report memory storage. Report protocols determined by governing authorities e.g. like DOT. will be provided essential public safety data e.g. (sensor records wheel removal PFN/TRAC requests--tire replacement ID information lot No., service company code No., or worker ID, or personal SSN performing the service function with a Uniform Code of Work Performed Number. At the bottom of the programs listed on the right is the automated environmental onboard data OBD sensing program for the automated EPA data collection on the impact of a particular vehicle on the environment and or on the nation's highway infrastructure. DOE also can use this automated wireless monitoring to assess fuel use or alternative energy use and any impact on natural resources. Each agency will have their own PFN/TRAC running programs to contact the appropriate IP gateways and application specific wireless download protocols they require. Or use commercial servers with the data transmitted in a transparent form until it reaches the correct agency their application level and or key code encrypted software. (application specific)

FIGURE 9

Figure 9 illustrates an example of how each subsystem would communicate within a personal PFN tracking architecture. The subsystems would form a large "virtual" network capable of determining a lost child's position, independent of any limitations within each subsystem, such as in a limited range RF transceiver, a low bandwidth paging frequency system or cellular system. A distributed architecture which locates the multi-band scan function in each vehicle, allows any vehicle to receive and/or relay a distress message via FACT protocol. FACT (prepared in this case with the Justice Department, FBI and local law enforcement protocol involving UCR and IBRS specialist)

would help define how a coded message with ID and location information should best be formatted and sent to the appropriate monitoring authority through the best communication route available at any particular time. This would be completed with the FCC and industry of course. Ideally, this application would be tied into local and national law enforcement monitoring and management centers that receive the information in a standardized format from various sources. These sources include commercial servers, government wireless gateways and privately owned wireless intranets that have Internet connections.

This example is used to illustrate the advantages of a PFN/TRAC system's repeating capability and communications routing functions when applied to various wireless systems. The advantage of a distributed architecture which distributes communications functionality throughout the vehicle platform allows longer distance coverage by using lower power transmitters both within the vehicles themselves and on the individual being tracked. As stated earlier, to achieve this level of interoperability, there needs to be an organized effort to standardize interfaces, protocols and algorithms used by the various wireless systems, suppliers and device suppliers that use such an architecture. If this level of standardization and interoperability were available today, present vehicle platforms could take advantage now of the architecture. This approach to systems integration is an absolute necessity in the trusted, accountable and highly automated remote control and robotics systems of the future. PFN/TRAC has been planned using Science Technology and Society (STS) principles with an in-depth analysis for the future of communication, computers and machine use, including Human Machine Interfacing (HMI) and the accountability needed for shared control scenarios.

In addition, dedicated frequencies and routing protocols need to be reserved for emergency communications. These com-links would use 911 wireless emergency services including NENA numbers with appropriate IP connections. Obviously, efforts have started in this area with the implementation of emergency cellular phone dial-ups and vehicle wireless servers including the On Star program, the Mayday program and more recently the Ford Qual Comms Wing cast program as well as Daimler / Chrysler's TeleAid program with Erricson. PFN/TRAC is designed to interface these systems and provide additional organization and integration locally and provide accountability on board processing for remote control, robotics and integrated communication routing.

PFN/TRAC functions is in a secured environment, which is protected physically, electrically, and legally. The architecture was expressly developed for all of society, government agencies and industry to freely function more harmoniously with the merging of technologies.

FIGURE 10

This figure names the benefit to a Transportation department like DOT for a system matrix like what is illustrated in figure eleven for the PFN/TRAC System. These same local PFN/TRAC units in vehicle and equipment could support many government intranets.

FIGURE 11

The figure shows the Earth. All the vehicle platforms are displayed in this global diagram. Every mobile platform has a Primary Focal Node or PFN. The PFN sends and receives messages and controls electronic devices on the vehicle through a Trusted Remote Activity Controller- TRAC. TRAC additionally, records these data streams in a local event recorder to provide accountability for remote and automated control functions and their command strings. FACT stands for Federal Access and Control Technology. It is combined of programming and protocols that run in the PFN/TRAC System on board the vehicle and through out the machine messaging network. PFN/TRAC improves public Safety and respects the individual's right to privacy and freedom of movement.

On the left and bottom are the four basic forms of transportation; rail, sea, roadways and aviation. In this figure they are represented by a person working at a computer terminal. These computer terminals on the left and the right are isolated intranets. They are networked together in a national DOT mass data management and storage system- (PFN/TRAC System™ with FACT)

On the right side of the diagram are possible related government agencies and commercial intranets that additionally can be linked through Internet Protocols IP inexpensively and protected with encryption, e.g., Law enforcement, Haz-mat EPA, NOAA, many local Interactive highway systems, etc. Additionally, commercial servers can be licensed like "OnStar" and their planned Mayday program and further run FACT programming and PFN/TRAC protocols to perform accountable aggressive remote control with law enforcement, receiving PFN/TRAC evidence grade data, as well as transparent statistical data for public posting and research.

PFN/TRAC attributes:

- Manage carry on electronic devices with the driving task.
- Thwart and identify electrical component theft and vehicle theft.
- End high speed chases and manage deficient driving.
- Remote, robotics & HMI unilateral accountability (avoidance sys.).
- PFN/TRAC is designed for existing hard/software into the future.
- The system provides real time help and data to the driving public.
- More efficient use of government and private, resources and staff.
- Easier monitoring for proper vehicle operation and working order.
- Highways that are more interactive and efficient with the public.

The list can go on and on, but most important is that we created a machine management system for mindful machines in our future. PFN/TRAC has been created to organize our present technology and manage the new merging technologies for society and our institutions. PFN/TRAC writings detail out a progressive development for this process. However, it starts with the Primary Focal Node and Trusted Remote Activity Controller locally. The local PFN/TRAC unit brings accountability to present HMI technology, while assisting driver operation in a progressive manner to eliminate collisions now and far into our future of robotics.

FIGURE 12

The 12th figure illustrates an interactive intersection where three vehicles are approaching and their PFN/TRAC Systems are communicating with the local traffic control system (1201), which has video cameras and road sensors as well as a remote controlled traffic signal. The PFNS in all the vehicles are additionally communicating with each other controlled through the local PFN/TRAC system controlling the traffic control device 1201. Additionally, the personal PFNS 1202 the gentleman walking and 1203 the lady cycling are also communicating to the vehicle PFNS and the traffic control device 1201. Each PFN has an event recorder and is capable of reporting back to the local highway control center via digitpeating (repeating) through PFN/TRAC Systems or directly to a wireless Intranet Protocol gateway to land lines.

The In Vehicle System below is the PFN/TRAC dash lock up unit and the universal bus. From the left the universal bus a black line and green shadow services the driver interface area including displays, alerts, the instrument panel, and provides sensing for the driver performing steering, braking and acceleration. Audio and video as well as other sensor arrays are additional possibilities.

All carry on electronic devices, e.g., cellular phones, etc. interface through the universal electrical bus inside the protected lock box. Any connectors are to be a universal standard with new cords made for older units. Wireless systems like Blue tooth could also interface carryon devices through the RF scanner section. Additionally, all vehicle electrical controls, sensors and electrical devices connect to the universal bus depicted as a black line with green shadow to the right. Presently cars have three speed buses low medium and high speed A,B,C for the CAN bus system. As time goes on telematics and computer controls will merge their bus system with the new 42 volt vehicle systems differently in future cars. But either way proper interfacing allows this protected Primary Focal Node with Trusted Remote Activity Controller or PFN/TRAC system to manage and monitor all remote and automated controls and device functions. The commands and the resulting activities are recorded and reported remotely if an event meets the application specific program criteria. The data is sent to the appropriate wireless gateway and IP connection. Complex software algorithms beginning with accident avoidance and anti-theft shut downs and extending to complete

robotics travel are planned for including a Federal Access and Control Technology termed FACT. This programming improves public safety and national security, while respecting an individuals rights to privacy and freedom of movement. PFN/TRAC accountable management is needed for the shared control scenarios planned for future vehicles.

5 The lower section of the page is the Remote Monitoring and management PFN/TRAC/FACT system. The illustrations show the wireless gateways and Internet Protocol connections along with the mass data management and storage facilities. One important note is that FACT programming is reserved for governmental use under strict protocols and TRAC allows for Internet connections to any wireless gateway or server via radio or paging frequencies, or wireless Telephony protocols. (a
10 necessary standards effort) FACT will be handled by licensed commercial systems, but be transparent and encrypted until it reaches the correct agency, application program level and key code or personal or private encryption.

15 **Figures 13-14-15**

 These three figures are described as part of a project proposal to the Transportation Research boards National Academy of Sciences I DEA Program to provide acceptable accountability to remote and automatd control in vehicles and to provide an ongoing driver education system.

20 **Summary of Concept and Application:**

 This project will create two interrelated product prototypes and explore the acceptable use of event recordings in and out of the vehicle platform. Additionally, the project will provide survey results and recommendations for insurance product changes and data handling relative to personal, public, and legal use of event recordings.

25 There are two products: One product is an In-Vehicle Driver Resource Center that assists in driving functions. For this academy project, the resource center is limited to monitoring, reporting and recording one exemplary lesson. (that of maintaining safe driving distances around large vehicle platforms)

 The second product will be an Interactive Driver Information Web Site and Download Center,
30 as part of an ongoing real-time driver education and communication tool for DOT'S, DMVS, manufacturing and insurance companies to advise, assess and assist drivers in equipment operations. For this project the In-Vehicle Resource Center and Web-Based Driver Education Tutor will be linked by wired downloads or wireless communications. This project effort will be limited to giving and assessing two exemplary test lessons involving safe and proper distance: 1) for driving heavy trucks,
35 and 2) for driving around heavy trucks. The lessons consist of maintaining proper following distance

during normal driving, and maintaining proper distance while passing large trucks on multiple lane highways with traffic moving in the same direction. (This lesson objective: is to avoid truck cut off situations by teaching respect for large vehicle inertia). These cognitive lessons will initially be conducted on the web-based tutor. Additionally, there will be control groups not receiving any such training in both driver categories (heavy truck drivers and light vehicle drivers). The trained test subjects and control group will be evaluated over time and their performances will be recorded. Driver performance will be monitored by the in vehicle recording system for a driver's ability to maintain proper distances when following and performing passing maneuvers around large trucks.

A first level of passive driver assistance will be used in this project. This will be a driver warning only, with no active automated vehicle control. An activated driver alert will be considered a driver error for the learned lesson. This is done to delineate learned driver behavior in comparison to the functionality of a simple driver alert device. Also, important to the development of any driver assist system is understanding the human factor that takes place with any new technology. The changing driver performance from first learning and adapting to an assist system, and then later becoming complacent and dangerously dependent on the system. So additionally, evaluated in this project will be the learned use of the assist device and dependency on its presents.

Test subjects will be commercial light vehicle delivery drivers and commercial heavy truck drivers. These groups were chosen because they are more likely to return to natural reflexive driving behavior due to their regular daily workload. However, an additional cross section or control group will be tested as well for comparison purposes. In the conclusions of the study, all results will be compared to existing estimated statistics. Nine in-vehicle units are planned for in the study, with distance and vehicle ID systems, GPS, time, date and location, along with driver warning light, audio alert and event recorders.

Summary of Project Concept and Impact on Practice:

Will be to create a basic in vehicle and Internet Driver Resource component via an accountable in vehicle telematic and CAN bus gateway node from the PFN/TRAC Systems architecture that can be connected to an auto tutor and information center hosted on the Internet.

Concept and Innovation:

This involves combining two basic innovations of the PFN/TRAC System™. One product is the primary vehicle electrical/electronics E/E gateway interface node with communication link, GPS, distance sensing system, and event recorder. This first product will be part of the accountable In Vehicle Driver Resource module that ultimately will be as responsible for safe driving as the human driver. The second product is an on line Auto Tutor and Driver Information Web Site / down load center, which will function as an interactive web site with the In Vehicle Driver Resource Center. It is hypothesized that in the changing world of transportation with Smart Cars and Interactive highways

that Human Machine interfacing will change drastically and a continual equipment operational education tool will be of great service to coordinate human and machine optimum and safe movement.

Presently, the purpose of these innovations and this study is to socially and commercially advance automated driver assist systems through providing acceptable accountability. Acceptable accountability will advance these technologies from the exhibition floor to real life driving situations. Some additional objectives of this study are to evaluate human driving performance with and without initial driver education, and with and with out remedial driver education lessons. For this study a specific set of safe driving practices in and around large vehicle platforms will form the basis of the test lessons. The project will also, try to evaluate the importance of an In Vehicle Driver Resource Center to increase understanding and proper use of these new driver assist technologies. Additionally, this study will explore an expanded use of the in vehicle system as a protected E/E interface architecture for accountable human/equipment control scenarios. Finally, but equally important this project and study will explore the varied and acceptable uses and practices of event recordings for all vehicle platforms.

(b) Potential Impact and Payoff for Practice:

The ultimate payoff is improved public safety in surface transportation through accountable automated technology. However, equally important for SAE, OEMS, Tier One Supply Line Manufacturers The Insurance Industry and DOT'S IVI program for trucks/busses and cars is a quicker to market commercialization of the present accident avoidance systems involving human machine interoperability of vehicle driving controls, by:

Creating a continual learning instrument and remedial lesson program for all drivers from age sixteen to ninety nine (to include operation of all vehicle platforms).

Providing a modality to update and train drivers on new vehicle developments, accessory use and transportation infrastructure changes.

Creating a trusted driving assessment tool and assistant for drivers and their vehicles.

Providing communication and coordination between drivers their automated driver assist system, the manufacturers and governing agencies like DOT to improve highway safety and to coordinate vehicle movement.

Providing an architecture to standardize development of in vehicle driver assist systems to maintain cradle to grave accountability for real life driving events for evaluation and improvement.

Helping to resolve industry, government, legal / insurance issues, and create public trust to commercialize accountable driver assist systems more rapidly within constitutional guidelines.

Providing the government a physical structure and technical architecture to write law and regulations regarding the use and protection of an accountable in vehicle driving operations center that is an accountable dedicated and regulated area.

Providing real-time statistical data on equipment, hazards and roadway warnings for public safety notification on the Internet/media public safety alerts,

Performing in the future accountable communications to deliver real-time driver information and or machine messaging data via the In Vehicle Driving resource and operations center.

Note: This is but a few ultimate payoffs possible by combining these two unique project prototypes to provide trusted accountable driving information and management for the future automated enhancements destined to advance human machine interfacing in vehicle platforms.

Product Transfer and Implementation:

These two academy project products will be constructed in an innovative manner from commercial off the shelf technology (COTS) products to more quickly prove feasibility and help to efficiently prepare product for pre-production prototypes in the automotive and truck industries. Ultimately, proven interfaced systems will be reduced to a single piece of silicon supporting a number of integrated systems. These will be Systems On a Chip or (SOC) technology which will economize size, cost, power requirements and make it easier to protect, program and replace components in the future.

The Three In Vehicle Component Approaches Under Consideration:

Possible projected implementation is to work in a collaborative effort with the Dear Born Group and utilize their Gryphon Box as the central in vehicle processor, data recorder, CAN bus interface and wireless interface to complete an Internet connection for this project. The Gryphon Box CAN body bus interface should support data processing of either the Delphi Forewarn distance sensing products, DENSO, SICK or the BOSCH distance, infrared, ultrasonic, radar, or laser sensor devices. The Gryphon Box and other DG Group products will handle J1850, J1939, J1708 and most all the other commercial vehicle interfaces. Hopefully, they can handle stereo video distance and recognition technologies at the local vehicle level if there is a need). Also, the Gryphon Box has a GPS receiver that can give time location, and speed data coupled with any recovered driver performance data for the learned lessons. Additionally, the Gryphon box has software packages that can be programmed for specific R & D engineering problems making it a versatile research interface tool for vehicle electronics to computer applications.

Additionally, we plan to explore the possibility of using the Delphi Forewarn technology and approach their R&D efforts with GM and NHITSA to collaborate on the in vehicle and distance sensing portion of this project. Other such commercial contacts are being investigated presently.

This implementation is designed to develop an immediate working relationship with automotive manufacturing, relevant supply line R&D operations), government and support organizations to find common ground for the commercial deployment of this accountable accident avoidance approach. This approach will also place these project prototypes in a more visible commercial arena and increase the likely hood of examination and utilization in any future transportation practice.

Possible project implementation is the use of standard commercial interface products to access either the CAN, LIN or LAN bus applications necessary to interface with a laptop or organizer processor, hard drive including flash memory storage and complete the wireless connection through PCMCIA cellular complete card to handle the in vehicle requirements of an accountable interface gateway node and local driver resource center. The same sensing systems as above would be used through the COTS Interface products to complete the distance sensing and their would be a (COTS) GPS receiver connected and interface to provide location (identify road section and type) provide time and date information and vehicle speed for the operating driving lesson algorithm, hosted on the laptop or organizer processor i.e. palm pilot.

A third possibility for the in vehicle driver resource center is a simple IC stamp computer or commercial equipment controller or custom processor interfaced directly to distance sensors with an interfaced COTS GPS and wireless communications provided by PCMCIA complete cellular phone interface or through packetized data delivered remotely by two way Motorola reflex paging protocols.

Note: all three of these modalities to complete this Academy projects in vehicle Driver Resource component are with in the this application and the six prior related patent applications for the PFN/TRAC System™ of accountable automated and remote controls for personal, equipment and vehicle PFNS.

The Internet Tutor :

4. Will be an interactive web site hosted on the Kline & Walker, LLC web site with special access both anonymous and accountable for test subjects with 7/24 access on a special server. Including the test lessons the Web Site Auto Tutor will present other exemplary driving lessons and provide public safety information. A sample data down load for a specific vehicle to update or alter an individual vehicle or it's accessories via the in vehicle driver resource center is planned for. The Auto Tutor server will also have exemplary mass data storage for the nine In Vehicle units. They will be secure data files and require individual encrypted personal identification to access

the data. The test subjects will have to personally release their secure personal data. Additionally, statistical data storage will be recoverable with out any release for the daily test results.

FIGURE 16

Shows the advance state of the web based auto tutor and the in vehicle driver resource component in the protected PFN/ TRAC unit developed to create a simulator out of the real vehicle for teaching reteaching or selling technology to a human operator. This is represented by the driving experience being presented in a heads up display or on the wind screen with the care in a parked position and the driving controls being electronically sensed or drive X by wire technology. The PFN/TRAC unit or primary gateway node accesses all three speeds. The Online Auto Tutor

A base assumption for high marketability for the continual driver education web based product is that state governments can put their own operator manual in to the system for their drivers to learn and reference. Also, auto makers can teach how there cars and accessories are operated from a hyper link on the site. This to is a first generation product basically just receiving data from the in vehicle driver resource component. However, the architecture will be in place to down load the driving experience to the driver resource center. Ultimately with drive by wire sensing processed via the In vehicle driver resource component the vehicle heads up display can run a virtual driving experience while the car is parked in the drive way (real vehicle and simulator all in one unit. This will be a good tool to train new drivers, or to introduce new equipment changes, or to sell cars. The schools can have driver education with accountable homework and no high insurance bill, plus dad will not have to sweat bullets. Remedial lessons for chronic violators of traffic laws can be individually prescribed with real life monitoring through the in vehicle unit governed and programmed from a court room decision. The immediate markets are all 50 states, the federal government, and other nations. Additionally, manufacturers of all types of equipment that require knowledge and training to operate their machines will have direct access to their equipment and operators for assistance and material and service sales.

Conclusions:

K & W expects complete Telematic market saturation for the in vehicle product by the year 2003. This is because K & W will be working with government and industry on the products and related study on a continual bases. The in vehicle Driver Resource Component is the first generation of the PFN/TRAC System. This optimistic projection is due in great part to K &W architecture and the present market needs. Additionally DOT's In Vehicle Initiative is an important part of the nations Intelligent Transportation System. K & W research members have participated in a number of the work shops, conventions and sessions in preparation to any product development decision. In these sessions industry members and government have been grappling with acceptable accountability and

have shown real interest for K& W architecture and protocols as a real solution to this road block. They were very receptive to these first to market set of products and the total architecture of K &W technology. Most everyone agree that education and acceptable accountability paint the way for future vehicles and the interactive highways of tomorrow. Additionally, manufacturers and government have been cooperative in supplying information on existing products and research programs in progress. e.g. in the document section

Purpose and Objectives:

To market Kline & Walker's PFN/TRAC System TM technology to government, the automotive markets, the public, and the insurance industry; through joint venture research projects that provide acceptable accountability to existing driver assist technologies i.e. object detection, collision avoidance and adaptive cruise control. The PFN/TRAC System was invented to help market driver assist technologies, advance human machine interfacing HMI in vehicles, and reduce driver distraction from personal electronic devices (i.e. cellular phones) to improve highway safety by reducing driver workload.

A basic requirement is an acceptable system to account for shared vehicle controls and coordinated equipment operations. This requires special components like recording devices in private vehicles, which involve civil and legal issues. The technical components exist today, but the more difficult questions are how they should be interfaced, constructed, governed and used. These, very issues have become a watershed for the automotive industry and government. It is these very issues that have kept present driver assist systems as exhibition curio rather than real-life vehicle safety improvements. There is no question that these safety enhancements are desperately needed on the over crowded highways globally. Presently, 2700 people die everyday on the world's roads (equivalent to seven 747 jets per day), with millions injured or permanently disabled annually. Driver and human error are the major causes for these figures. The value of driver assist systems is evident and relevant to answering the question of how to improve highway safety. This makes it important to everyone socially, economically and financially.

Kline & Walker is presently developing two interactive product prototypes configured from existing commercial off the shelf products COTS in a proprietary manner to provide acceptable accountability for existing driver assist systems. This is being accomplished in a collaborative 18 month project with interested manufacturers, government, insurance companies and the general public. The project will provide data, education and suggest solutions while introducing these products to improve highway safety. The prototype products will be configured to quicken existing automotive safety enhancements to market through K&W PFN/TRACTM technology. By combining and coordinating this research/market approach K & W will be responsible for developing and

ushering in a host of future intelligent transportation products in a commercially acceptable and responsible manner.

The key ingredient is providing acceptable accountability to accommodate commercial & technical advancement. Progress reports on the K&W projects as well as, a list of corporate and government sponsors, affiliates and commercial arrangements will be posted and updated on the Kline & Walker Web Site. The Web Site will also host one of the exemplary prototype products; An Online Driver Education Auto Tutor. The other product; is an interrelated and wireless In Vehicle Driver Resource Center or component . A more complete description of these two products can be found in the accompanying project proposal to the Transportation Research Board's National Academy of Sciences IDEA Program. Other government programs and commercial interests will be informed and be continually approached to do business with.

What is claimed :

1. A personally worn PFN or carried tracking device that is connected and operating with at least one of a RF transceiver/transmitter, Pager transceiver/transmitter, Cellular phone transceiver, wireless transmitter, and a wireless transceiver transmitting either digital or analog signals that reports location telemetry in real-time to at least one remote location equipped with at least one of an Internet Protocol (IP) address, phone connection or Internet web address connection computer and display, said personally worn PFN or carried tracking device is optionally connected and optionally operating with at least one of a RF provider pager provider, or a provider of a wireless communication connectable interface to a TV system of at least one of a TV cable or satellite TV provider with IP interfaced TV software system and local device firmware, said personally worn PFN or carried tracking device performing the functions of:

displaying the PFN or tracking device on a calibrated map program and displaying a unique identity marker for the transmitting device identify, optionally including an electronic serial number (ESN) or an encoded digital identifier;

determining in real-time or substantially real-time, data application specific, optionally including physical telemetry data, of at least a person, animal or arbitrary object affixed with the PFN or tracking device;

determining in real time or substantially real time, at least one of audio data, video data and digital determined by application specific criterion with respect to the personal PFN or tracking device.

2. A personally worn PFN or carried tracking device according to Claim 1, further comprising a protective restrictive attachment system determined by application specific needs for the PFN or tracking device and fixed to a person, pet or arbitrary object in such a manner to require unique mechanical and electrical codes or means to satisfy the locking, securing and control system, so that only an authorized person determined by protocol will have access to remove the attachment

system, belt, collar, bracelet, clasp, binding, clothing , or open any brief case, purse, box, container to deactivate or alter such equipped PFNs or Tracking devices running program, and

wherein, any tampering or removal of the protective restrictive attachment system, or depression of a coded panic button sequence results in the immediate activation or alert sequence in the PFN or tracking device's running program to provide geographic position time of occurrence and any application specific telemetry, and also, operates any preprogrammed alert flagged activity controls or accessories including, any event memory storage either local or remote response in the system, alerts or notifies electronically (through wired or wireless communication) a preprogrammed protocol determined by emergency response personnel, who have numerous connectable assets to activate as application specific settings in the universal PFN system.

3. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes means for inhibiting the recognizing of the device or to detect presence relating thereto, so that only authorized individuals can locate or access the device physically, including data and controls stored therein.

4. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes application specific accessory means with accessories for airplane occupants, boating occupants, land vehicle occupants to be used in rescue and recovery operations,

5. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes application specific accessory means for activities including one or more of: Skiing (snow and water) swimming, hiking, jogging, biking, camping, golfing, exposed motorized vehicle use, all terrain vehicles, spelunking, caving, mountain climbing, sky diving, gliding, ballooning, traveling, touring, site seeing, schooling, employment jobs, family use, group use, military use, government use, correctional system use, automated health care use

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(mentally and physically compromised), for security use, for real time census or people accounting applications (natural disasters martial law scenarios e.g. earthquake areas severe weather approaching, hostel war zones for infectious disease control crowd control e.g. conditionally released youth offenders (timely community supervision and intervention for positive gang management and control), public gatherings and counting populous (without PFN/ESN IDs) however, for crowd control in riots or marshal law and accompanied by an accountable judicial public order part of a constitutionally approved process (PFN/ESN IDs available) for rough service use , medium service use, light duty use, for any arbitrary use with any arbitrary application specific accessories with any arbitrary connectable interface to any arbitrary device or system.

6. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes application specific accessory means operable under a plurality of configurations, optionally including specified components, attributes qualities, properties or accessories.

7. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device incorporates a commercially off the shelf (COTS) product that combines or interfaces PFN components as a PFN component and predicted consolidation and integration process.

8. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes at least one locating system connectable to at least one accountable memory storage system and connectable to at least one remote location to use a number of network connections.

9. A personally worn PFN or carried tracking device according to Claims 1 and 2, further including a Trusted Remote Activity Controller and accountability of functions either in a closed intranet or generally on the Internet or as part of the Federal Activity Control Technology (FACT).

5 10. A personally worn PFN or carried tracking device according to Claims 1 and 2, wherein the personal PFN or tracking device includes an arbitrary power pack or energizing system that is application specific.

10 11. A personally worn PFN or carried tracking device according to Claim 12, wherein the arbitrary power pack or energizing system is a solar cell power array charging system either placed on a hat or as shoulder pads that regulates its charge to the power supply by sensing temperature of Batteries of the PFN or any mobile and or remote electrical device and battery power pack requiring a wireless charging source.

15 12. A personally worn PFN or carried tracking device according to Claims 10 and 11, further comprising a human battery created by using two contrasting metals that when surgically implanted in the body creates a potential difference or a current gradient and electron flow in a circuit when connecting the two to provide charging power or energy to perform work.

20 13. A personally worn PFN or carried tracking device according to Claim 12, wherein the personal PFN or tracking device includes, to use both the body battery and the solar charging to maintenance charge a holding battery in a personal device requiring long battery life.

25 14. A location system or device in a personal PFN or personal tracking device for any form of wireless triangulation performed with RF equipment, wireless pagers, telephony, or locating systems like Lorand, Lojack devices or GPS, dead reconing, or gyroscope systems along with any system software and algorithm that either develops its position data from the transmission signal

itself or from another device's data modulated on that signal and employing system software, device software or firmware to process the signal and recover that data in at least one remote location and present the recovered data on a TV or TV system or Computer and monitor, lap top, organizer display, palm top display, handheld GPS system, pager device or system cellular phone device analog or digital or Radio frequency device or system

15. A system comprising: at least one of a pager, or wireless device serviced by a phone provider responsively attached to a locating device or system that provides location data that is transmitted to commercial TV system provider so that an individual subscriber of cable, Satellite or web TV is provided a tracking service product, through the TV system providers software and individual control box software or firmware identifying the individual subscriber address to run the program through the ESNs or SNs or PFNs submitted in preprogramming for any personal PFN or tracking system, so with these individual means to identify their transmitting assets for their personal viewing and that data will appear transparent and secure in the IP service and TV software until received on the specific home TV through the TV control box, or web box, which will be running end user application level software for a private personal tracking service, which could require PIN or ID protocol through the remote as well as ESN of TV control box ect, along with the appropriate position of lock on or off function control on the remote tracking device or PFN before providing on home TV location data or other telemetry from the remote device.

16. A system according to claim 15, wherein said system is used for any personal tracking or telemetry data stream that is conducted through connectable components e.g. land wired TV cable, land line telephone system (including ISDN fiber optics, IP routing devices) wireless Radio frequency, or Paging technology and protocols or cellular telephony analog or digital Satellite phone or Satellite TV systems (including Microwave) and is responsive to one or two way communications or commands to provide personal telemetry and tracking products through TV systems, personal computers, lap tops, palm tops, Palm Pilots organizer products, cellular phone

system products, hand held pagers, hand held tracking devices, mobile office system products with or without accountability or protective enclosures or a mobile power supply, or a permanent power supply.

5 17. An automated triangulation software system, wherein said system is provided distance and directional data with every signal received by a tower so that an algorithm in the receiving software package triangulates at least a two dimensional geographic position of the transmitting device by comparing system data retrieved from all receiving towers , additionally this formulated location data is encoded in what ever transmission protocol is being employed and transmitted with
10 the transmitting devices ESN or identity SN to at least one remote location to be used for the purpose of tracking the transmitting asset and any movement.

 18. An automated triangulation software system according to claim 17, wherein said system is for the synergistic use or combination of multiple location or position technologies like GPS,
15 gyros, dead reckoning Lorands , LoJack and automated RF or Telephony Triangulation, but not limited to these locating systems, to fail safe or increase accuracy of movement for transportation navigation functions or automated guidance systems for vehicle and equipment ,including any short range sensing or dedicated short range communication technologies i.e magnets, reflective paint or DSRC beacons on an Interactice Highway.

20 19. A wireless communication or positioning system that is personally carried including PFN, beeper, cellular phone, or wireless organizer, palm pilot, on a pedestrian, a bicycle, ski mobile, ATV, or any arbitrary mobile or stationary object that can transmit position or velocity data through a signal or signal properties i.e. strength or direction to other equipment or vehicle PFNS or
25 telematic controllers either by dedicated short range frequencies including approved 5.7 GHZ or blue tooth or any wireless mediums including sound and light technologies to process into warnings and

operator alerts as well as reconfigure directional operations and speed for all affected objects to avoid collisions and or to coordinate movement.

20. A wireless communication or positioning system according to claim 19, wherein A said
5 wireless communication or positioning system utilizes short range communication from personal items to interface with vehicle operations through driver assist and driving algorithms to coordinate equipment use of personal carry on devices like cellular phones, personal computers, palm pilots, smart cards that can be interfaced through wireless means, Blue tooth technology or require physical connections with the vehicle operational control systems to assist the human operator by organizing
10 and managing these devices and system reduce driver work load or improve safety.

21. A wireless communication or positioning system according to claim 19, wherein A said wireless communication or positioning system utilizes voice recognition and activation technology in hardware and software interfacing to allow the operator to communicate and coordinate hands free
15 access to information and data as it is determined safe to disseminate it with respect to the operation of the vehicle.

22. A personal telemetry data system generated from at least one of personal PFNs and telemetry technology to transfer data either wireless via Dedicated Short Range Communication
20 DSRC or by Blue Tooth technology to a vehicle management system for use in the operation of the vehicle or to transfer that data via the in vehicle telemetric component to a remote location for health driver monitoring or conditional freedom scenarios and licensing including prisoner release programs and business only driving privileges.

23. A transponder or limited range transmission device, comprising: a power source and mobile connectable service power strip and solar/vehicle charging system that is hidden and camouflaged in various places so that the transponder is capable of roaming the hollow frame
25

structure with wired or wireless connectable interfacing to the vehicles electrical/ electronic services as a communication gateway including any telematic system on board to transmit Identification data and ownership data, Mim technology or micro machines and systems on a chip can be employed.

5 24 . A transponder or limited range transmission device according to claim 23, further comprising mini transmitters to be activated by the proper authorities with a receiving system to pick up a signal identifier message when the authorized receiver antenna probe inserted into a receiving port in a sealed containment including an overseas container to insure that no illegally obtained vehicle or piece of equipment / object or person is contained or hidden inside for the
10 purpose of smuggling or kidnapping.

 25 . A transponder or limited range transmission device according to claim 23, further comprising a special access port to be made available in the overseas shipping containers to insert an sensing antenna and canvas transmitting transponders or PFNs or other telemetric products that
15 are illegally packaged.

 26 . A transponder or limited range transmission device according to claim 23, wherein said transponder or limited range transmission device is used for the short range auto door locks or garage door opening with dedicated frequencies employed, and automated with a protocol that
20 rotates officials and equipment that perform the surveillance or responds to any automated monitoring

 28. An Auto Tutor hosted on a server on the Internet for equipment operator training, that is connectable to an in vehicle driver resource center or module on the vehicle or piece of equipment
25 for evaluating learned operational skills of the piece of equipment, this combined system will be able to evaluate performance and prescribe progressive lessons and experience to improve driving

awareness and vehicle/equipment handling skill as an automated process, and perform driving and equipment operations in real-time for driver or operator deficiencies.

29. A communication routing system providing short range communications to be reconfigured, transcribed, retransmitted and passed on by other longer range communication systems, including cellular Phones and more powerful radio frequency systems.

30. A system according to claim 29, further comprising a universal emergency message protocol and software algorithm for disparate communication systems to share a common communication language to increase mobile routing for the PFNS and other telematic systems to create a mobile matrix or machine messaging web.

31. A universal interface and docking station system in the vehicle, either protected or not, either physically connected or wireless connections Blue Tooth or DSRC to interface carryon components, including navigation, cellular phones, palm pilots, laptops, personal assistants and organizers, into the driving algorithm of driver assist and accident avoidance safety components, including integrated safety systems as part of the driver resource module or center or PFN/TRAC System..

32. A system according to claim 31, further comprising an internal operations matrix to interface and integrate safety systems, driver assist systems, telemetric data and human PFNs, personal tracking or telemetry systems through a driver resource module in the vehicle or equipment PFN to enhance human machine interoperability, and to aid individuals that are physically challenged or need close monitoring for health , safety or legal reasons.

33. An external communication and machine messaging matrix or virtual mobile web through a multi-scan function as part of the vehicle and equipment PFNS in the PFN/TRAC System,

including a capability to interface and communicate with other telemetric units and systems, including OnStar, Wing cast, TeleAid, via direct wireless communication or Internet Protocols.

34. A vehicle and equipment PFNS system to maintain a running inventory of parts or repairs made including lot number, service person, agency identifier, responsible for installation starting at a point of vehicle or equipment manufacturing to be down loaded immediately to data monitoring agencies, insurance companies and manufacturers at the time of an event including an accident, including statistical data, personally and legally sensitive data where rules and standards must be written to govern the use and discrimination of the information, and to post statistical data on a public web site with an auto tutor to inform the public of public safety hazards, recalls and alerts in real-time.

35. A system according to claim 34, wherein the auto tutor stores driver and equipment performance information in a remote location.

36. A system according to claim 35, further comprising means for retaining the same data in a plurality of locations with statistical data and personally and legally sensitive data encrypted and protected physically and electronically with protocols.

37. A system according to claim 34, wherein the PFNS is utilized as a health care tool to alert medical personnel and provide telemetry and robust health care delivery through Radio frequency, paging cellular phones, the internet by providing accountable administration of medications and automated procedures through remote controls.

38. A system according to claim 34, wherein the PFN/TRAC system is used as an economic tool in evaluating the use and impact of equipment, vehicles and machinery on the environment, societies infrastructures and resource use, for fossil fuel systems, hybrid energy systems and any

revolutionary or new and or inventive energy systems and power trains or power/ energy storage systems.

39. A system, comprising a accountability means for providing accountability locally with
5 an accountable system matrix that is acceptable to commercialize products, monitoring, data, from
personal locating devices to vehicle platforms in transportation to protect bikers and pedestrians
from accidents due to invisibility, the RF transponder and locating system can be in the form of a
protective helmet with a reflective foil or appropriate protective screen for electro magnetic waves to
protect physical body parts from irradiation, ether for the head or kidneys if a belt or any body part
10 from wear the transmission device is carried on the body, and an Auto Tutor component in the
PFN/TRAC monitoring system to connect through the in vehicle driver resource component in a
protected primary gateway node.

40. A universal plug and play security interface for all equipment that can be activated by
15 personal smart card technology and that is a transfer system and data mechanism that performs much
like a key that additionally recognizes the driver, wherein the user and the equipment accountably
and respectfully provides access to the equipment and prescribes in real time and from history in
data storage on the smart card and or in the vehicle the proper prescribed auto assistance to safe
vehicle operation for the individual and society.

FIG. 1 RF TRACKING FOR PERSONAL PFN'S

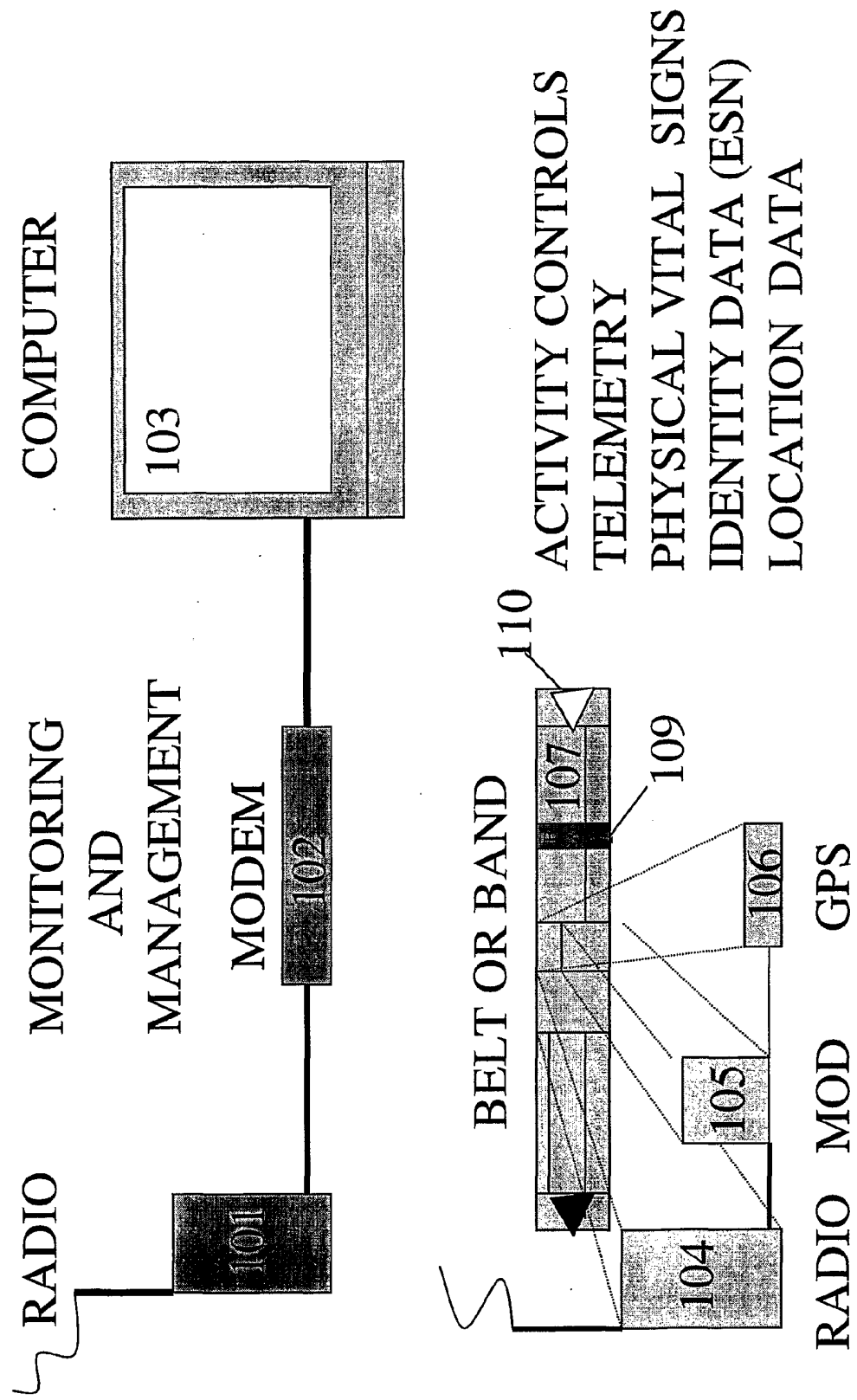


FIG.2 PAGER TRACKING FOR PERSONAL PFN'S

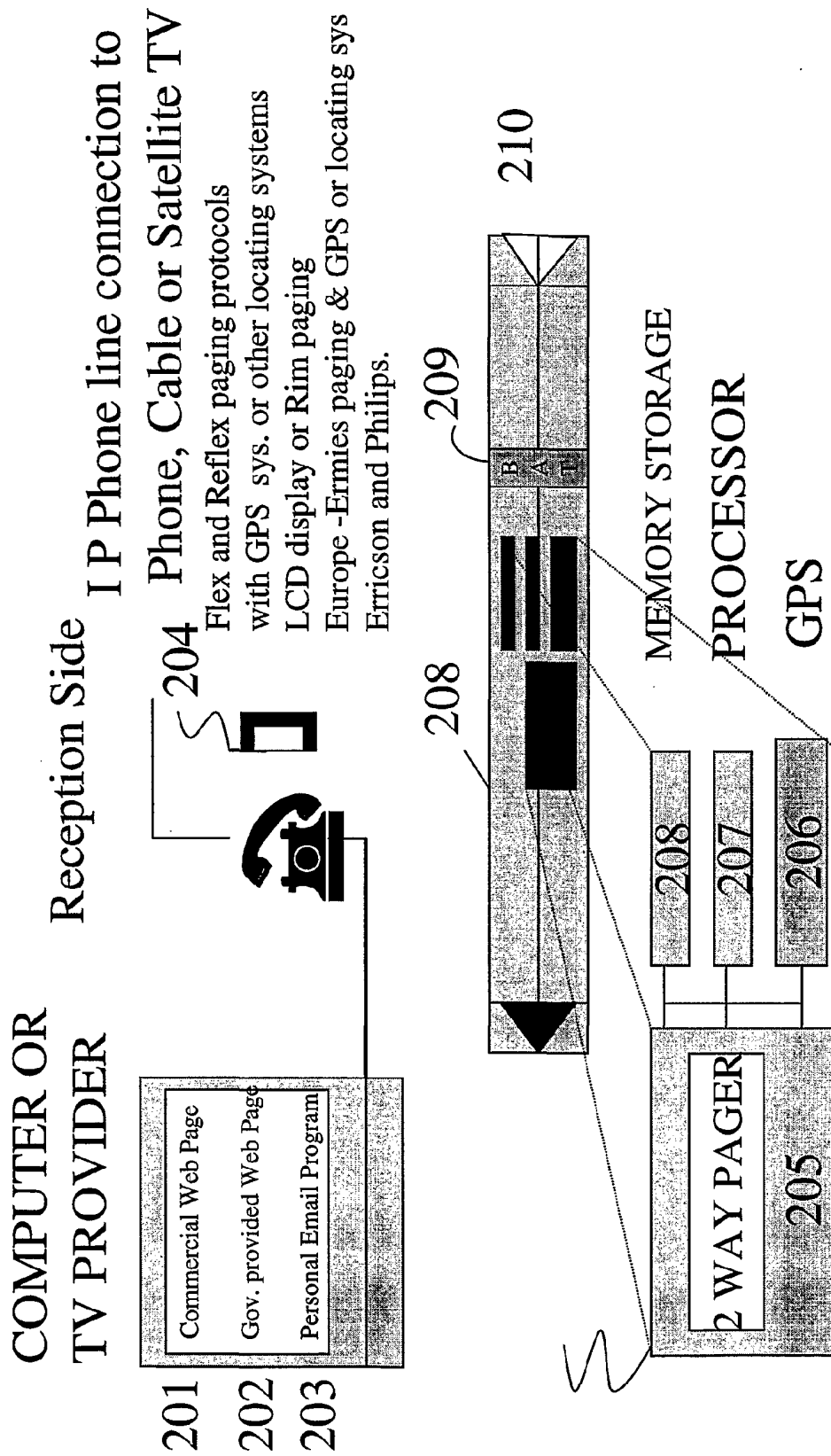


Fig 2A

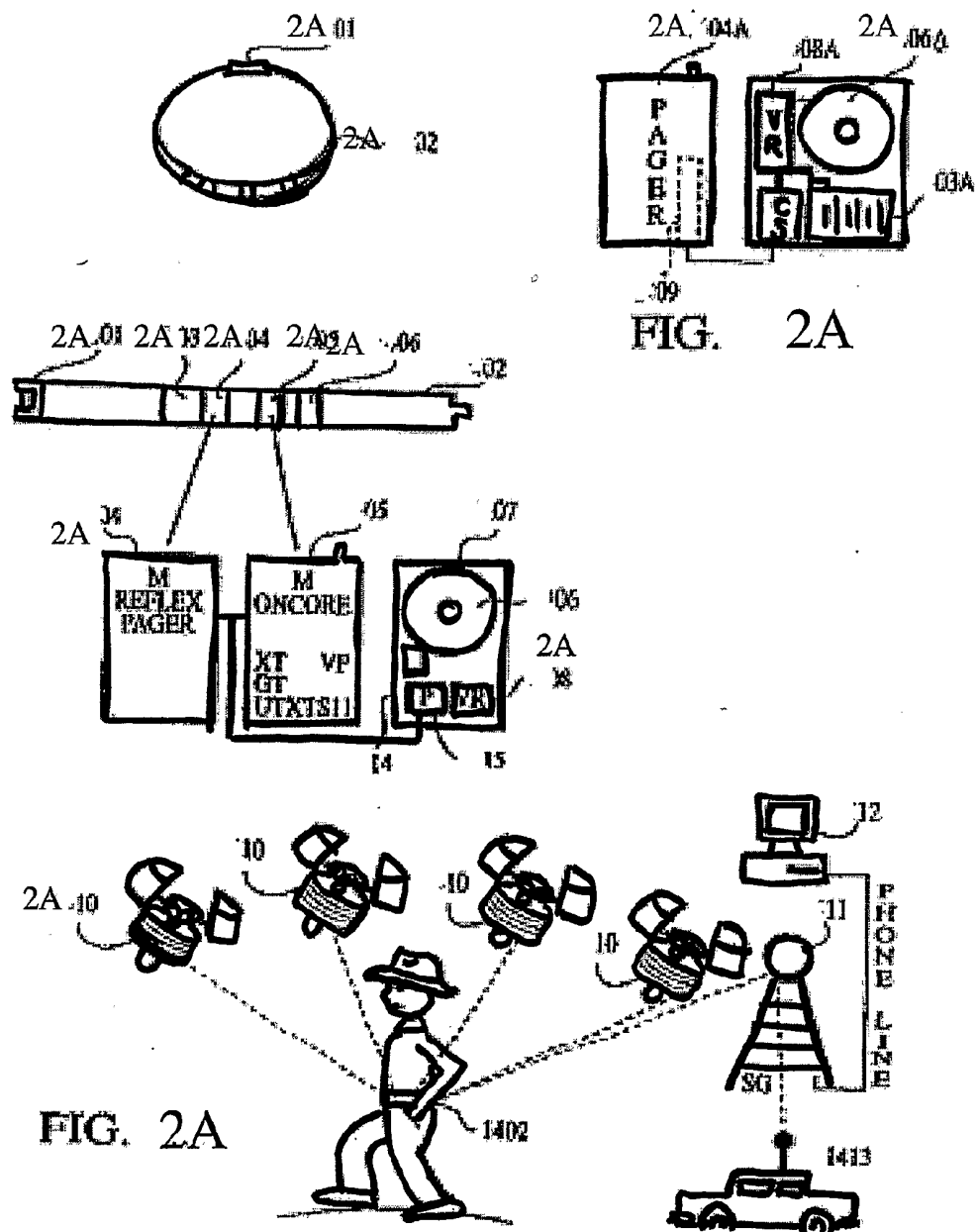


FIG. 3

CELLULAR PHONE TRACKING FOR PERSONAL PFN

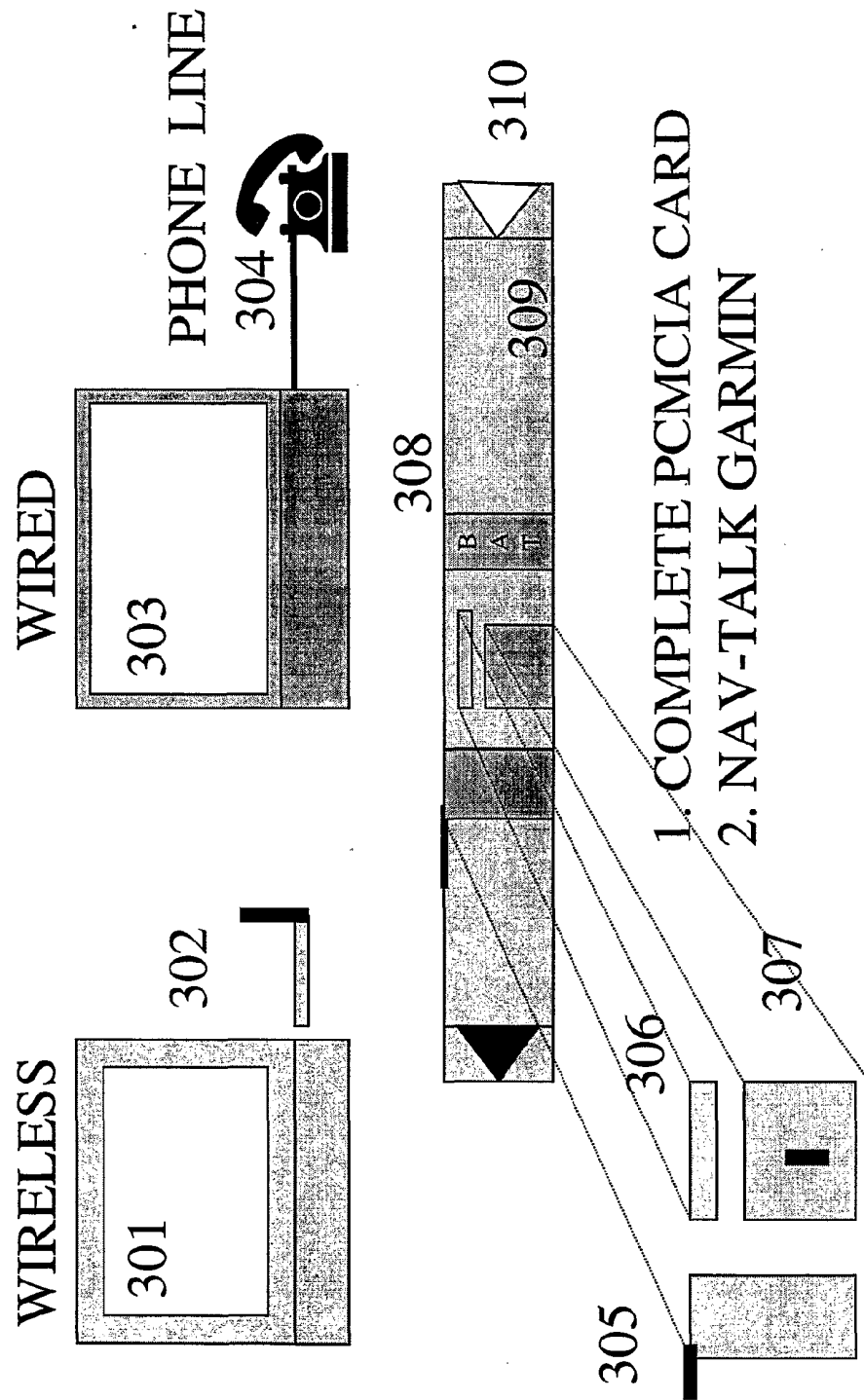
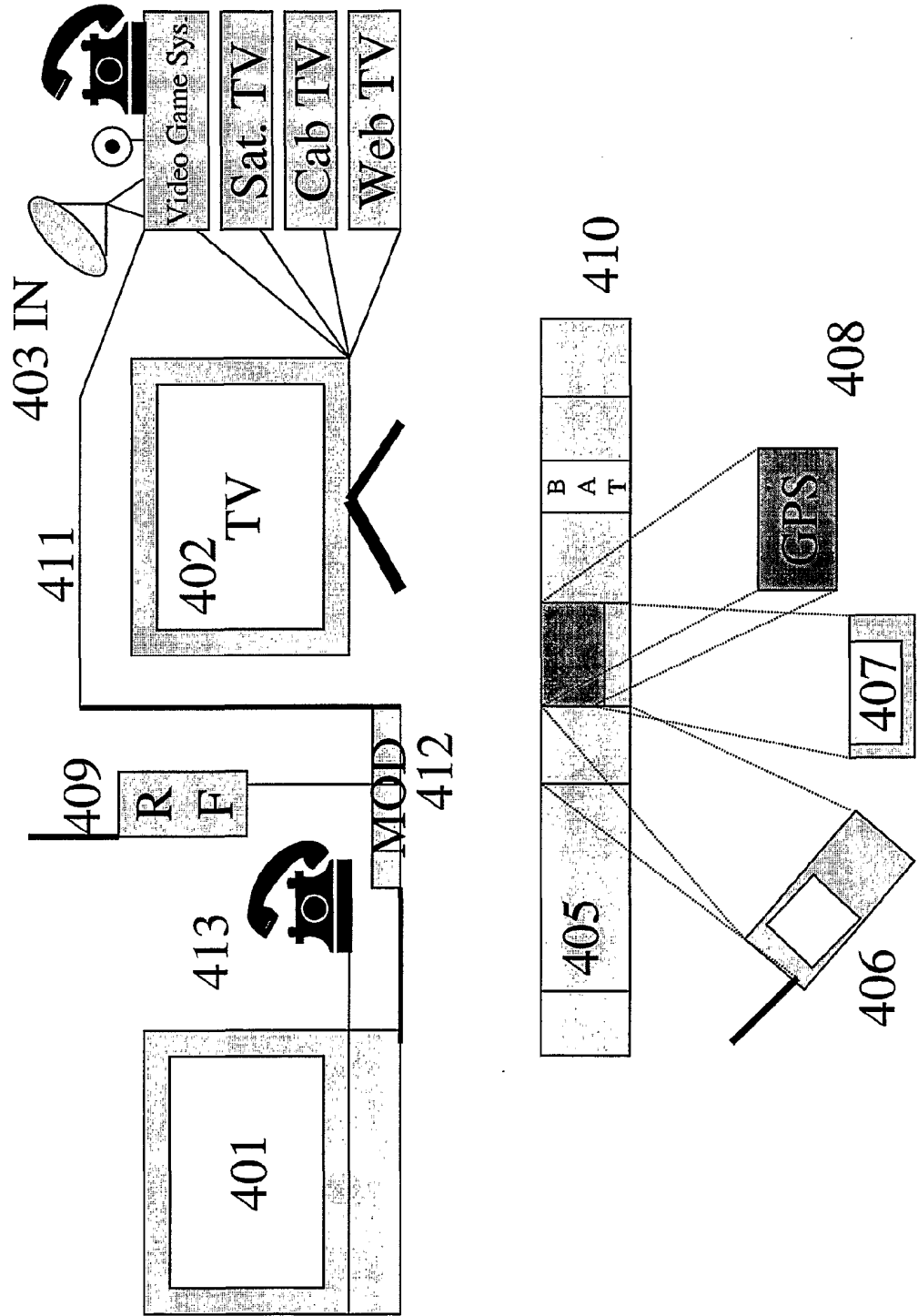


FIG 4

NEXTEL, RADIO, PAGER, AND PHONE



BELT, CLASP, COLLAR OR BRACELET SECURITY SYSTEM

FIG. 5

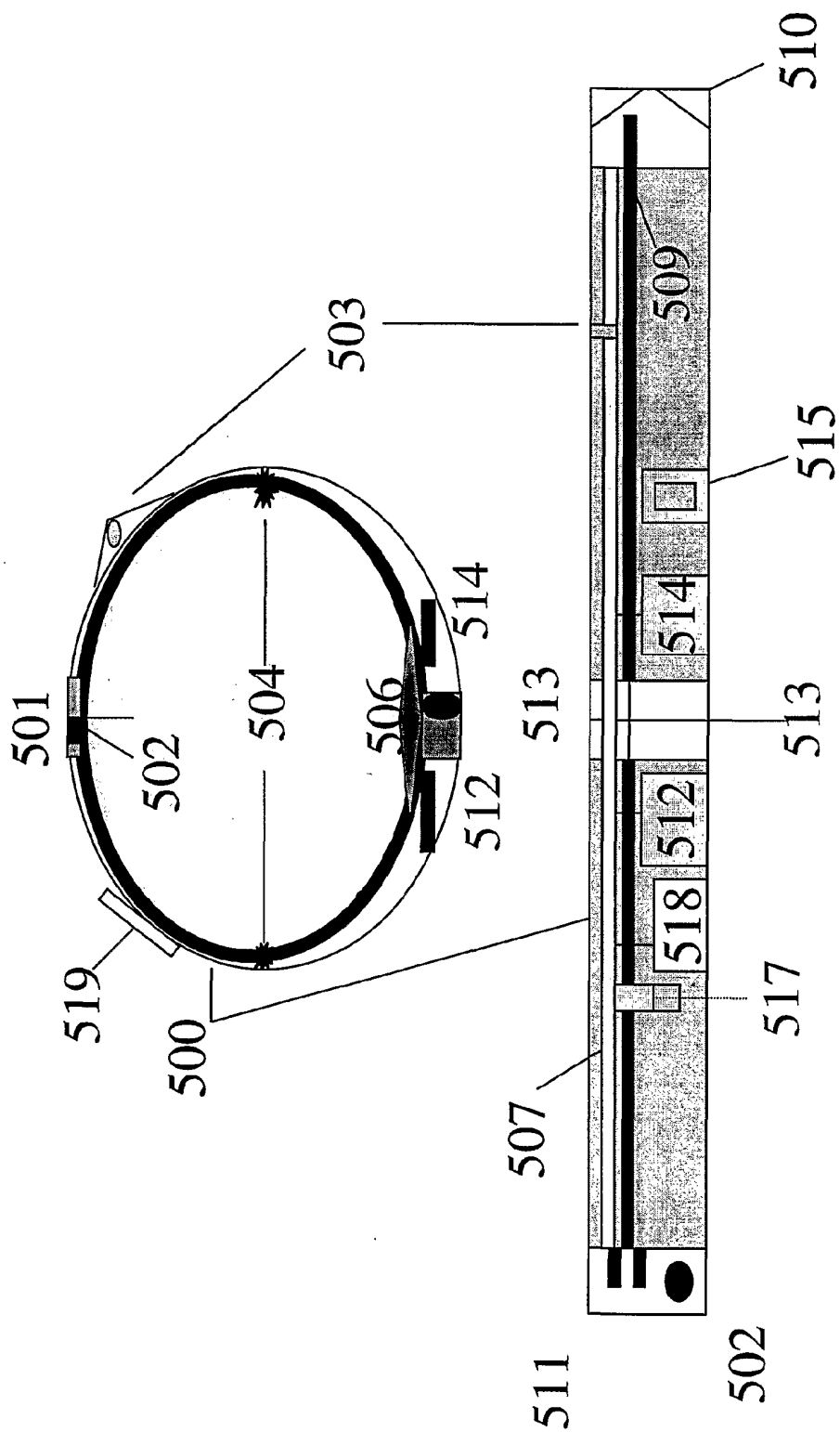


FIG 5A 112756-700

National

FIG 22

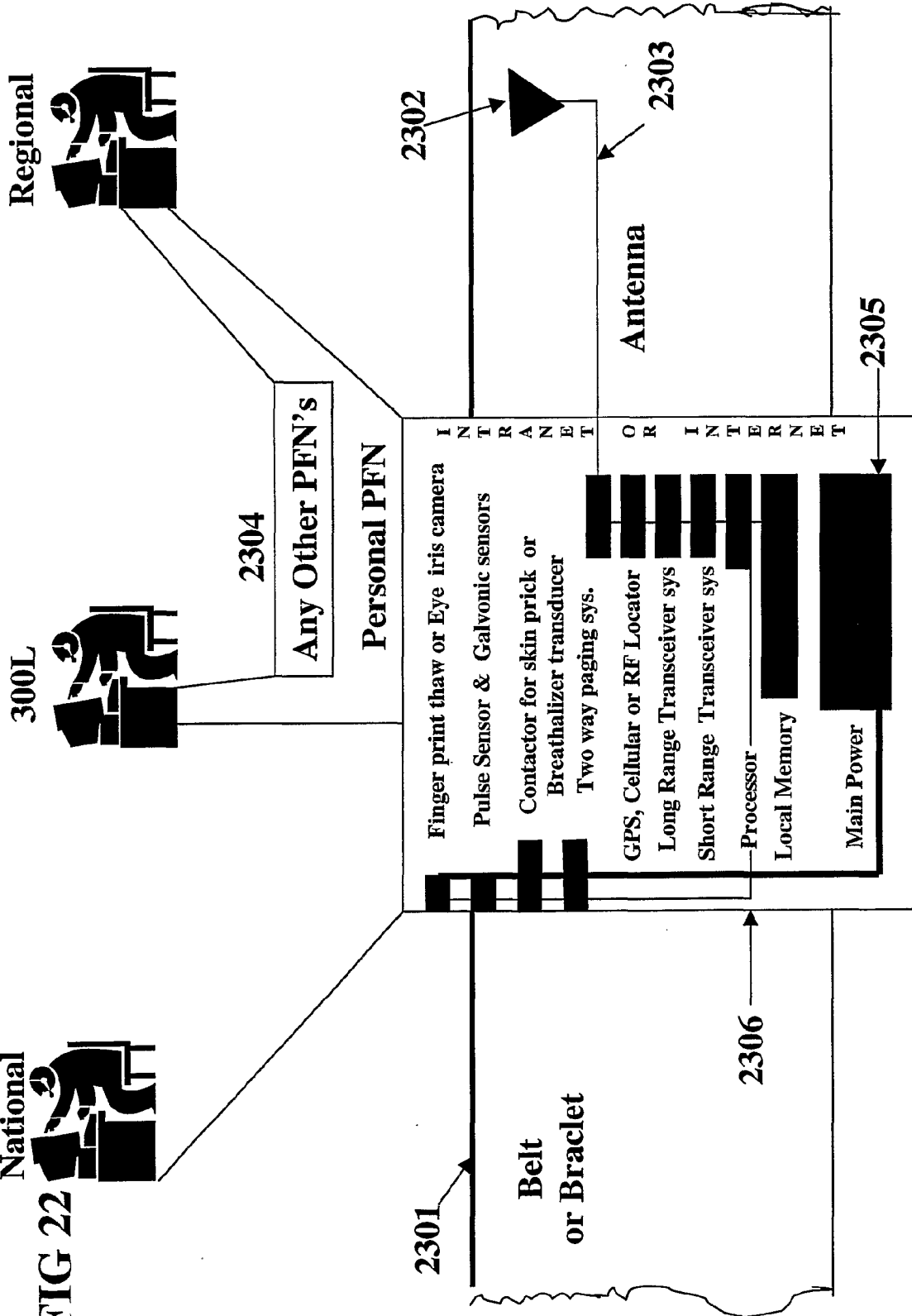


Fig 5b

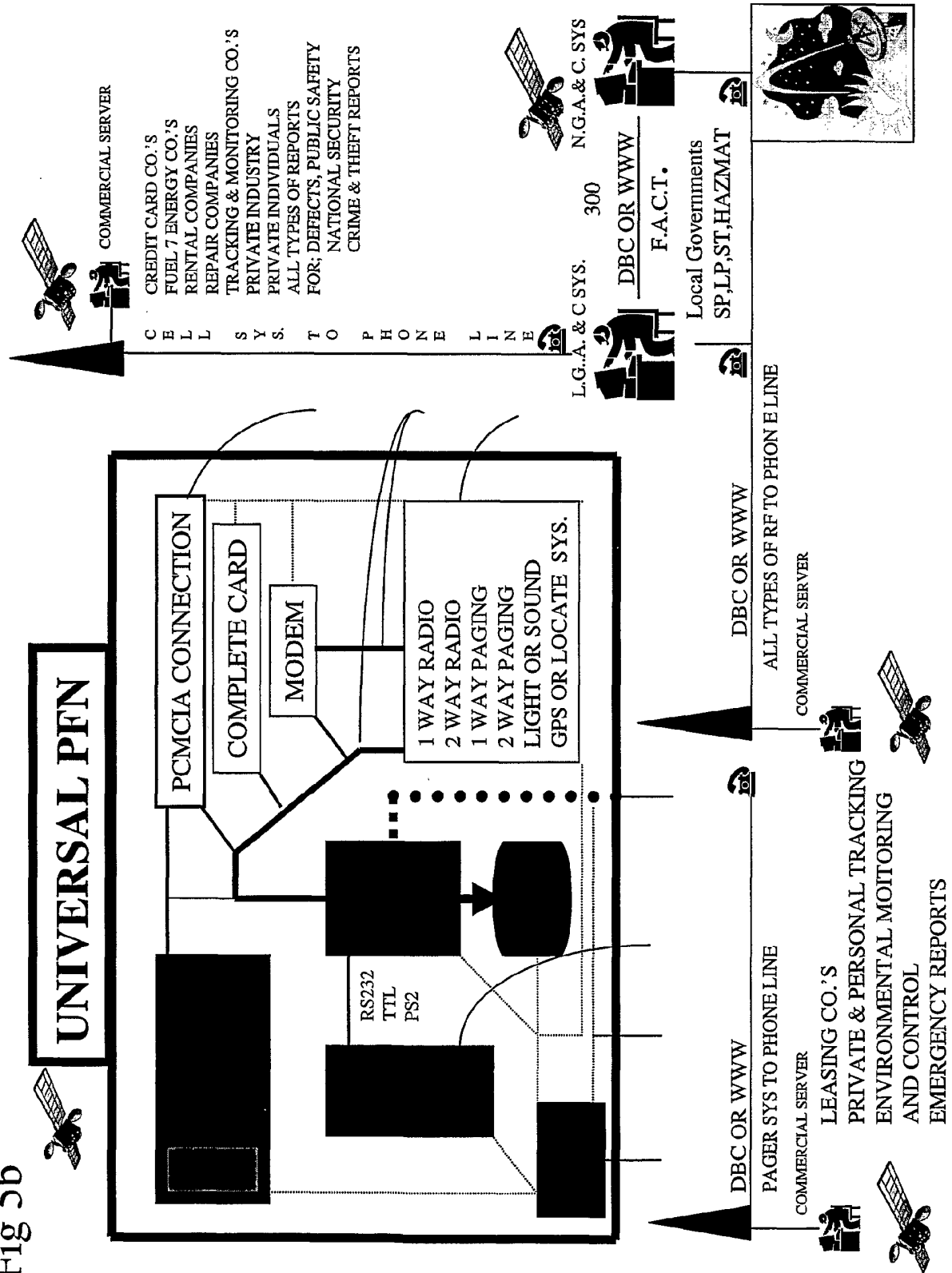


FIG. 6 **PRODUCTS & APPLICATIONS**

RF REPEATER SYSTEMS

TOT SPOT,
HUNT WELL
PET POINTER,
FRIEND FINDER

WIRELESS PAGER AND TELEPHONY

TRAC A CON . COM/GOV
SKI SEARCHER
SWIM SEAKER
FAMILY FINDER
PATIENT PAL OR HEALTH WATCH
LOST AND FINDER
PEOPLE LOCATOR
PET LOCATOR
PHYSICAL TELEMETRY
IDENTITY CONFIRM ATION

*ALL PRODUCT NAMES STATED HERE
ARE PROPRIETARY TO KLINE AND WALKER LLC
AND COMMERCIAL USE IS GOVERNED BY LICENSING
AUTHORITY

ACTIVITY CONTROLS

AUDIO & VIDEO
P.I.N.- SYSTEMS(IDENTITY)
HEALTH CARE
AUTOMATED MEDICATIONS
BEHAVIOR SUPPRESSION SYS.
SEDITIVES
SHOCKING
DECRETES IN ALL CONTROLS

SENSORY TELEMETRY

BLOOD PRESSURE
HEART RATE
CHEMICAL SENSORS
WATER
HEAT
DRUG SENSORS
DESCRETES, EMF,RADIATION
APPLICATION SPECIFIC

ACCOUNTABILITY

MEMORY STORAGE
REMOTE MEMORY
LOCAL MEMORY

Fig 7

Federal Communication Commission

PFN/TRAC Communication Routing Applications for FCC

PFN/TRAC Communication Routing can assist the FCC

Some FCC responsibilities:

Organize Communication Technical
and Commercial Development
Stimulate Market Competition
Stimulate the Economy through
the communication industries
Create Useful Regulations
Insure Communication Systems
are operating in the publics
best interests.
Insure Equal Access to Communication
and Information Technologies
Monitor, Manage and Control unfair
business practices
Enforce FCC Laws and regulations
Coordinate International use of the
communication airwaves.

PFN/TRAC is basically, an accountable local universal, plug, play, and protected wireless communications routing center for mobile applications. TRAC, the Trusted Remote Activity Controller scans and processes, emergency and personal communication systems, as well as interfaces and manages carryon electrical device use through a vehicle operations program that prioritizes onboard activity controls with driver function and alerts. Additional communication management include multiple wireless IP gateways to serve a broad economic spectrum of the populous, with a wide array of competitive technologies and services. Also, PFN/TRAC is designed to function as a virtual accountable mobile and stationary web that could assist in achieving the last 100 feet of broad band coverage the FCC seeks for future Internet access.

Fig 8

Federal Communication Commission

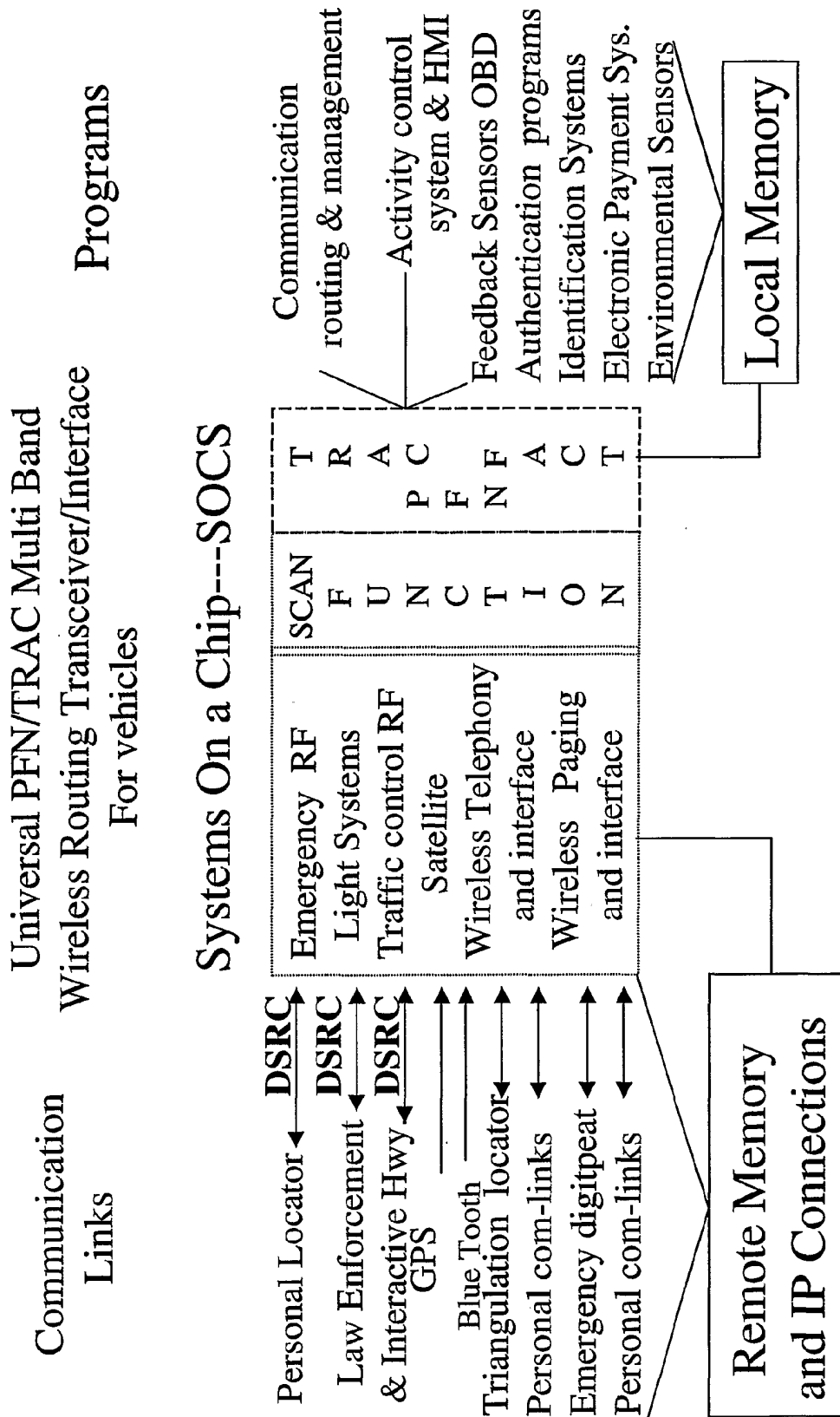


Fig10.

Department of Transportation Example of The Telematic Matrix Of Networks

PFN/TRAC SYSTEM FOR DOT

ORGANIZES- COMMUNICATIONS AND AUTOMATION FOR ALL VEHICLE PLATFORMS AND PROVIDES ACCOUNTABILITY

DOT governing responsibilities

Initiate future standard for vehicle electrical system.
Acquire and analyze data for vehicle safety.
Coordinate industries for public safety and service.
Help the economy with proper public policy.
Develop proper rules, regulations and law
Provide for the proper law enforcement.
Maintain stability and improve the quality of life.
Maintain societies infrastructure and environment.
Provide public funds for that infrastructure care.
Provide society the best emergency services.
Provide the best highway warning system.
Develop interactive highways and robotics travel.
Understand and evaluate vehicle impact.
Insure well maintained vehicle equipment
Improve all the above thru real-time communication
Create the accountable structure for future shared
vehicle controls involving multiple technologies and
Human-Machine Interfacing (HMI)

PFN/TRAC System (TM) properties.

Local

1. A universal standard plug, play, program and protected accountable vehicle interface for wireless communications automated activity controls, electronic payments, with Internet connections, human- machine interfacing, environmental, and feed back sensors. An organizational architecture to write codes, rules regulations and law.

Nationally

2. The local vehicle interface connects with a wireless and Internet Protocol network of specialized vehicle monitoring and management intranets for surface land travel, air and water travel, along with other related government agencies, law enforcement, emergency service systems, manufacturers, private industry servers, and the insurance industry. All the above participate and are coordinated through prescribed protocols, special codes, and encryption with traceable and transparent data management systems. (PFN/TRAC FACT programs)

Fig 11

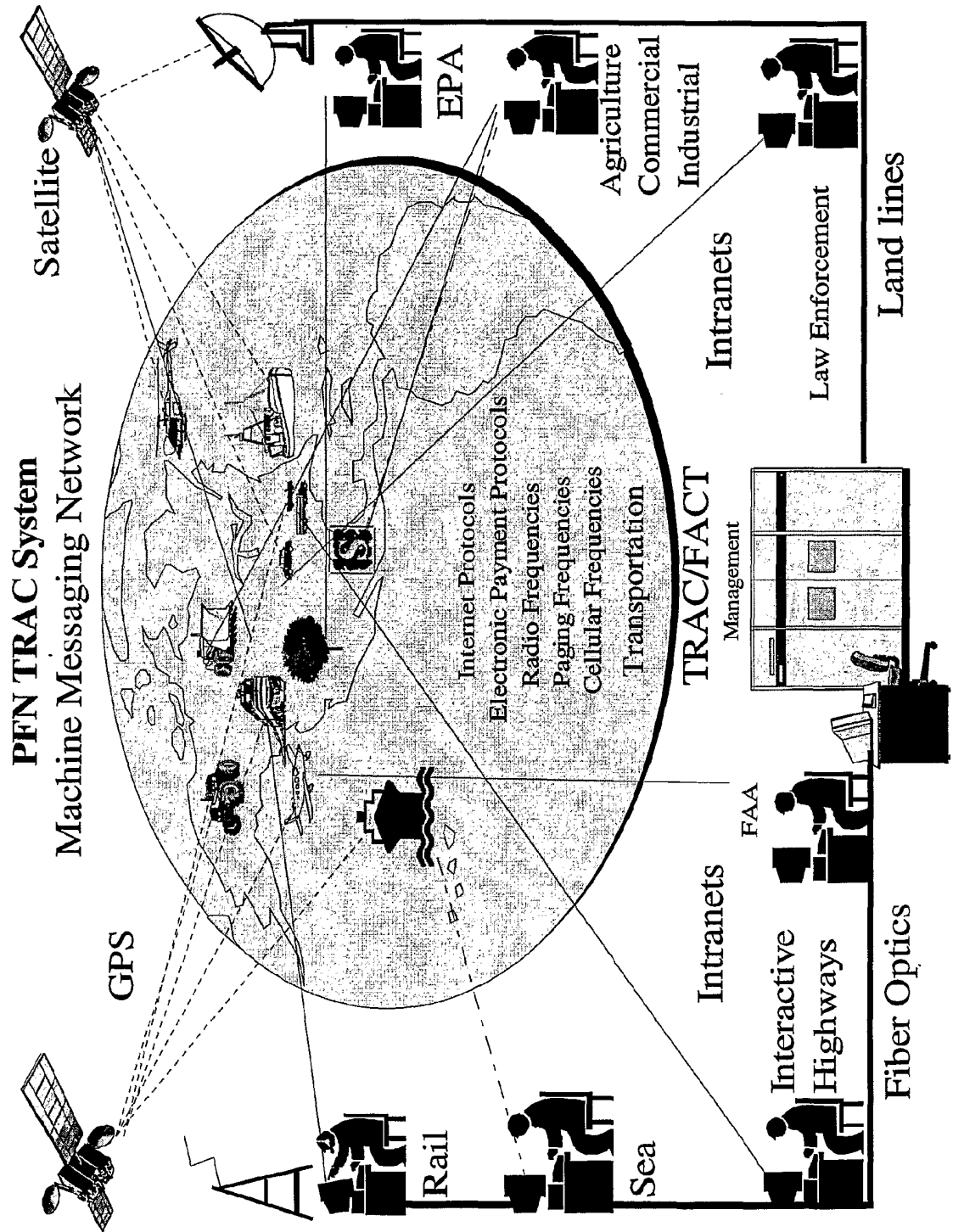


Fig 12

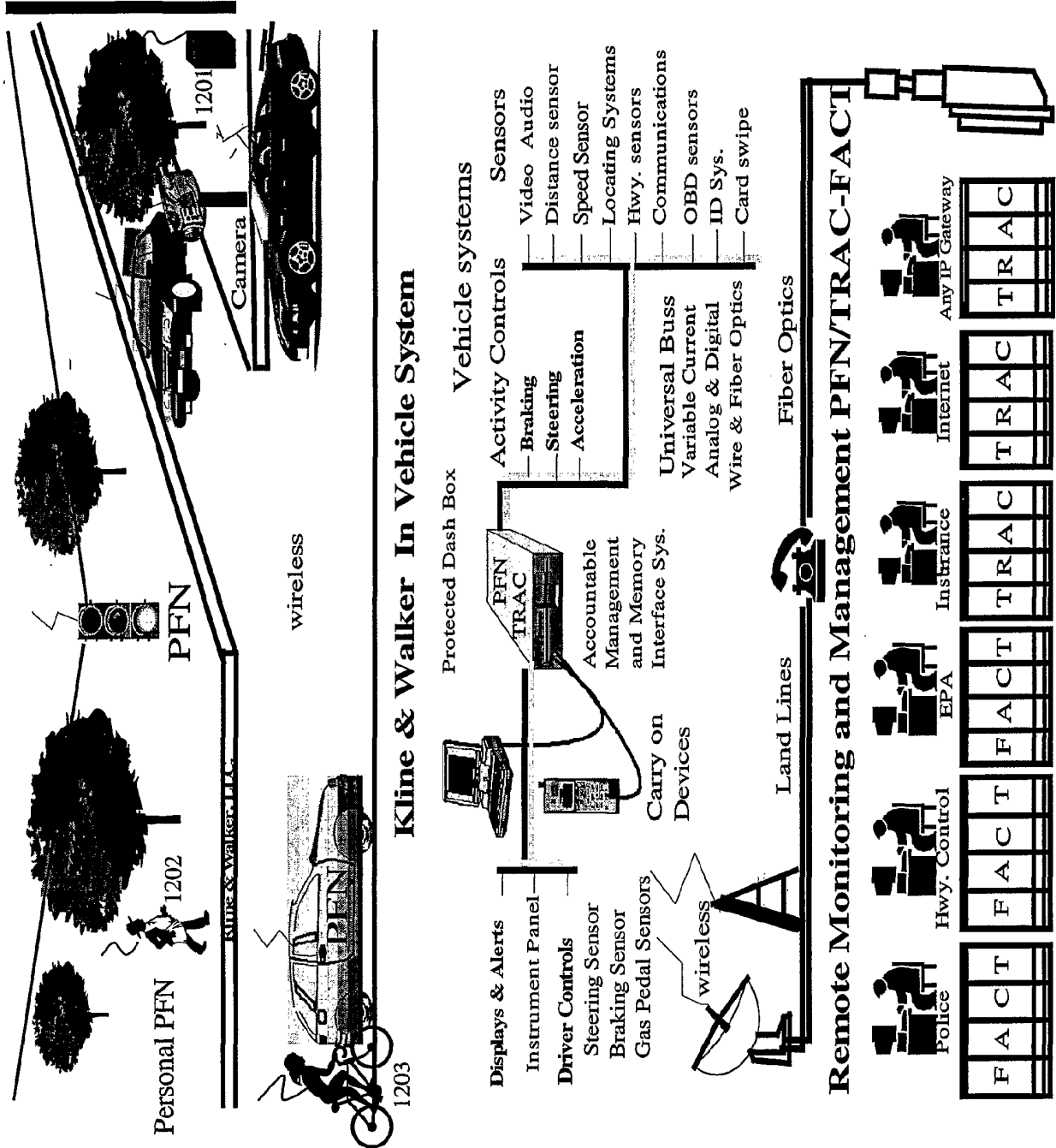


Fig.13 Anonymous and Accountable Access to the Internet

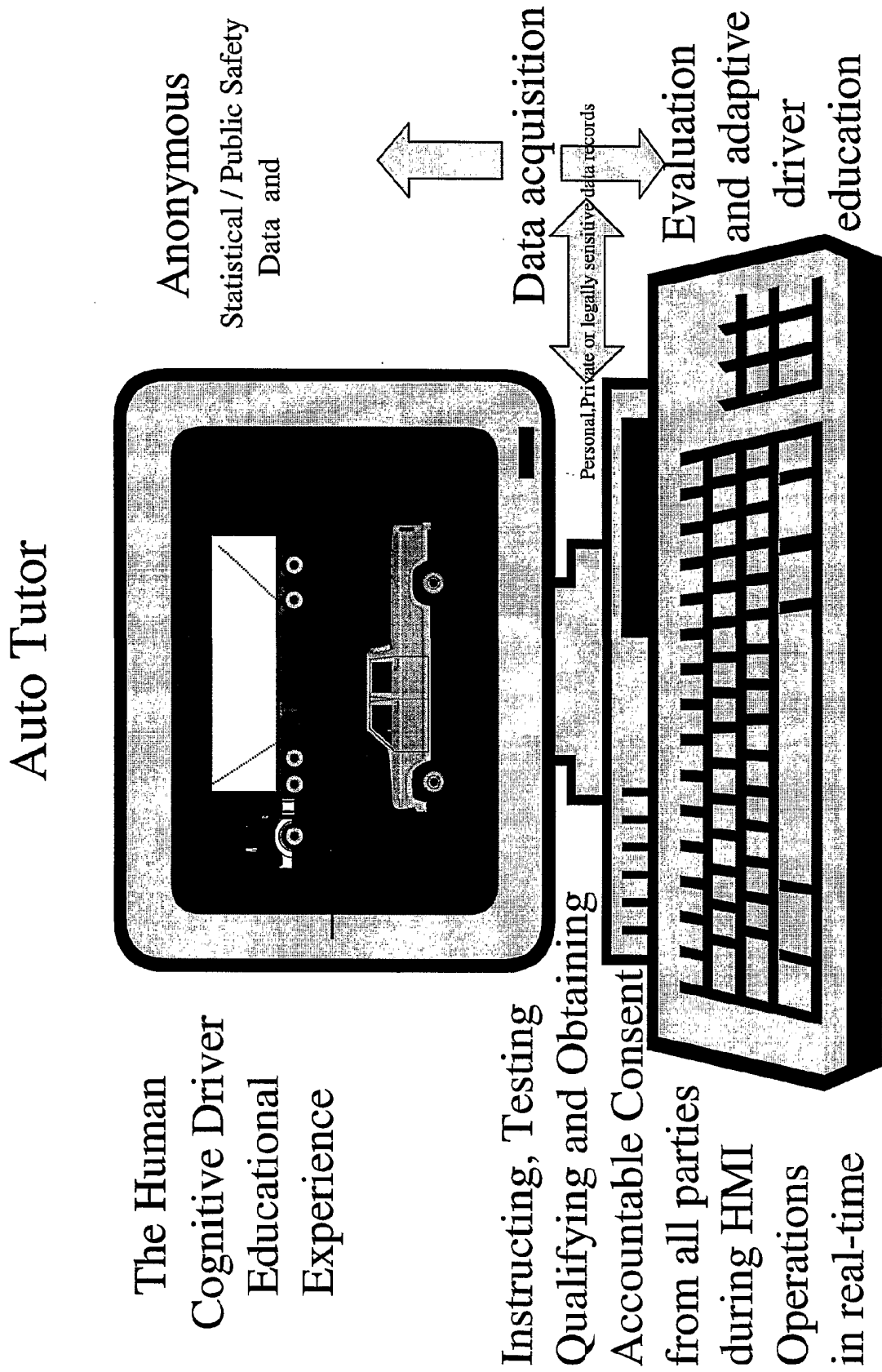


Fig 14

Front / Back Sensing

GPS Time Date and Location

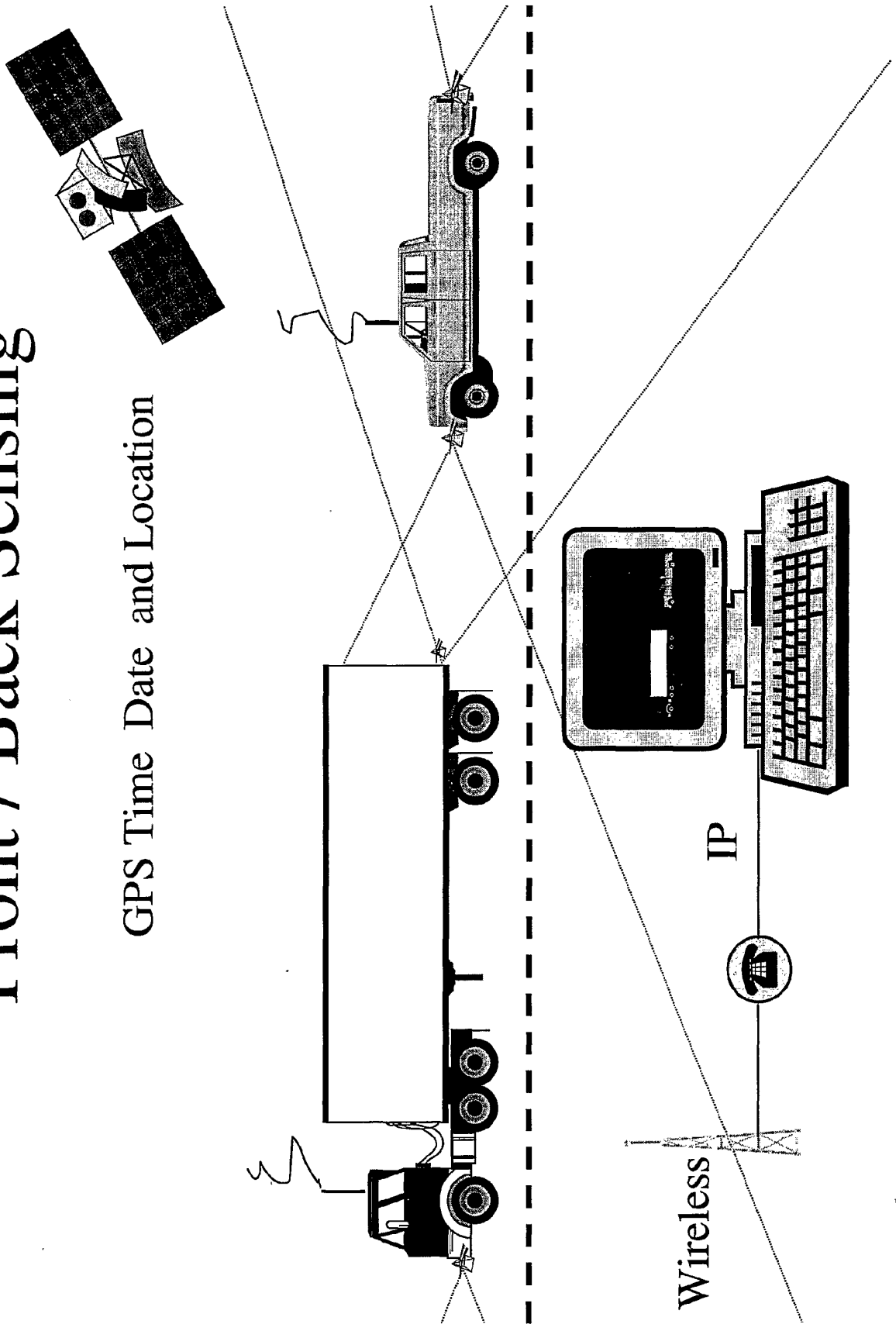


Fig.15A Light Vehicle Sensing and ID-ing Large Vehicles when Passing

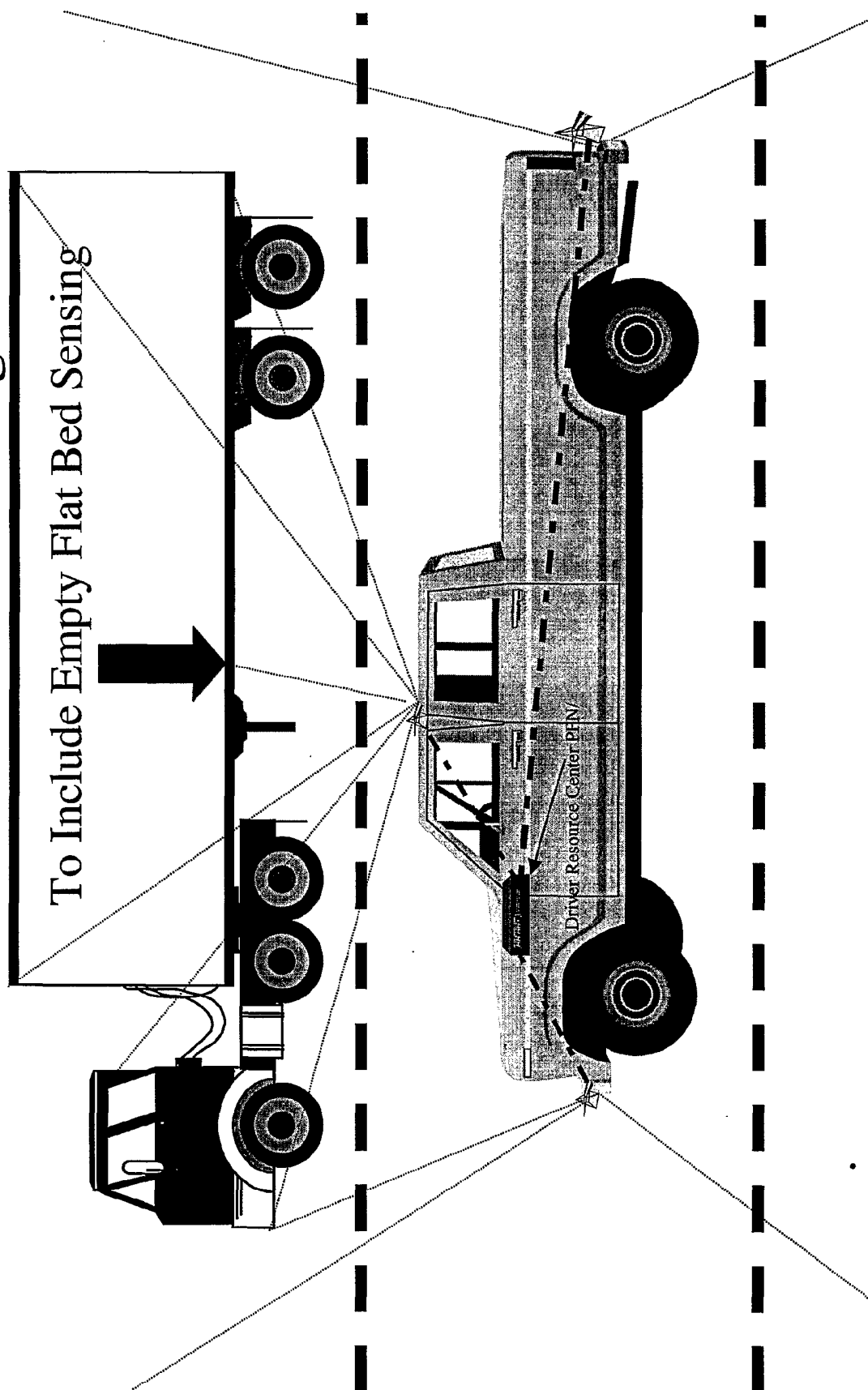


Figure 15^b Anonymous and Accountable Access to the Internet
Auto Tutor

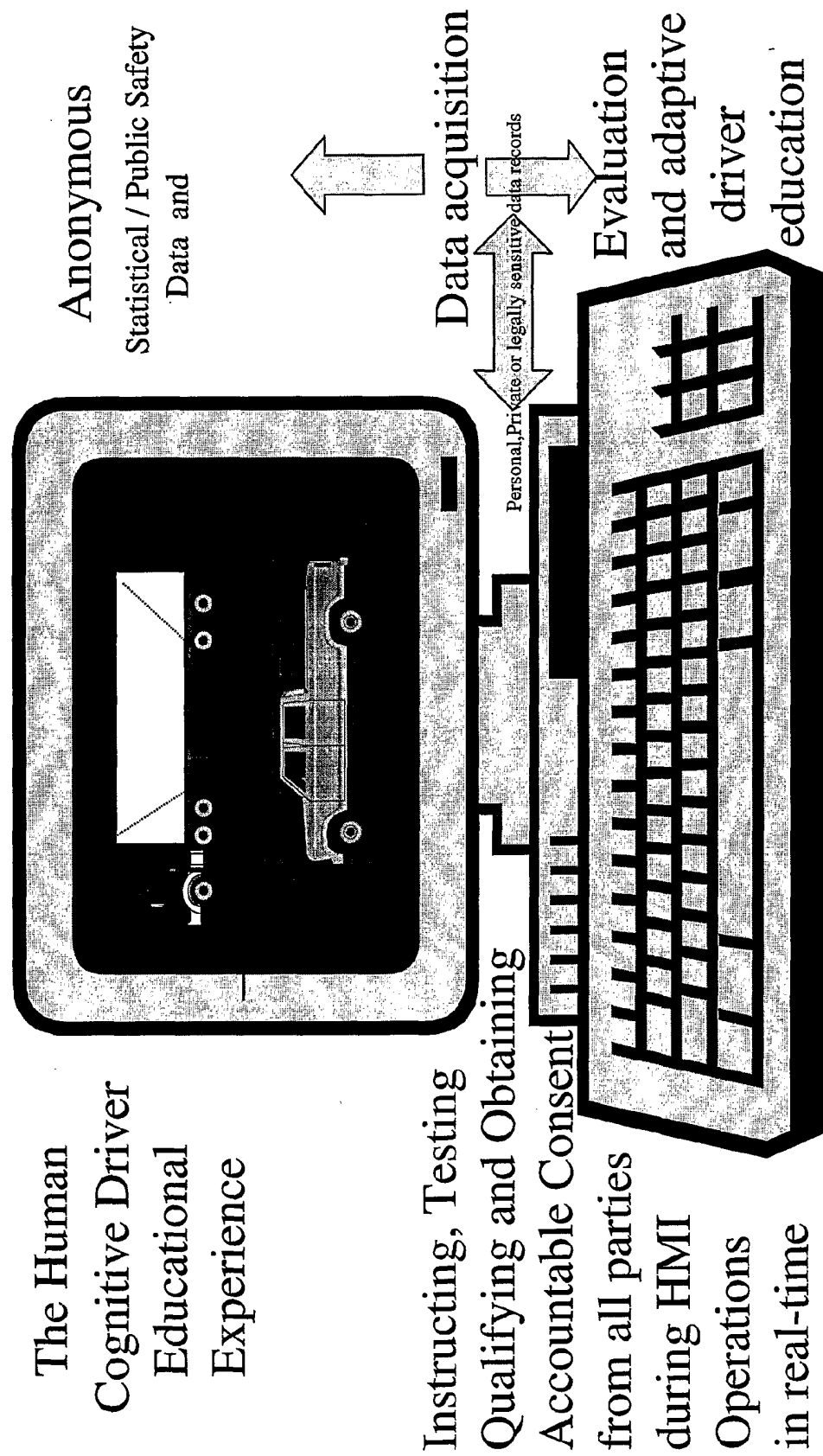
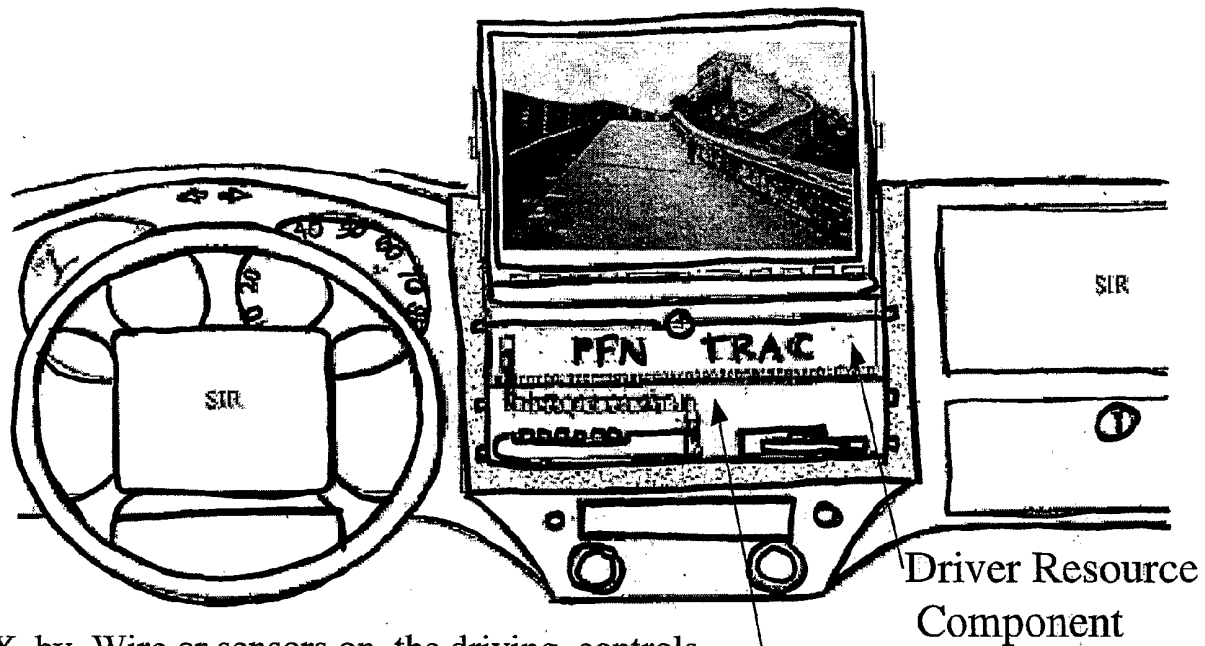
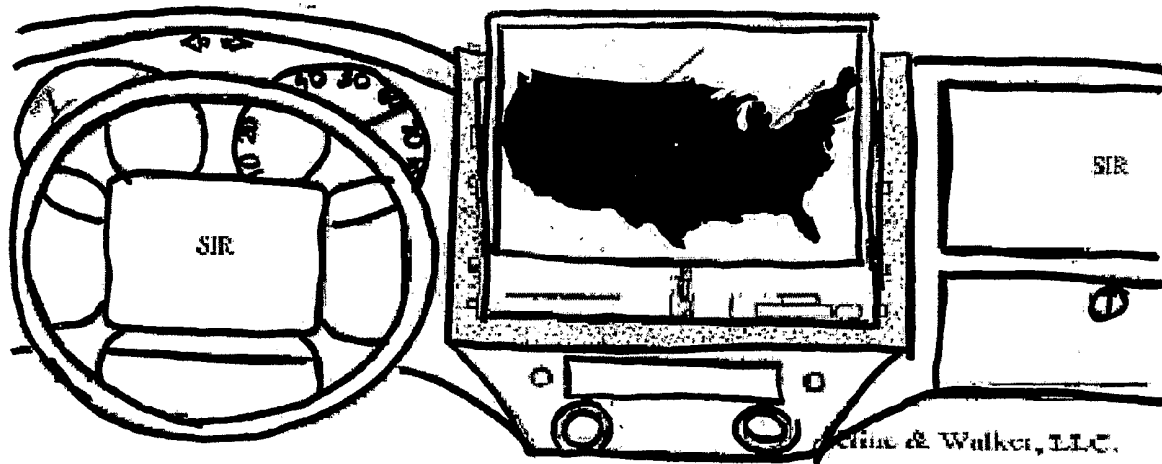


FIG 16

Real Car Driving Simulator



Telematic connection to Internet auto tutor



e-mail, vehicle sys. navigation etc. when moving