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(54) **APPARATUS AND METHOD FOR SET AND FORGET DRIVEBY ITSELF AND OR ASSISTED ANY WHEELED TRANSPORTATIONS AND MARKING PAVEMENTS OF EMBEDDED DATA (PEAKS/VALLEYS) BY "READING" AND "WRITING"; A SYSTEMS FOR READING/WRITING VIBRATIONS OF THE ROAD SURFACES UPON BODY OF VEHICLES BY SENSORS, PRINTING CEMENT/ASPHALT AND PROCESSES FOR MAKING SAME**

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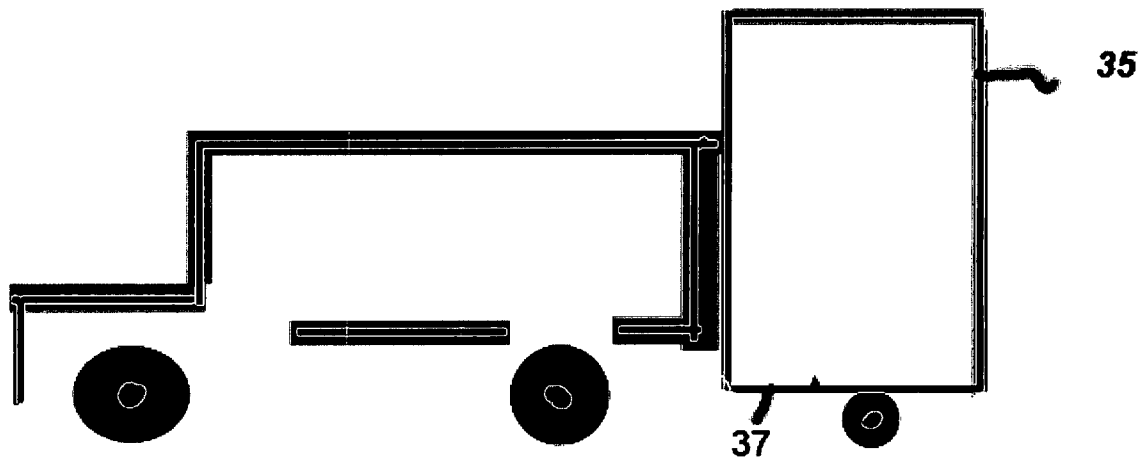
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(57) **ABSTRACT**

Apparatus and method for set and forget driveby itself and or assisted any wheeled transportations by "Reading" and marking pavements of embedded data (peaks/troughs) by "Writing", A systems for reading vibrations of the road surfaces upon body of vehicles by sensors with Arrays of sensors preferrably vibration transducer positioned strategically in the vehicles. Captured frequencies are the basis of "reading" the road thereby steering the vehicles in the right directions. Capture sounds emitted when tires run over the pavements by reading the bounced sounds and effectively processing dual. Writing by plurality of printing heads printing non-visible ink/paint, stamping pavements by air or stamper/rods for embedding data. Laser/led sender/receiver for picking-up the non-visible ink/paint data.



Apparatus and method for set and forget driveby itself and or assisted any wheeled transportations and marking pavements of embedded data (peaks/valleys) by "reading" and "writing" ; A systems for reading writing vibrations of the road surfaces upon body of vehicles by sensors, printing cement/asphalt and processes for making same.

INVENTOR'S NAME ROMEO F. MALIT

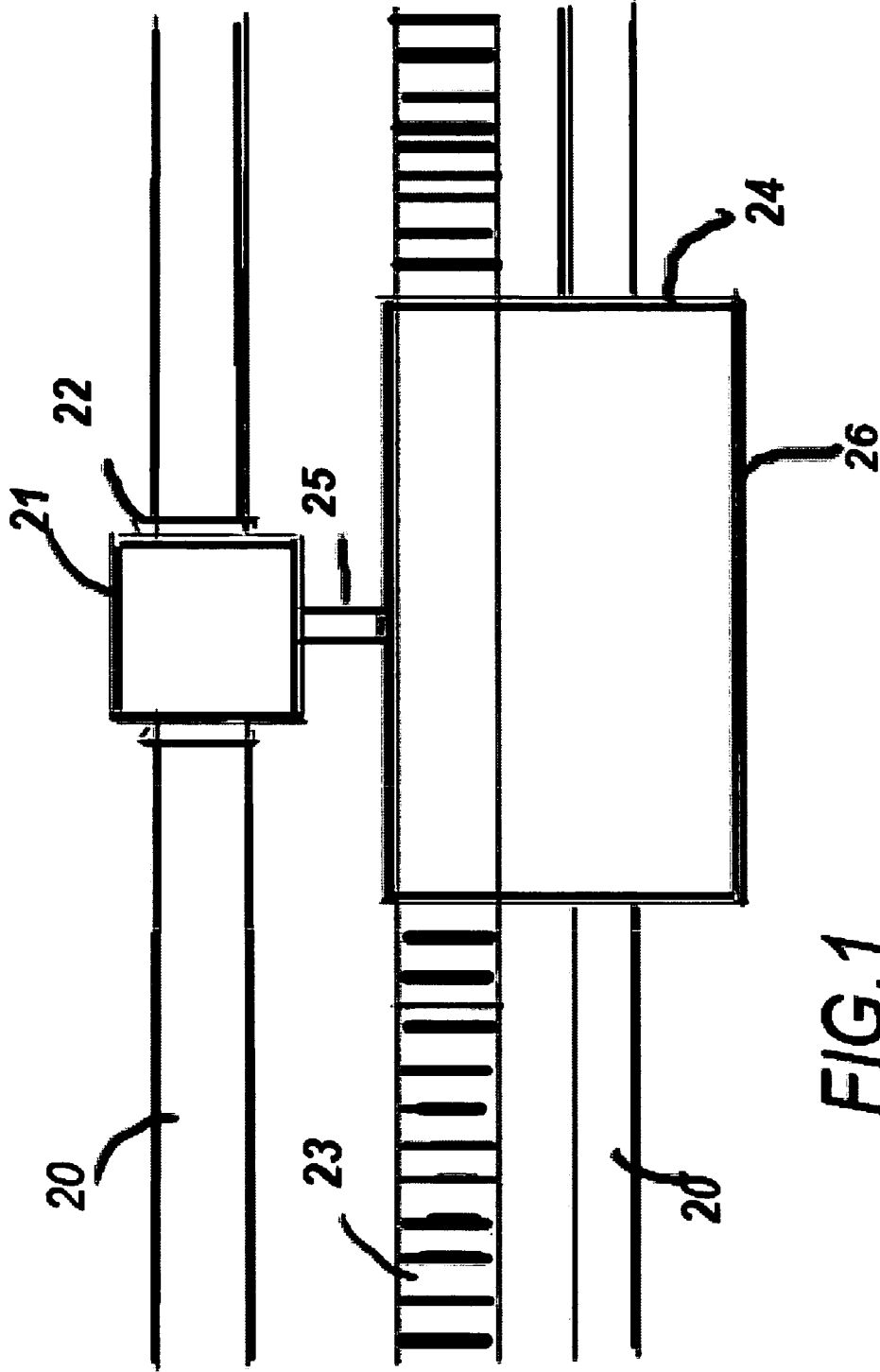


FIG.1

Apparatus and method for "Reading" and "Writing pavements"
INVENTOR'S NAME ROMEO F. MALIT

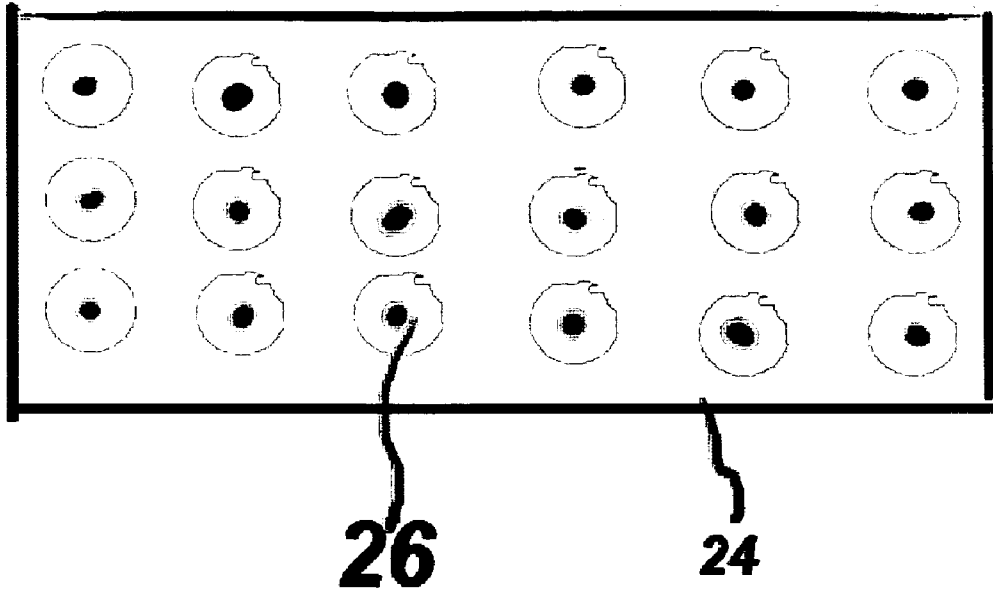


FIG. 2

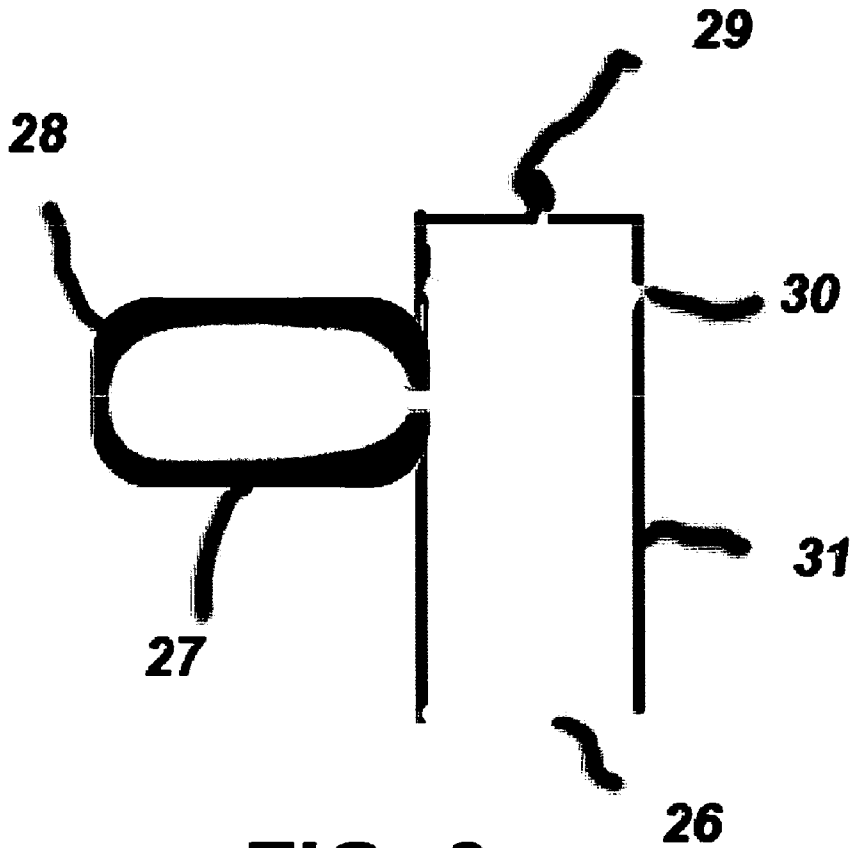


FIG. 3

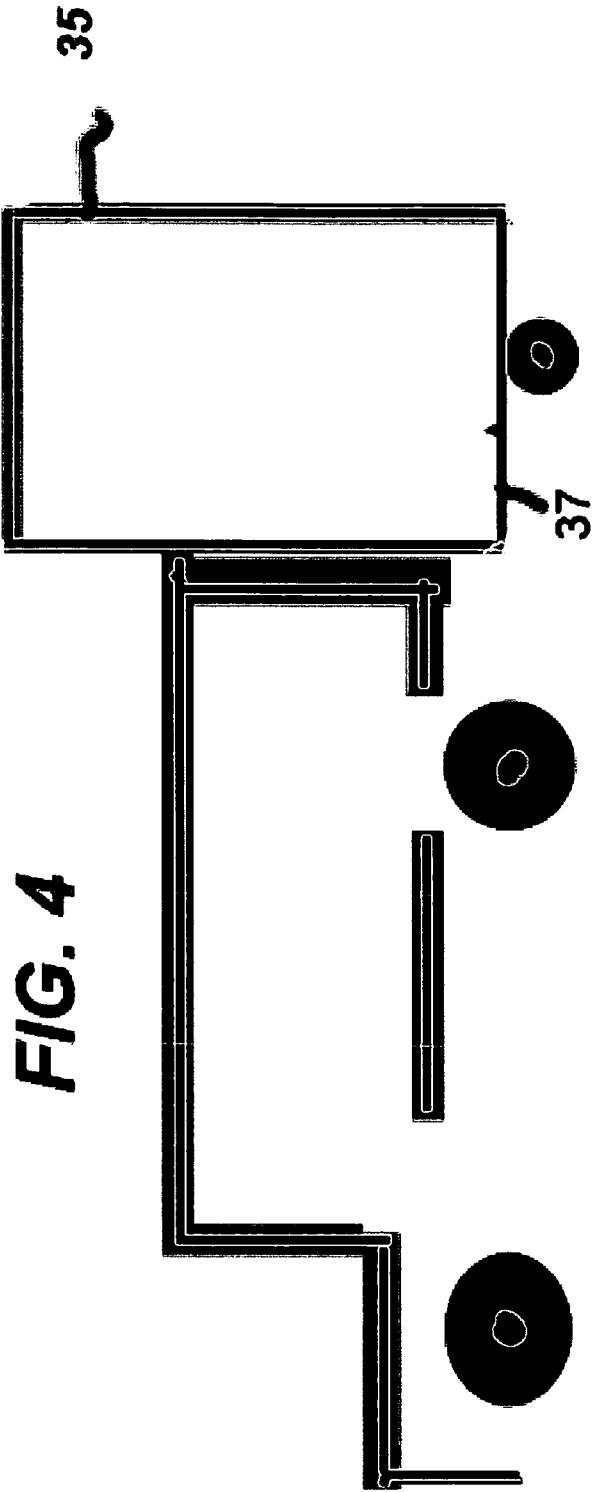


FIG. 4

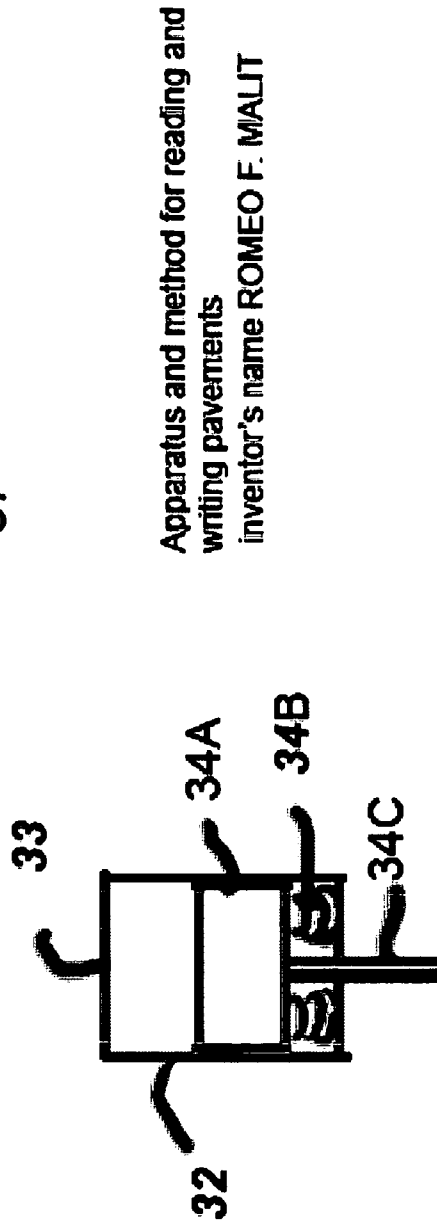


FIG. 5

Apparatus and method for reading and
writing pavements
inventor's name ROMEO F. MALIT

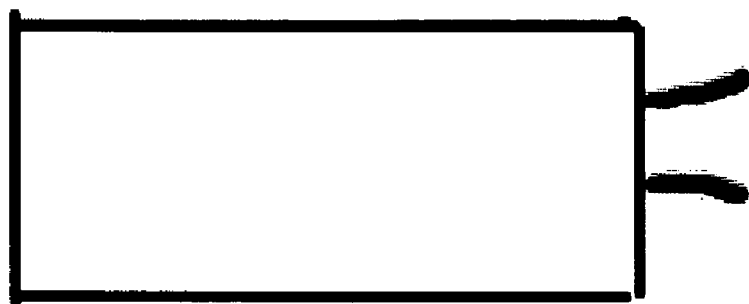


FIG. 6

36



FIG. 7

37

Apparatus and method for reading and writing pavements

Inventor's name ROMEO F. MALIT

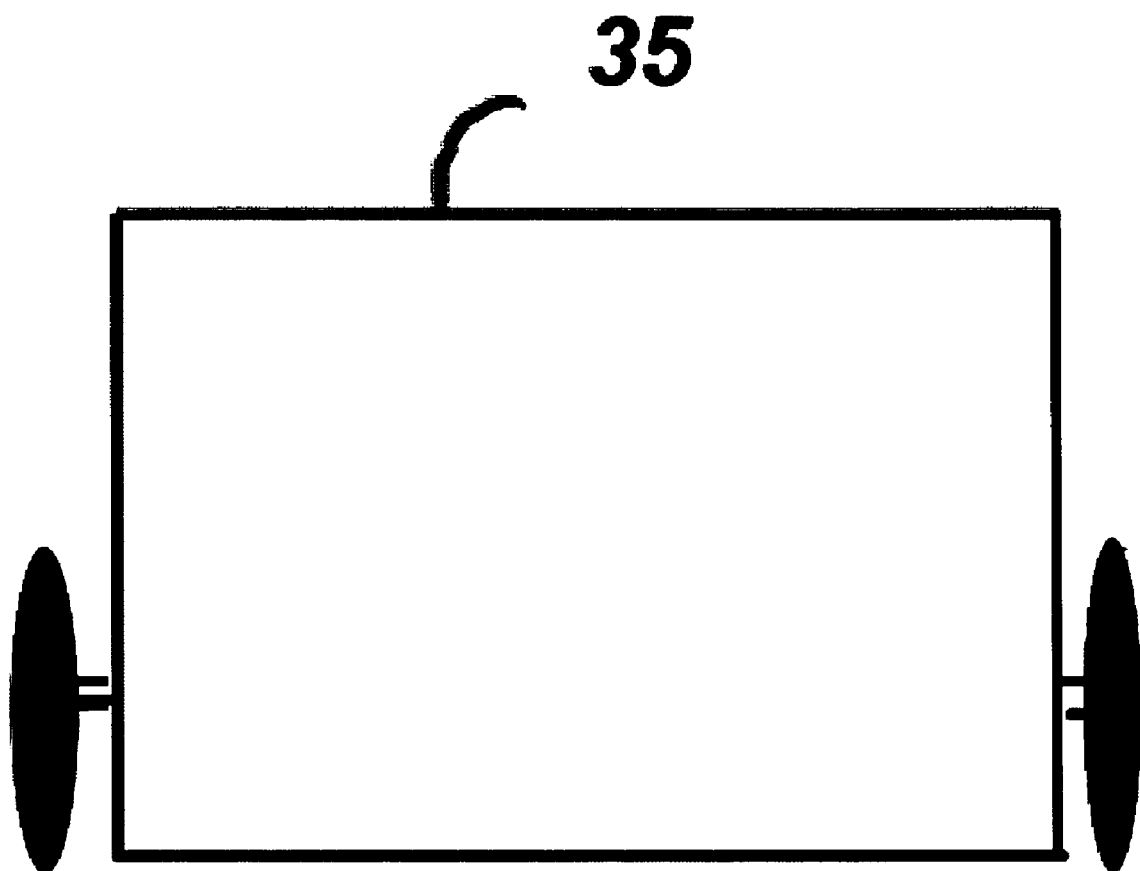


FIG. 8

Apparatus and method for reading and writing pavements

Inventor's name ROMEO F. MALIT

APPARATUS AND METHOD FOR SET AND FORGET DRIVEBY ITSELF AND OR ASSISTED ANY WHEELED TRANSPORTATIONS AND MARKING PAVEMENTS OF EMBEDDED DATA (PEAKS/VALLEYS) BY "READING" AND "WRITING"; A SYSTEMS FOR READING/WRITING VIBRATIONS OF THE ROAD SURFACES UPON BODY OF VEHICLES BY SENSORS, PRINTING CEMENT/ASPHALT AND PROCESSES FOR MAKING SAME

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

DESCRIPTION OF ATTACHED APPENDIX

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] This invention relates generally to the field of transportations and road building and more specifically to apparatus and method for set and forget driveby itself and or assisted any wheeled transportations and marking pavements of embedded data (peaks/valleys) by "reading" and "writing"; A systems for reading/writing vibrations of the road surfaces upon body of vehicles by sensors, printing cement/asphalt and processes for making same.

[0005] Measurements and analyzes of captured data has been used on different format. Pressures/strains/loads be it heat, chemical, mechanical or electrical etc. signals are computed to provide sets of known values to work on and sensors do the math effectively. Fingerprinting or biometrics determine the uniqueness of samples. Sensors in the blood pressure machine measure pressure against the wall of the vessels. Each sensors perform a definite purpose and target result. Biological mapping of human cells DNA is ongoing. Sensors affect everything that moves, emit signals and work on that signals to make life easier, better and progressive. Reading all input data transmitted to sensors offered control and guidance systems, boundary and perimeter technologies. Collision and avoidance system and forward looking device are in great use in today's cars as well as GPS. Sonar in ships detect peripheral attractions. Present cement and asphalt dispenser for building roads are integrated into big trucks and some behind the truck and buried strips of metal for integrity. Machine spindle rod or workers follow by smoothing and making irregular markings to prevent sliding of vehicles. Present inkjet printers do a fine job of printing image in high resolutions. Computer hard drives write and read data electromagnetically into platters. DVD/CD writer/rewritable use laser to write/read by burning pits. Tape recorder/player laid out data magnetically and heads to read.

[0006] U.S. Pat. No. 20020067292 by Appenrodt, Nils; Berner, J.; Mezger; Wanielik filed Jul. 24, 2001 teaches multisensory correlation of traffic lanes from a digital road coupled with a navigation system and distance resolving sensor. U.S. Pat. No. 20030123930 by inventor Jacobs, Gregory; Khieu, Sithya; Tolliver teaches matrix element

magnetic pavement marker having an array of magnetic pavement elements arranged in a predetermined pattern interconnected by a carrier web. Method described in German Patent application DE 19906614 a1 teaches a traffic lane detection sensor in the form of a video camera and an object position sensor composed of radar sensor which detects the markings lines at the road edge to the data of a digital map. Japanese Publication JP 10325869 teaches the same. German published Patent Application no. 19507957 proposes a tracking of travel speed regulating device with use of optical sensor by use of lane markings. German Published Patent no. 4200694 as well as Winner et.al. sae technical paper series 961010, 1996 p. 27-36 teaches adaptive cruise control. U.S. Pat. App No. 20040088079 by Lavarec, Erwan filed Nov. 14, 2003 disclosed methods and device for obstacle detection and distance measurements by infrared. U.S. Pat. Appl No. 20030046158 by Kratky, Joseph teaches about moving advertising target. U.S. Pat. Appl No. 20040049339 by Kober, Marcus; et al. teaches an assistance system for selecting a route with the aid of a computing device, a storage device, i/o device uses route parameters. U.S. Pat. No. 4,030,958 teaches behind a truck dispenser for applying adhesive back tapes to a surface. U.S. Dept. of Transportation dated July/August 1997 vol 61 no 1 stated a preliminary field evaluation of ultraviolet-activated fluorescent roadways disclosed when UV light strikes certain materials, the wavelength of the UV light become longer creating light that is visible by combining UV Headlight on vehicles and UV-activated fluorescent materials in roadway markings.

[0007] Prior technologies do not solve a set and forget driving innovations. Do not provide hands-free operations. No adaptive software to work on. One technology German Patent application DE 19906614 teaches traffic lane detection in the form of a video camera and object position sensor which detects the marking lines of the road edges to the digital map. Road edges are unreliable gauge and map to steer the car. My technology is the whole image of the pavement and printout of the actual road. If one wants to go Los Angeles, just load the software that contain the behavior of the surface road leading to LA. The vehicle will drive by itself knowing exactly following the peaks and troughs of the surface road, where locations of nearest rest stop, restaurants, hotels, gas due to program software in the disk or any medias. German patent App no. 19507957 proposes regulating device with use of optical sensor by lane markings for tracking travel speed. This device provides to regulate speed and not reliable. My technologies will read and write then adjust speed accordingly. Mentioned disclosed prior patents have shortcomings and inadequacies in innovations. My invention is an all-in-one package. Because roadways will be mapped, "Read and Write" and stored as software in any storage media, cost is less expensive. My invention will have great convenience on everyday life.

BRIEF SUMMARY OF THE INVENTION

[0008] The primary object of the invention is To provide a hands-free operations of any motor vehicles that operate by itself.

[0009] Another object of the invention is To provide a worry-free route destinations procedures that operates by inputting destinations.

[0010] Another object of the invention is To provide a safe-free travel of commuters by distance predictions that operates as a monoblock pattern.

[0011] A further object of the invention is To provide a learned road conditioning that operates by automatic programming.

[0012] Yet another object of the invention is To provide an applications for wired/wireless computers that operates by communicating to main control module.

[0013] Still yet another object of the invention is To provide interactive road and pedestrian behaviors that operates by looking ahead for changes in road conditions.

[0014] Another object of the invention is To provide alertness to hazards ahead that operates by synchronizing with road workers and agencies.

[0015] Another object of the invention is To provide medical/fire/police response that operates with any break in continuity of travel.

[0016] A further object of the invention is To provide software for different road conditions and updates that operates by commuters buying new software for new types of road.

[0017] Yet another object of the invention is To provide easy access to nearest hotels/park/restaurants/etc that operates by voiced or connected computers.

[0018] Still yet another object of the invention is To provide a set and forget driving that operates on side street with same invention installed in other vehicles for non-chaos crossing.

[0019] Another object of the invention is To provide accurate GPS locators that operates by precise DNA of the road.

[0020] Another object of the invention is To provide adjustments to shocks and suspensions that operates on stored data road behavior.

[0021] A further object of the invention is To provide efficient movement of goods and services that operates by locomotive type block of convoy.

[0022] Yet another object of the invention is To provide plan ahead commuting that operates by computing numbers of commuters in the road.

[0023] Still yet another object of the invention is To provide efficient road management that operates by paid consultancy.

[0024] Another object of the invention is To provide input to government agencies for better constructions of highway that operates by offering new technologies in road building.

[0025] Another object of the invention is To provide interactive advertisements of goods and services that operates by interactive display, streaming audio-video portable computers.

[0026] A further object of the invention is To provide computing for on the road digital warrior that operates real time on the fly transactions.

[0027] Yet another object of the invention is To provide protections to pavements from elements that operates by spraying protective overcoat.

[0028] Still yet another object of the invention is To provide non-visible ads, recognitions, acknowledgements printed on pavements that operates by uv/infrared visual device.

[0029] Another object of the invention is To provide safety for commuters so vehicles will not slide of the road that operates by marking pavements with orderly peaks and trough.

[0030] Another object of the invention is To provide photos, image, identifying marks printed on the highways/roads that can be view from above.

[0031] Other objects and advantages of the present invention will become apparent from the following descriptions, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

[0032] In accordance with a preferred embodiment of the invention, there is disclosed apparatus and method for set and forget driveby itself and or assisted any wheeled transportations by "Reading" and marking pavements of embedded data (peaks/troughs) by "Writing", A systems for reading vibrations of the road surfaces upon body of vehicles by sensors comprising: Arrays of sensors preferably vibration transducer positioned strategically in the vehicles for maximum vibrations input. Said independent sensors measure the frequencies when the vehicle's tires come into contact to the pavements when driving Such pavement surfaces have unique signatures like no other. Captured frequencies are the basis of "reading" the road thereby steering the vehicles in the right directions in harmony/comparisons with the software loaded of that particular segments. 2 Said sensors direct the on-board standalone module computer or connected device like Laptop, PDA or wireless systems by oversampling to arrive to final computations. With any deviations in the road, learning process reading by the system's proprietary software creates algorithm by its robust built-in artificial intelligence capabilities automatically. Said systems also capture the sounds emitted/created when tires run over the pavements by reading the bounced sounds and effectively processing hand in hand as describe in claim A1. thereby both parallel high resolutions frequencies is achieved. 3. With the contact signatures read as claim in A1, wherever people are, accurate spot locations are known precisely, wirelessly by its own address.

[0033] In accordance with a preferred embodiment of the invention, there is disclosed apparatus and method for set and forget driveby itself and or assisted any wheeled transportations and marking pavements of embedded data (peaks/valleys) by "Writing", A systems for "writing signatures" on cement/asphalt after is has been built comprising, A device made of flat sheet of metal or plastic adjustable to the width of the road being build. Said device consist of two parts. The first is a smooth finish to flatten the cement, asphalt or materials. The second is where the writing begins. Said device has arrays of openings. These openings have plurality of injections systems. 2 These injections systems as claim in B1 can be package as one or made into three device. The first device has arrays of stamper rods/plungers and each stamper

rod/plungers is placed in a protective housing. In the housing, return springs on sides or around resides. To drive the stamper rods/plungers out of the openings, said device can use hydraulic systems, solenoids actuators or air pressure system to penetrate/stamp the asphalt, cement or materials at a computerized predetermined depth. Each depth has the signatures embedded. The second device has nozzles at the end of the rods/plungers. The nozzles use air to make impressions on the cement, asphalt or materials whereby each has hose connections attached to air compressor regulator controlled by computer for exact impressions of data. Said nozzle heads can be interchangeable to a printing heads. This is a low cost system since it does not need elaborate hydraulic, solenoid, actuators constructions. The third device is basically the combinations of the two devices.

[0034] In accordance with a preferred embodiment of the invention, there is disclosed apparatus and method for printing non-visible paint/ink materials on the pavement. A system of nozzles/heads spraying image on the pavements as claimed in B2. An Ultraviolet or infrared paint can be used. Light waves of ultraviolet and infrared are just part of the spectrum and they are non-visible to naked eyes. After said paint has been printed, ultraviolet or infrared optical sender/receiver sensor illuminates and return signals are captured. A laser or LED may be used. [text missing or illegible when filed]

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] The drawings constitute a part of this specification and include exemplary embodiments to the invention, which may be embodied in various forms. It is to be understood that in some instances various aspects of the invention may be shown exaggerated or enlarged to facilitate an understanding of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0036] Detailed descriptions of the preferred embodiment are provided herein. It is to be understood, however, that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

[0037] Apparatus and method for set and forget drive by itself and or assisted any wheeled transportations by "Reading" and marking pavements of embedded data (peaks/troughs) by "Writing".

[0038] Turning first to FIG. 6 there is shown a sensor 36, preferably an array of vibration transducer that is strategically positioned in the body of the vehicles. For maximum vibration pick-up, said sensors can be connected to shocks and springs of the suspensions systems so that the movement of the tires can be effectively measured. The sensor wires are connected to computer control modules and or attached to any portable computer or this case to a Laptop wirelessly for processing captured signals. Following the preferred procedure, deviations in the roads' peaks and troughs directed the computer programs to compute adjustments analysis of the unique signatures of the pavements. In keeping with one of the principle objects of the invention, the sonic sensor placed

side by side to capture sounds made by the tires' vibrations and laser/led pick-up to read ultraviolet/infrared printed paint for high resolution oversampled frequencies. In this way, accurate interactive steering and directions of vehicle is achieved. Commuters will have to update or buy new software in CDs, DVDs, Flash Card, Hard Drive or any storage medias suited where they intend to drive. It is evident, this is the principle of "reading" the road. To accomplish an important function of the invention, the "writing" of the pavements, there is shown in FIG. 1, an electric motor 21, supported by holding brackets with rollers 22 thereby to keep on track to plurality of long adjustable guide metal bars 20. The electric motor shaft 25 is connected to gears of metal block housing 24 with arrays of openings that contains plurality of injections systems 24. Flat smooth finnish sheet of metal/plastic 37 in FIG. 7 is positioned level as independent segment to housing 24. Said housing 24 comprising interchangeable assembly from FIG. 5 enclosure 32 to printing heads 31 as describe in FIGS. 1 and 2 can be package as one. In carrying out the invention, the electric motor 21 with housing 24 moves left or right by having the gear connected to adjustable long metal bar comprising plurality of flat gears 23. In the illustrated embodiment, "writing" is done by stamper rods and or printing non-visible paint image on the pavement via nozzles of 26 as evident in FIG. 3. In keeping with the invention, FIG. 5 further comprising an enclosure 32 that house a piston 34A, return spring 34B and the stamper/rods 34C. Hose 33 can be connected to a hydraulic solenoids, actuators and air pressure systems to penetrate or stamp the asphalt/cement or materials at a computerized predetermined depth. In the preferred construction, as a printer, any non-visible electromagnetic spectrum frequencies, in this case ultraviolet, infrared ink/paint is the preferred material is stored in secondary reservoir 27 connected to hose 28 to main tank and aperture to flow ink/paint to primary cylinder 31. In the present instance, pavements should be free of debris and clutter so that ready for printing image/data and laying long lasting uv/water-froof overcoat protection. It is very important the present invention be mounted or built in the truck FIG. 4 protected in enclosure 35. For small work, trailer type FIG. 8 is suitable.

[0039] While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. Apparatus and method for set and forget drive by itself and or assisted any wheeled transportations by "Reading" and marking pavements of embedded data (peaks/troughs) by "Writing"; A systems for reading vibrations of the road surfaces upon body of vehicles by sensors comprising: Arrays of sensors preferably vibration transducer positioned strategically in the vehicles for maximum vibrations input. Said independent sensors measure the frequencies when the vehicle's tires come into contact to the pavements when driving. Such pavement surfaces have unique signatures like no other. Captured frequencies are the basis of "reading" the road thereby steering the vehicles in the right directions in harmony/comparisons with the software loaded of that par-

ticular segments. Said sensors directed the on-board standalone module computer or connected device like Laptop, PDA or wireless systems by oversampling to arrive to final computations. With any deviations in the road, learning process reading by the system's proprietary software creates algorithm by its robust built-in artificial intelligence capabilities automatically.

2. Said systems also capture the sounds emitted/created when tires run over the pavements by reading the bounced sounds and effectively processing hand in hand as describe in claim 1. thereby both parallel high resolutions frequencies is achieved.

3. With the contact signatures read as claim in 1, wherever people are, accurate spot locations are known precisely, wirelessly by its own address.

2. Apparatus and method for set and forget driveby itself and or assisted any wheeled transportations and marking pavements of embedded data (peaks/valleys) by "Writing"; A systems for "writing signatures" on cement/asphalt after is has been built comprising; A device made of flat sheet of metal or plastic adjustable to the width of the road being build. Said device consist of two parts. The first is a smooth finish to flatten the cement, asphalt or materials. The second is where the writing begins. Said device has arrays of openings. These openings have plurality of injections systems.

2. These injections systems as claim in 2 can be package as one or made into three device. The first device has arrays of stamper rods/plungers and each stamper rod/

plungers is place in a protective housing. In the housing, return springs on sides or around resides. To drive the stamper rods/plungers out of the openings, said device can use hydraulic systems, solenoids actuators or air pressure system to penetrate/stamp the asphalt, cement or materials at a computerized predetermine depth. Each depth has the signatures embedded. The second device has nozzles at the end of the rods/plungers. The nozzles uses air to make impressions on the cement, asphalt or materials whereby each has hoses connections attached to air compressor regulator controlled by computer for exact impressions of data. Said nozzles heads can be interchangeable to a printing heads. This is low cost system since it does not need elaborate hydraulic, solenoid, actuators constructions. The third device is basically the combinations of the two device.

4. Apparatus and method for printing non-visible paint/link materials on the pavement. A systems of nozzles/heads spraying image on the pavements as claim in 3. An Ultra-violet or infrared paint can be used. Light waves of ultra-violet and infrared are just part of the spectrum and they are non-visible to naked eyes. After said paint has been printed, ultraviolet or infrared optical sender/receiver sensor illuminates and return signals is capture. A laser or LED may be used.

5. The devices can be build as part of the truck or trailing system or manual dispenser.

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