

he/she will know will evidence superior safety of operation and a minimal. . .

DETD(12) With . . . on-board computer 300 monitors and records various sensors and operator actions to acquire the desired data for determining a fair ****cost**** of ****insurance****. Although not shown therein, a plurality of ****operating**** ****sensors**** are associated with the motor ****vehicle**** to monitor a wide variety of raw data elements. Such data elements are communicated to the computer through a connections. . . cable which is operatively connected to the vehicle data bus 304 through an SAE-J1978 connector, or OBD-II connector or other ****vehicle**** ****sensors**** 306. A ****driver**** input device 308 is also operatively connected to the computer 300 through connector 307 and cable 302. The computer is. . .

DETD(13) FIG. . . . need for assistance or for satisfaction of various threshold factors which need to be satisfied before the vehicle can be ****operated****. The physical ****operation**** of the ****vehicle**** is ****monitored**** through various ****sensors**** 412 in ****operative**** connection with the ****vehicle**** data ****bus****, while additional ****sensors**** 414 not normally connected to the data bus can be in direct communication with the computer 300 as will hereinafter. . .

DETD(92) 1. Excessive ****speed****. The reading of the ****vehicle**** ****speed**** ****sensors**** would indicate the ****vehicle**** is exceeding the ****speed**** limit. Time would also be measured to determine if the behavior is prolonged.

DETD(99) At . . . period. This insured profile includes the information about coverages including limits and deductibles, which are necessary for establishing the appropriate ****cost**** of ****insurance**** for the subject insured. At step 214, the acquired consolidated file information from step 210 and the overall insured profile. . .

US PAT NO: 5,499,182 [IMAGE AVAILABLE] L31: 7 of 29
DATE ISSUED: Mar. 12, 1996
TITLE: Vehicle driver performance monitoring system
US-CL-CURRENT: 701/35; 340/439; 701/29

ABSTRACT: A vehicle driver performance monitoring system is provided. A plurality of vehicle component sensors (40-43) suitably mounted to a host vehicle measure a plurality of vehicle component parameters indicative of a host vehicle's driver performance. A microprocessor module (1) detachably coupled to the vehicle mounting unit (2) affixed to and uniquely designated for a given host vehicle poles each vehicle sensor (40-43) of that host vehicle to read, process, and store the vehicle operation data generated thereby. A playback mounting unit (3) is provided to facilitate the connection of a remote computer to the host vehicle's microprocessor module (1) in order to establish digital communication whereby the vehicle operation data and the analysis results processed therein are retrieved and displayed for a user.

BSUM(2) The . . . monitoring system is generally directed to an onboard computer system for operation on a designated host vehicle. More specifically, the ****vehicle** **driver** performance ****monitoring**** system** is an onboard computer system which has in place the hardware and software means to ****sense** various ****vehicle** ****operation**** parameters,** characterize the ****driving** ****habits**** of the current driver based on those parameters with respect to various specified determinants, and make available processed information for. . .****

BSUM(3) The . . . the physical manipulation of that vehicle and particularly in the parametric variations of that vehicle's electrical/mechanical components. Accordingly, the subject ****vehicle** ****driver** performance ****monitoring**** system** includes a plurality of parametric sensors which measure the physical parameters associated with the host vehicle components to which. . .**

BSUM(4) The need for such driver performance assessments, as provided by the subject ****vehicle** ****driver** performance ****monitoring**** system,** is manifest in several readily apparent applications. First, parents of driving-aged children well recognize the demonstrated tendency of many. . . children's driving habits and, in many cases, lack the information to even suspect that their children in fact exercise poor ****driving** ****habits****. The subject ****vehicle** ****driver** performance ****monitoring**** system** would provide the continually monitored driving performance information which they critically need in order to maintain control over their. . .******

BSUM(5) Businesses also possess a discernable need for the driving performance assessments provided by the subject ****vehicle** ****driver** performance ****monitoring**** system.** It is imperative for any business owning employee-****operated** ****vehicles**** to ****monitor**** the ****driving** ****habits**** of their employees during the operation of those vehicles. The current practice of many such businesses is to visibly mount. . . it also heightens for businesses the expenses they must allocate for costs associated with otherwise avoidable accidents and the increased ****insurance** ****premiums**** resulting from them. Moreover, the lack of satisfactory means to effectively monitor employee driving habits deprives businesses of an opportunity. . .********

BSUM(6) Another significant application anticipated for the subject **vehicle** **driver** performance **monitoring** system is in the automobile insurance business wherein accurate assessments of driving habits would facilitate accurate and fair allocations of **costs**. As most automobile **insurance** companies currently rely primarily on age, sex, and the driving record of the insured individual in estimating the risk of. . . insurance payouts caused by that individual, only marginal estimates of such risks are attained; and unfair assessments of the applicable **insurance** **premium** for that individual often result. Reckless though fortunate drivers, who but for the care fortuitously employed by other drivers, have avoided serious automobile accidents are regularly assessed an **insurance** **premium** as low as, if not lower than, more careful drivers but unfortuitous drivers who, except for a single unavoidable traffic. . . caring vehicle owners who invest substantial effort to minimize the wear and tear on their vehicles. The accurate assessments of **driving** performance provided by the subject **vehicle** **driver** performance **monitoring** system would enable automobile insurance companies to remedy these inequities and, as well, reduce their own expenses by appropriately allocating. . .

BSUM(8) Onboard . . . computer system heretofore known which continually monitors the driver performance of a host vehicle as comprehensively as does the subject **vehicle** **driver** performance **monitoring** system.

BSUM(9) For . . . a plurality of vehicle-mounted sensors. The onboard computer in that system periodically receives and stores the parametric values associated with **vehicle** **braking** **sensed** by the **sensors**. The data thus generated by that computer is then available to be read later by an instructor who will compare the recorded parametric values to formulate further instructive steps. Unlike the subject **vehicle** **driver** performance **monitoring** system, however, that system does not perform evaluative functions on the data. Any evaluations to be made in light of. . . during those discrete time intervals related to an instructional session. It is not performed in correlation continually with the host **vehicle**'s **operation**, as is the **monitoring** in the subject **vehicle** **driver** performance **monitoring** system.

BSUM(10) In . . . reveal no apparent need to question driver integrity; therefore no driver integrity checking means are therein provided. In the subject **vehicle** **driver** performance **monitoring** system, however, the integrity of the host vehicle driver is an ever-present concern, the compromise of which would wholly undermine the utility of the system. The subject **vehicle** **driver** performance **monitoring** system therefore includes means for recording any attempt to either operate a given system on a vehicle other than the. . .

BSUM(11) U.S. Pat. No. 5,034,894 directs itself to a self-diagnosis computer system onboard a motor vehicle wherein a plurality of **detectors** are mounted on that **vehicle**'s **engine** to **detect** any aberrant **operating** **conditions**. Although the computer system there performs continual **monitoring** while the **vehicle** is in **operation**, no provision is made for the assessment of driver performance based on any sensed parameters.

BSUM(12) Similarly, . . . performance. Various transducers for continually monitoring various vehicle parameters are employed in that system; however, comprehensive means for analyzing the **measured** **vehicle** parameters to characterize or assess **driver** performance, per se, are not provided.

US PAT NO: 5,430,432 [IMAGE AVAILABLE] L31: 8 of 29
DATE ISSUED: Jul. 4, 1995
TITLE: Automotive warning and recording system
INVENTOR: Elie Camhi, 131 Country Ridge Rd., Scarsdale, NY 10583
Lawrence S. Kamhi, 30 Saddleview Ct., Fairfield, CT 06432
APPL-NO: 08/278,991
DATE FILED: Jul. 22, 1994
REL-US-DATA: Continuation of Ser. No. 992,246, Dec. 14, 1992, abandoned.
US-CL-CURRENT: 340/438; 180/171; 307/10.1; 340/439, 441, 459; 701/35; 702/41, 141

US PAT NO: 5,499,182 [IMAGE AVAILABLE] L31: 7 of 29
DATE ISSUED: Mar. 12, 1996
TITLE: Vehicle driver performance monitoring system
INVENTOR: Jeffrey Ousborne, 5606 Foxview Ct., Clarksville, MD 21029
APPL-NO: 08/350,848
DATE FILED: Dec. 7, 1994
US-CL-CURRENT: 701/35; 340/439; 701/29

US PAT NO: 5,797,134 [IMAGE AVAILABLE] L31: 3 of 29
DATE ISSUED: Aug. 18, 1998
TITLE: Motor vehicle monitoring system for determining a cost of insurance
INVENTOR: Robert John McMillan, Tampa, FL
Alexander Dean Craig, Moreland Hills, OH
John Patrick Heinen, Tampa, FL
APPL-NO: 08/592,958
DATE FILED: Jan. 29, 1996
US-CL-CURRENT: 705/400, 4

US PAT NO: 4,067,061 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: Jan. 3, 1978
TITLE: Monitoring and recording system for vehicles
INVENTOR: John Emil Juhasz, Lake Orion, MI
APPL-NO: 05/559,509
DATE FILED: Mar. 18, 1975
US-CL-CURRENT: 360/5; 346/33D; 364/920, 925, 925.2, 952, 952.4, 952.5; 377/21, 24,
24.1; 701/29

US PAT NO: 5,430,432 [IMAGE AVAILABLE] L31: 8 of 29
DATE ISSUED: Jul. 4, 1995
TITLE: Automotive warning and recording system
US-CL-CURRENT: 340/438; 180/171; 307/10.1; 340/439, 441, 459; 701/35; 702/41, 141

ABSTRACT: An automotive unsafe condition recorder is provided having one or more automotive condition sensors coupled to the input of a timer equipped processor. An indicator for alerting the operator is coupled to an output of the processor, which the processor energizes in response to a signal level from the sensor indicating the existence of a predetermined unsafe operating condition. If the unsafe operating condition is not corrected within a predetermined time, the processor transmits information pertaining to the unsafe condition to a storage unit, which accumulates the information for later review.

BSUM(5) This . . . and maintenance personnel, airline officials for evaluation of the craft and crew, regulatory authorities for incident or crash analysis, and ****insurance**** companies for liability and ****premium**** determinations.

BSUM(10) The . . . such a device would be multiple. Monitored drivers would be motivated to drive more safely by the reward of lower ****insurance**** ****premiums****, which could be lowered further if they prove themselves responsible. Insurance companies could eliminate persistent speeders and unsafe drivers, or. . .

BSUM(11) Accordingly, a need exists for a device which can ****monitor**** ****vehicle**** ****operating**** parameters and alert the ****operator**** to predetermined unsafe conditions, allow a short time for correction of those conditions, and if uncorrected in that time, record. . .

BSUM(24) According . . . has means for retrieval of recorded information. The processor inputs are coupled to signal sources which provide signals indicative of ****monitored**** ****vehicle**** ****operation**** variables, at least one of such variables being vehicle speed. The signal input is routed through the processor which is. . . receded below the predetermined value, initiates accumulation by the storage unit of information pertaining to one or more of the ****monitored**** ****vehicle**** ****operating**** variables for later review and analysis.

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