SYSTEM FOR SPEED MONITORING

Specification

FIELD OF THE UTILITY MODEL

The present Utility Model relates to a system using a device with external seven segment speed display, and more particularly to a system that has a structure to display the vehicle speed while in motion; an alarm to produce audible sound to alert passengers and verified the traffic enforcers when the PUVs speed exceeds the allowed speed limit; the device can store of up to 99 instances of violations either Overspeed and/or Tamper.

BACKGROUND OF THE UTILITY MODEL

Buses are generally used for public transportation to large numbers of passengers particularly in the provincial areas. Bus commuters are mostly common people, elderly, tourists, and students. These passengers rely their safety to the hands of the driver. Most elderly will always pray for their safety and will be happy to arrive to their destinations safely.

Based on statistics, most vehicular accidents are due to over speeding especially when travelling on flat roads and highways. Like buses in provinces, the bus driver occasionally drives in full speed specifically if they are trailing another vehicle in front of them. Buses running at speeds faster than determined by authorities to be safe are very dangerous. Such reckless driving could cause accidents which may result in injuries/death to passengers on board.

Due to several bus accidents that happened every year, the Land Transportation Franchising and Regulatory Board (LTFRB) is launching a program that would mandate the LTFRB to install speed monitoring system on public utility buses.

Thus, it is the primary purpose of this utility model to provide solution to the above problems and shortcomings currently existing in the public utility vehicles.

It is further desirable to develop a vehicle speed monitoring and enforcement device (e.g., V-COUNT II, but not limited thereto) which permits the buses to

monitor and enforce a maximum speed limit.

It is also further desirable to develop the device with an external seven segment speed display that be seen by the passengers.

It is furthermore desirable to develop the device with an audible alarm which produces audible alarm when the bus exceeds the maximum speed limit.

SUMMARY AND OBJECT OF THE UTILITY MODEL

Disclosed is a system for speed monitoring comprising: a device comprising a counter, a switch, a mode switch, a LED indicator and storage device, said counter, switch, mode switch, LED indicator, storage device being electronically connected to an integrated circuit wherein said integrated circuit contained a program configured to alternately control the counter, switch, mode switch and LED; a magnetic switch sensor disposed to the chassis being electronically connected to the device; a magnetic reed installed to a vehicle propeller shaft close to the magnetic switch sensor, wherein said magnetic switch sensor sensed signal and generate the same and delivers it to the device; a seven segment display electronically connected to the device being configured to display the vehicle speed being delivered to the device; and an alarm electronically connected to the device produces audible alarm when the vehicle speed generated by the magnetic switch sensor exceeded the maximum speed being set in the device, wherein in said system the vehicle exceeded speed limit violation are logged-in and stored in the storage device, wherein in said system the tampering of the stored violation are recorded in the storage device.

It is an object of the present utility model that store up to 99 instances of violations. The violations can be overspeeding and/or Tamper and similar violation.

It is an object of the present utility model to provide a device that can be calibrated the bus speed using a GPS calibration value and/or speedometer calibration value. These new values will be then stored in the memory of the device. Speed calibration is only required one time unless the vehicle tire/wheel

size or drive train is changed while changing to a different Over Speed limit monitoring value does NOT require re-calibration.

It is an object of the present utility model to provide a system which displays bus speed to passengers even if the bus travels through a tunnel.

It is also an object of the present utility model to provide a speed monitoring and enforcement device that requires six (6) digit security codes to enter the setup mode. The purpose of the security code is to prevent the driver to manipulate or tamper the system. The security code can be accessed using enter switch 115 and switch 116 modes, respectively.

It is another an object of the present utility model which is adapted to set the over speed time-out violation within 1 to 20 seconds before a violation is logged-in to the device.

It is further object of the present utility model to provide a speed monitoring and enforcement system which permits only the authorized personnel to set the maximum speed limit of the bus.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1A is a flow chart showing the mechanical reed switch installation of a speed monitoring and enforcement system according to the embodiment of the present utility model;

Fig. 1B illustrates the microprocessor, storage and register installed inside the monitoring and enforcement system according to the embodiment of the present utility model;

Fig. 2 is a flow chart showing the mechanical reed switch installation of a speed monitoring and enforcement system with an alarm according to the embodiment of the present utility model;

Fig. 3 is a flow chart showing the vehicle speed sensor signal 301 installation of a speed monitoring and enforcement system with an alarm according to the embodiment of the present utility model;

Fig. 4 is a flow chart showing a speed monitoring and enforcement system and seven (7) segment speed display connected inside a Bus 402. Bus 402 speed calibration is done using a GPS value 401.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present utility model provides a speed monitoring and enforcement system installed in a PUVs. The speed monitoring and enforcement system includes an external seven segment speed display 103 which displays current speed of the bus viewable to passengers. The present utility model comprises a n alarm which produces an audible sound 201 when the bus exceeds the maximum speed limit stored in the device 101. The speed monitoring and enforcement device (V-Count II) is generally known as a device 101.

As shown in Figs. 1 to 3, disclosed is a device 101 comprising: a counter 118, alarm 117, LEDs 106, 108, switch 115, mode switch 116, and includes a storage device, an Integrated circuit (not shown), and a microprocessor mounting therein, said device 101 also includes a ground spade terminal 107 and un-switched positive supply 105. The positive supply 105 and ground terminal 107 will be connected to a power source (e.g., battery). LEDs 106, 108 are indicators to indicate overspeeding and tampering, respectively.

A seven segment display 103 electronically connected to the device 101 which displays current speed of the bus viewable to passengers. The seven segment display 103 is on once the PUV and device 101 are both switch on.

The buzzer 117 is electronically connected to the device 101, said buzzer 117 which produces audible sound when the bus exceeds the maximum speed limit set. Example of the maximum speed limit may be 45MpH, express way 70MpH but not limited thereto. The buzzer 117 will continue buzzing for a short time (e.g., 8 seconds) while driving around town when a set maximum speed limit is exceeded. When the maximum set speed is exceeded in the ENFORCEMENT mode, the buzzer will buzz continuously to get the driver's attention to reduce the speed below the maximum allowed speed. The buzzer has a default time of 8 seconds to alert and/or warn the driver. The buzzer 117 will shuts off after 8 seconds each time the vehicle speed drops below the maximum set speed limit and will repeat buzzing again when exceeded.

A magnetic switch sensor 114 disposed to the chassis of a PUV, said sensor 114 being electronically connected to the device 101. A magnetic reed 113 installed to a vehicle propeller shaft 111 close to the magnetic switch sensor 114, said magnetic switch sensor 114 sensed signal every time magnetic reed 113 interact or contact to the sensor 114, the signal generated by the sensor 114 will be delivered to the device 101. The generated speed will be displayed to a seven segment display 103 viewable to passengers.

As shown in Fig. 2, disclosed is a system for speed monitoring further comprises of an alarm 201 which produces sound for overspeeding and tampering, said alarm 201 is electronically connected to the device 101 the same is governed by a programmed stored therein. In the system, the vehicle exceeded speed limit violation are logged-in and stored in the storage device while the tampering of the stored violation is recorded in the device 101.

A counter 118 mounted on a device 101 to view the logged-in over speeding violations, said counter 118 comprises a select mode and enter switch mode (not shown) to activate the same. The time in seconds of an Over Speed violation before a violation is logged can be set in the range of 1 to 20 seconds. The default setting time stored in a storage device in said device 101 is 5 seconds.

Referring to Fig. 1B, it illustrates the system comprising a microprocessor, storage and a register as disclosed in the present utility model. The device 101 contained a program configure to alternately control the counter 118, switch 115, mode switch 116 and LEDs 106, 108 according to their intended purpose and function, said microprocessor being configured to process electronic pulse signal generated between the interaction or contact of magnetic switch sensor 114 and magnetic reed 113, when the vehicle pedal is pressed and in motion or at rest. The microprocessor 215 also known as CPU, comprising a storage 217 and register 216, both are electronically connected to the microprocessor 215, said storage 217 stores and transmit signals generated by the microprocessor 215, said register 216 being configured to register and analyzed the data generated based on the set of instructions stored therein.

Over speed LED indicator 106 is disposed on a right side above the Tamper LED indicator 108 in said device 101 for purposes to indicate the speed violation being generated by the vehicle.

Tamper LED indicator 108 is disposed on a right side below the over speed LED 106 indicator for purposes to indicate the tampering.

A device 101 accepts two (2) types of input signals, RS (Reed Switch) or VSS (Vehicle Speed Signal). The RS or VSS takes the vehicle speed, said device 101 having a switch 116 and an enter switch 115 modes, said switches can be adjusted to control the signals to be generated.

A device 101 further comprises a GPS handheld device receiver (available from www.apexvalue.com). GPS handheld device receiver is used to receive and display accurate GPS speed reading as reference for speed calibration to the vehicle speed monitoring and enforcement system. The GPS handheld device receiver is similar to cellular phone, and similar device.

When the vehicle engine is started, a device 101 will receive power from the vehicle ground spade terminal 107 and un-switched positive supply unit 105. The external seven segment speed display 103 displays current bus speed. The seven segment 103 display is installed inside a bus visible to passengers on board for their awareness. The external seven segment speed display 103 displays the current vehicle speed while the vehicle is in motion or at rest.

When the driver presses the pedal of a vehicle, a magnetic switch sensor 114 and a magnet 113 will interact and will produce electrical pulse signal from their interaction. The pulse signal produced will be detected by the sensor 114 and delivered to device 101. The microprocessor 215 will process the electrical pulse signal and electronically distributed said signal within a system according to the set of instruction stored in said device 101 (see Figs. 1 to 3).

Table below is a **V-Count II console display device Function/Set-up Menu**

Mode	**Function**	**Set-up #**

Set-up	Initialize Set-up procedure	2
0	Over Speed Time-out	12
1	Run mode	13
2	Display violations count	11
3	Clear violations count and Tamper	5
4	Select High or Low speed mode	6
5	Calibration	7
6	Set/Display max. speed	9
7	Change Security Code	3, 4
8	Input signal selection	8
9	Auxiliary Speedometer	10

With the foregoing description, it is obvious that the device of the present utility model may vary depending on the distribution, design or structure of the system. Notwithstanding the variation, the same is deemed within the scope of the appended claims.

What is claimed is:

1. A system for speed monitoring comprising:

a device comprising a counter, a switch, a mode switch, a LED indicator and storage device, said counter, switch, mode switch, LED indicator, storage device being electronically connected to an integrated circuit wherein said integrated circuit contained a program configured to alternately control the counter, switch, mode switch and LED;

a magnetic switch sensor disposed to the chassis being electronically connected to the device;

a magnetic reed installed to a vehicle propeller shaft close to the magnetic switch sensor, wherein said magnetic switch sensor sensed signal and generate the same and delivers it to the device;

a seven segment display electronically connected to the device being configured to display the vehicle speed being delivered to the device; and

an alarm electronically connected to the device produces audible sound when the vehicle speed generated by the magnetic switch sensor exceeded the maximum speed being set in the device,

wherein in said system the vehicle exceeded speed limit violation are logged-in and stored in the storage device,

wherein in said system the tampering of the stored violation are recorded in the storage device.

2. A system for speed monitoring according to claim 1, wherein the alarm will sound when the set speed limit is exceeded.

3. A system for speed monitoring according to claim 1, further comprising GPS handheld device receiver, wherein the GPS handheld device receiver is used to receive and display accurate GPS speed reading as reference for speed calibration to the vehicle speed monitoring and enforcement system.

4. A system for speed monitoring according to claim 1, wherein the LED indicators indicate the overspeed and the tampering to the device.

5. A system for speed monitoring according to claim 2, wherein the alarm is ranging between 5 to 20 seconds before a violation is logged-in to the device.