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Remarks:

This application was filed on 21-10-2009 as a divisional application to the application mentioned under INID code 62.

(54) **A digital tachograph and method therefore**

(57) A digital tachograph comprising an identity identifier and a user interface. The user interface could be used for manual entry of non driving data. The tachograph

comprises means for automatic conversion of local times of entered activity to UTC. There is also a related method.

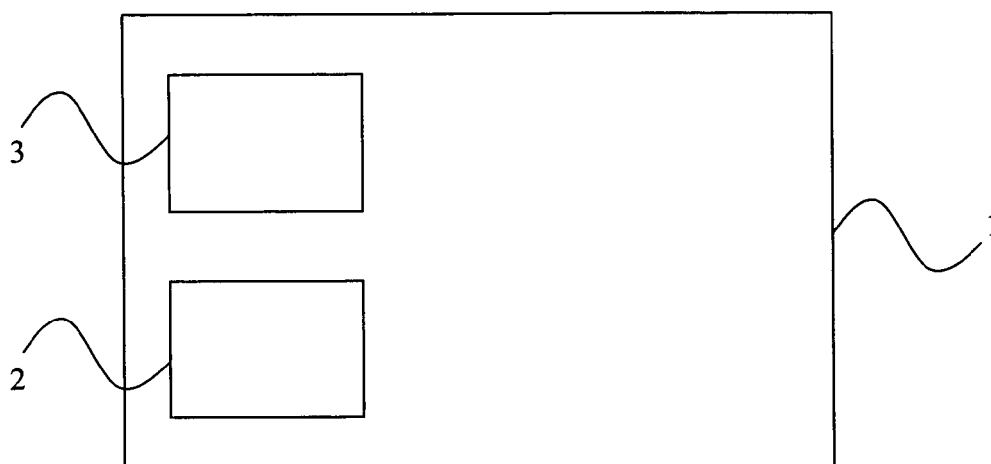


FIG. 1

Description**FIELD OF INVENTION**

[0001] The present invention relates generally to digital tachographs, and particularly to a user interface for a digital tachograph.

BACKGROUND

[0002] Digital tachographs have recently been developed, and are like analogue tachographs used to gather information relating to the usage of a vehicle and collection of driver activities, such as driving hours, distance traveled, start time, finish time, rest time, driver name, starting location and finishing location.

[0003] A digital tachograph greatly facilitates for a driver to register active usage of a vehicle, but rest time or non-driving time is still cumbersome to register for a driver. The rest time or non-driving time is in a digital tachograph equivalent to the time e.g. a driver's smart card not has been connected to a smart card reader of the digital tachograph.

SUMMARY OF THE INVENTION

[0004] An object of the present invention is to facilitate registration of non-driving time in a digital tachograph.

[0005] This object, among others, is according to the present invention attained by a digital tachograph and a method, respectively, as defined by the appended claims.

[0006] At an insight of the inventors reduction of average input of non-driving time can be improved by adding a further registration step. By providing a digital tachograph having a user interface with input means for registration of "rest until now" by a single entry registration of non-driving time is facilitated. Although a driver not having rested until now will have to enter more data compared to without the "rest until now" input means, he will on average need to enter less data, since a driver more often than not have rested during the whole non-driving time.

[0007] By preferably providing said identity identifier as a smart card reader or similar, easy identity is achieved together with automatic driver information.

[0008] The input means preferably comprises a positive default selection to further facilitate entry of "rest until now".

[0009] For increased facilitation of manual entry of data the digital tachograph preferably comprises an output means for read out of manually entered data, before confirmation of manually entered data.

[0010] The output means is preferably one of the following: a printer for printing of read out, a display for showing the read out, and a transmitter for transmitting the read out to an external device.

[0011] Further features and advantages of the present

invention will be evident from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will become more fully understood from the detailed description of embodiments given below and the accompanying figures, which are given by way of illustration only, and thus, are not limitative of the present invention, wherein:

Fig. 1 schematically illustrates a digital tachograph according to the present invention.

Fig. 2 schematically illustrates reduction of workload according to an embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0013] In the following description, for purpose of explanation and not limitation, specific details are set forth, such as particular techniques and applications in order to provide a thorough understanding of the present invention. However, it will be apparent for a person skilled in the art that the present invention may be practiced in other embodiments that depart from these specific details. In other instances, detailed description of well-known methods and apparatuses are omitted so as not to obscure the description of the present invention with unnecessary details.

[0014] An embodiment of a digital tachograph according to the present invention will now be described with reference to Figs. 1-2.

[0015] The digital tachograph 1 comprises an identity identifier 2 and a user interface 3 for manual entry of data. The user interface 3 comprises input means for manual entry of data, by a single entry, that a driver identified by the identity identifier 2 has rested since last being identified. By entry that the driver has rested until now, or since last being identified, all the usual steps needed for manual entry of activities can be skipped, such as selection and specification of activity.

[0016] The identity identifier 2 is preferably a smart card reader or similar, among other things due to legislation requirements. Without such restrictions the driver could e.g. be identified remotely through a mobile phone, a PDA, RFID, a Bluetooth connection, or similarly.

[0017] The user interface preferably comprises a small display, due to space limitations in the vehicle the driver is using and also legislation requirements. Without such restrictions the user interface could e.g. include an external device, such as a large display, a mobile phone, a PDA or similar device.

[0018] When a smart card is inserted into the smart card reader the digital tachograph starts to request registration of activities of the driver since last connected to a digital tachograph by means of the smart card. Information regarding when last connected to a digital tach-

ograph is retrieved from the smart card. The registration of activities is started with a question whether the driver has rested until now. A default selection is affirmative and manual entry of activities is ended by a single entry, since the driver by this single entry has entered data concerning all his non-driving time, i.e. for the time when the smart card not was connected to the smart card reader. By rejecting the default selection manual entry operation is entered for traditional manual selection and specification of activity.

[0019] A default selection is preferably displayed by showing only the default selection, such as "YES", instead of as traditionally showing "YES/NO" or similar.

[0020] A further facilitation for manual entry of non-driving data is to give the user of the digital tachograph the possibility to enter whether local time or UTC (Coordinated Universal Time) should be used. By selecting local time the digital tachograph converts the time in the units of UTC. UTC can therefore be registered in the digital tachograph despite the user entering local times. In this way the user need not convert local times of activity to UTC, instead the digital tachograph will do it for the driver. Such an automatic conversion will also reduce the risk of faulty conversions.

[0021] When manual entry is ended a request is preferably given whether a read out of the manually entered data is wanted. If affirmative, a read out is preferably printed by an output means of the digital tachograph, such as a printer used for tachographic data of the digital tachograph or by display or other communication interface, where after confirmation of entered data can be made or editing of the manually entered data can be initiated.

[0022] Manual entries that for instance may be required regardless of entry of "rest until now" is the country and region in which the driver was when his smart card latest was connected to a digital tachograph, as well as the country and region in which the driver currently is. However, end country and region is preferably retrieved from the smart card, and start country and region is preferably retrieved from navigational equipment or similar.

[0023] It will be obvious that the present invention may be varied in a plurality of ways. Such variations are not to be regarded as departure from the scope of the present invention as defined by the appended claims. All such variations as would be obvious for a person skilled in the art are intended to be included within the scope of the present invention as defined by the appended claims.

Embodiments

[0024]

1. A digital tachograph (1) comprising an identity identifier (2) and a user interface (3) for manual entry of data, **characterized in that** said user interface comprises input means for manual entry of data, by a single entry, that a driver identified by said identity

identifier has rested since last being identified.

2. The digital tachograph according to embodiment 1, wherein said identity identifier is a smart card reader or similar.

3. The digital tachograph according to embodiment 1 or 2, wherein said input means comprises a positive default selection.

4. The digital tachograph according to any of embodiments 1-3, comprising a read out of manually entered data, before confirmation of manually entered data.

5. A method for manual input of data in a digital tachograph, **characterized by** the following steps:

- identify a driver by means of an identity identifier;
- there after, request entry of data, by a single entry, whether or not said driver has rested since last being identified,
- if said entry of data confirms that said driver has rested since last being identified skip further manual entry of activities, otherwise start further manual entry of activities.

6. A digital tachograph (1) comprising an identity identifier (2) and a user interface (3) for manual entry of data, **characterized in that** said user interface comprises output means for read out of manually entered data before confirmation of manually entered data.

7. The digital tachograph according to embodiment 6, comprising a printer for printing of said read out.

8. The digital tachograph according to embodiment 6 or 7, comprising a display for showing said read out.

9. A method for manual input of data in a digital tachograph, **characterized by** the following steps:

- identify driver;
- receive manual entry of data;
- read out said manually entered data; and
- confirm said manually entered data after said read out.

Claims

1. A digital tachograph comprising an identity identifier

and a user interface for manual entry of non driving data, **characterized in that** said tachograph comprises means for automatic conversion of local times of entered activity to UTC.

read out.

2. A digital tachograph according to claim 1, comprising means for the user to enter whether local time or UTC shall be used for manual entry of non driving data.
 3. A method for a digital tachograph comprising an identity identifier and a user interface for manual entry of non driving data **characterized in that** it comprises the step of:
 - receiving an entry of non driving data in local times, and
 - automatically converting local times of non driving data to UTC.
 4. A method according to claim 3 further comprising the step of:
 - receiving an entry whether local time or UTC shall be used for manual entry of non driving data
 5. A method for manual input of data in a digital tachograph, **characterized by** the following steps:
 - identify a driver by means of an identity identifier;
 - there after, request entry of data, by a single entry, whether or not said driver has rested since last being identified,
 - if said entry of data confirms that said driver has rested since last being identified skip further manual entry of activities, otherwise start further manual entry of activities.
 6. A digital tachograph (1) comprising an identity identifier (2) and a user interface (3) for manual entry of data, **characterized in that** said user interface comprises output means for read out of manually entered data before confirmation of manually entered data.
 7. The digital tachograph according to claim 6, comprising a printer for printing of said read out.
 8. The digital tachograph according to claim 6 or 7, comprising a display for showing said read out.
 9. A method for manual input of data in a digital tachograph, **characterized by** the following steps:
 - identify driver;
 - receive manual entry of data;
 - read out said manually entered data; and
 - confirm said manually entered data after said

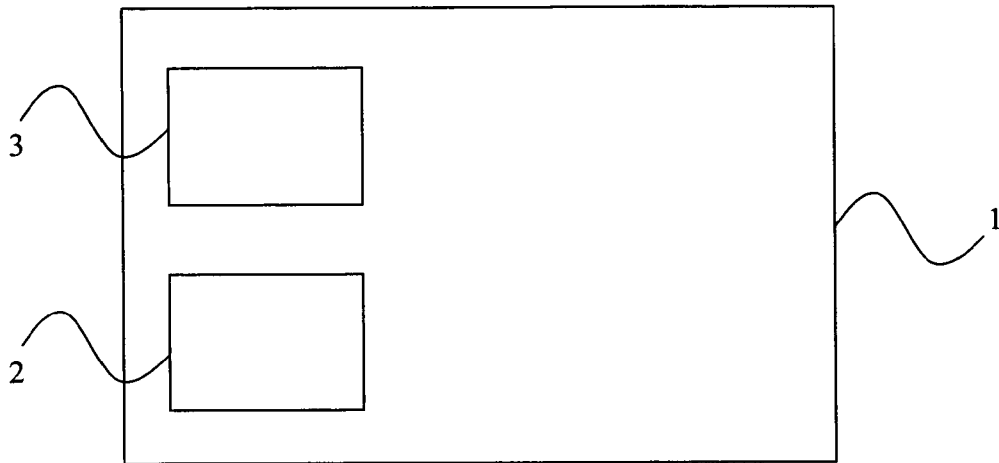


FIG. 1

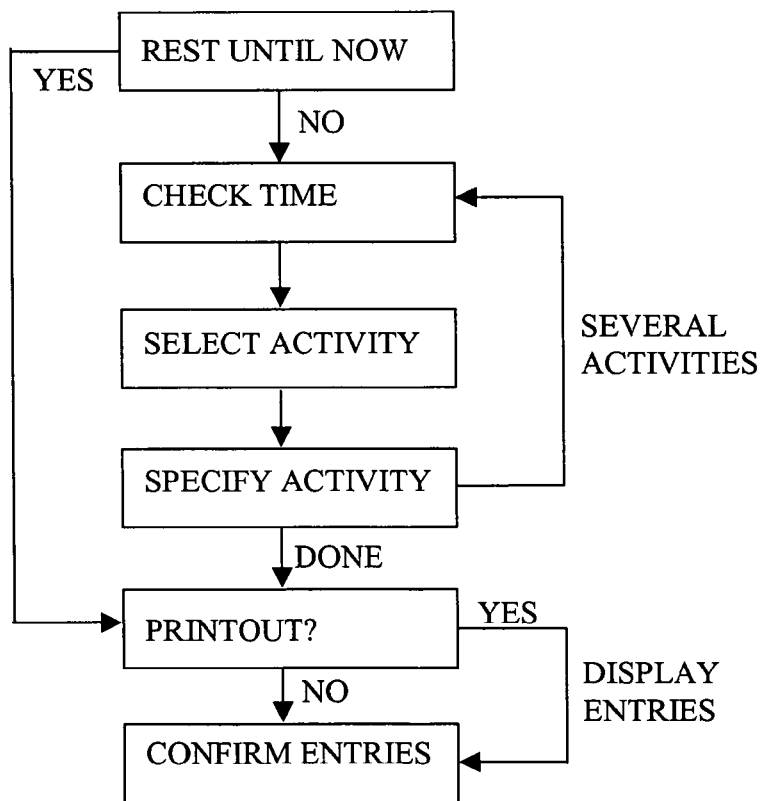


FIG. 2