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(54) **Method for giving traffic instructions to a road-user**

Verfahren zum Erteilen von Verkehrshinweisen an einen Verkehrsteilnehmer

Procédé pour donner des instructions de trafic à un usager de la route

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Description

[0001] In the current environment where the pollution generated by the gas expelled by the vehicles is increasing day after day, all the experts agree that this human pollution is the main cause of the evolution of the climate condition in the world, and is a serious risk for the future of the planet.

[0002] This invention intends to bring a solution to the problem of the pollution generated by the increasing consumption of petrol and gasoline.

[0003] Millions and millions of cars are stopped every second at traffic lights all around the world and I wondered the following: Why would not drivers switch off their engines stopping in this way to consume gasoline and therefore reducing pollution (and noise)?

[0004] The present invention proposes a method to give the possibility to the drivers to switch off the engines of their vehicles when they are stopped in a line, waiting at the red light of the traffic light.

[0005] People stopped at the level crossing are used to switch off their engines. In this specific case, the situation is clear: the time cars will remain stopped is generally long enough, and the bar movement indicates very clearly to the drivers the moment when they have to switch on again.

[0006] Similarly, it is possible, in general, in the traffic, to indicate to the drivers the time the red light will last so that they can decide whether they have to switch off or not. We only need to apply to the traffic light and especially to the red light a count down timer that provides a display of the seconds remaining before traffic signal turns from red to green.

[0007] In some patents, there are applications of countdown timer to traffic lights (US 6,268,805 / GB 2 248 136 / US 5,519,390/ CH622117/ DE3106804, especially in the last two patents, the countdown is only linked to the red phase of the traffic light).

[0008] DE 29 33 774 A1 shows a similar combined traffic light and countdown display and discloses the features of the preamble of claim 1.

[0009] The very important point is that switching off the engine for a very short time and switching it on again, can increase the consumption of gasoline and petrol and therefore the pollution. Research from very important European car manufacturers indicates that switching off the car for more than 30 or 40 seconds allows to save gasoline or petrol and to reduce pollution. One reason for this is that a car consumes more gasoline at the moment of the ignition of the engine.

[0010] For this reason, applying only a count down timer to a traffic light is absolutely not enough to reach our target to reduce gas emission and pollution. We need to add a proper signal to give to the drivers the crucial indication, that is to say to switch off or switch on the car, otherwise we run the risk to miss our goal and even increase pollution (if a car arrives at a traffic light indicating that the remaining time to the green phase is

20 seconds, and that he decides to switch off his engine, he can increase the gas emission in the atmosphere).

[0011] To solve the above problem, the idea is to apply to the traffic light a countdown, linked to a display panel with a written message: the countdown starts with the red light and the variable message signs shows the message including the sentence "switch off engine" (in the appropriate language). When the countdown reaches minus approximately 30 or 40 seconds, then the "switch off" signal disappears and approximately 5 seconds before the green light, a new message appears, indicating to "switch on" the engine again.

[0012] The object of the countdown is to avoid that the drivers have to watch constantly the written message on the screen to see when they have to switch on again and therefore to reduce the stress: the combination is the perfect way to reach the target.

[0013] The invention is defined in the appended claims.

[0014] The present method will be described further below with more details in the description. It is useful in all the crossroads where the red light is long enough to permit it. The implementation of this method could lead to some changes of the traffic organisation, with an extended red phase and a longer green phase in order to push stopped cars to switch off engines. Just to close this background chapter, I would like to give an example to show how useful these measures could be to support the environment protection policy:

[0015] According to personal calculation: In a crossroad of 2 streets (one main and one secondary) with 4 traffic lights, I experienced that in the secondary street the red light lasted 90 seconds, the yellow 5 seconds and the green 25 seconds. Taking into consideration the period of the day from 08 am to 06 pm, it is easy to calculate that the red phase will be on 30 times per hour so 300 times in 10 hours. That means $300 \times 90 = 27000$ seconds, ie a red light for 7 hours and 30 minutes.

[0016] Taking into account an average of 15 cars stopped at the red lights, during our 10 hours period, it means that we can estimate that 15 vehicles could have been switched off almost 7 hours and 30 minutes on the secondary road.

[0017] I personally calculated that some traffic lights could have a 2.5 minutes red phase with only 25 seconds green.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] The first object of the present invention is to provide a traffic light with a variable message sign that indicates 1. the remaining time before traffic signal turns from red to green 2. a notice that contains the sentence "switch off", for example "when vehicle is stopped switch off".

[0019] The countdown and the written message can be part of the same screen or can be 2 separated entities as soon as they are linked and synchronised.

[0020] It is possible to use two separated displays such as a data display and a timer display, but as above mentioned the two screens have to be linked in order to have the message and the countdown working together.

[0021] The technologies used in the variable message signs can be LED-based technology or LCD-based technology or a full matrix solution.

[0022] The countdown works only with the red light and starts when the red light appears, counting down the number of seconds left in the red light

[0023] The message including the sentence "switch off" will appear at the same time as the count down or immediately after.

[0024] Another important object of the invention is that when the count down reaches (approximately) minus 30 or 40 seconds, the message including "switch off" disappears: We want to avoid that drivers switch off their engines if the remaining time to the green phase is not long enough to reduce pollution and emission of gas. Research from very important European car manufacturers indicates that switching off the car for more than 30 or 40 seconds allows to save gasoline or petrol and to reduce pollution.

[0025] It is also an object of the invention that at approximately minus 5 to 10 seconds before the green light a new message appears including the sentence "switch on". This message must remain on the screen long enough to give time to drivers to react and switch on their engines.

[0026] An object of the invention is also that the time between the message including the sentence "switch off" and the one including the sentence "switch on" can change if new research indicates that the time the vehicle needs to be switched off to save gasoline and petrol and reduce pollution can be different from 30/40 seconds.

[0027] Another object is that the colour of the written messages and the numeric countdown must be red, in order not to create confusion for the drivers approaching the traffic light.

[0028] The last object of the invention is that the variable message signs display used to indicate whether the driver has to "switch on" or "switch off" the engine can be used for other purpose when there is no notice (between approximately minus 30/40 seconds and approximately minus 5 seconds before green light): in particular this time can be used for advertising or traffic information.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] Fig 1 is an illustration of the invention showing different phases from A to D where the variable message display (60) is connected with the traffic light (20) and gives indications to the drivers regarding the moment when they have to switch off or switch on their engines and regarding the time left for the red phase.

[0030] In particular, in the phase C, when there is no

message including the sentence "switch off" or the sentence "switch on", it is possible to use the screen to give traffic information to the drivers or to make advertising, whereas the countdown is still working.

[0031] The traffic light can be connected to a unique screen indicating to the drivers the countdown as well as the advice (switch on or switch off) like in the Fig 1 or to two different screens like in the figure 2: the traffic light (20) is then connected to two separated screens (60a and 60b) linked and synchronised.

[0032] Fig 3 is an electronic block diagram of the invention. The configuration A corresponds to the use of a unique screen (60) for both the countdown and the written message. The configuration B corresponds to the use of two separated screens (60a and 60b), linked and synchronised.

Claims

1. A method for giving traffic instructions to a road-user by displaying, in addition to the signal of a three-colour traffic light (20), a message in combination with displaying a countdown indicating the time left in the red light phase of the traffic light (20) until the change thereof from the red light phase to the green light phase, **characterized in that**
the message displayed in the red light phase of the traffic light (20) is one of a first, a second and a third type different with respect to each other,
the message of the first type is displayed from the start of the red light phase of the traffic light (20) until a first point of time,
the message of the second type is displayed from the first point of time until a second point of time, and
the message of the third type is displayed from the second point of time until the end of the red light phase.
2. A method according to claim 1 wherein
the message of the first type is "switch off engine", and
the message of the third type is "switch on engine".
3. A method according to claim 1 or 2 wherein
the message of the second type is a blank message.
4. A method according to claim 1 or 2, wherein
the message of the second type is advertising or traffic information.
5. A method according to any one of the preceding claims, wherein
the first point of time is approximately 30 to 40 seconds before the change of the traffic light (20)

from the red light phase to the green light phase,
and

the second point of time is approximately 5 to
10 seconds before the change of the traffic light (20)
from the red light phase to the green light phase.

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Patentansprüche

1. Methode zur Information der Verkehrsteilnehmer, bei der zusätzlich zur dreifarbigigen Ampel (20) eine Meldung zusammen mit einem Countdown angezeigt wird, welcher die noch verbliebene Dauer der Rotphase, also die Zeit bis zum Umschalten der Ampel (20) von Rot auf Grün angibt. Während der Rotphase der Ampel (20) werden auf dem Display nacheinander eine Meldung vom ersten Typ, eine Meldung vom zweiten Typ und eine Meldung vom dritten Typ angezeigt, die alle drei verschieden sind: Die erste Meldung wird vom Beginn der Rotphase der Ampel (20) bis zum Erreichen des ersten Setpoints angezeigt.
Die zweite Meldung wird vom ersten Setpoint bis zum Erreichen des zweiten Setpoints angezeigt.
Die dritte Meldung wird vom zweiten Setpoint bis zum Ende der Rotphase angezeigt. 10 15 20 25
2. Methode in Übereinstimmung mit Anspruch 1, wobei:
die erste Meldung die Information "Motor abschalten" enthält und
die dritte Meldung die Information "Motor einschalten". 30
3. Methode in Übereinstimmung mit Anspruch 1 oder 2, wobei:
die zweite Meldung einem leeren Display entspricht. 35
4. Methode in Übereinstimmung mit Anspruch 1 oder 2, wobei:
die zweite Meldung eine Information zur Verkehrslage oder Werbung ist. 40
5. Methode in Übereinstimmung mit allen vorhergehenden Ansprüchen, wobei:
der erste Setpoint auf etwa 30 bis 40 Sekunden bis Ablauf der Rotphase eingestellt ist, also bevor die Ampel (20) von Rot auf Grün umschaltet, und
der zweite Setpoint auf etwa 5 bis 10 Sekunden bis Ablauf der Rotphase eingestellt ist, also bevor die Ampel (20) von Rot auf Grün umschaltet. 45 50

Revendications

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1. Un procédé pour donner des instructions sur le trafic aux usagers de la route en délivrant, en plus du

signal d'un feu tricolore (20), un message combiné à un compte à rebours indiquant le temps restant à la phase rouge du feu tricolore (20) avant le passage de la phase rouge à la phase verte, **caractérisé par le fait que** :

le message délivré pendant la phase rouge du feu tricolore (20) est d'un premier, d'un second et d'un troisième type différents les uns des autres,
le message du premier type est délivré du début de la phase rouge du feu tricolore (20) à un premier moment dans le temps,
le message du second type est délivré à partir du premier moment dans le temps jusqu'à un second moment dans le temps, et
le message du troisième type est délivré à partir du second moment dans le temps jusqu'à la fin de la phase rouge du feu tricolore (20).

2. Un procédé selon la revendication 1 **caractérisé par le fait que**

le message du premier type est « éteignez votre moteur », et
le message du second type est « rallumez votre moteur ».

3. Un procédé selon les revendications 1 et 2 **caractérisé par le fait que** le message du second type est un message blanc.

4. Un procédé selon les revendications 1 et 2, **caractérisé par le fait que**

le message du second type est de la publicité ou de l'information sur le trafic.

5. Un procédé selon n'importe laquelle des revendications précédentes **caractérisé par le fait que**

le premier moment dans le temps est approximativement 30 à 40 secondes avant le changement de couleur du feu tricolore (20) du rouge au vert, et
le second moment dans le temps est approximativement 5 à 10 secondes avant le changement du feu tricolore (20) de la phase rouge à la phase verte.

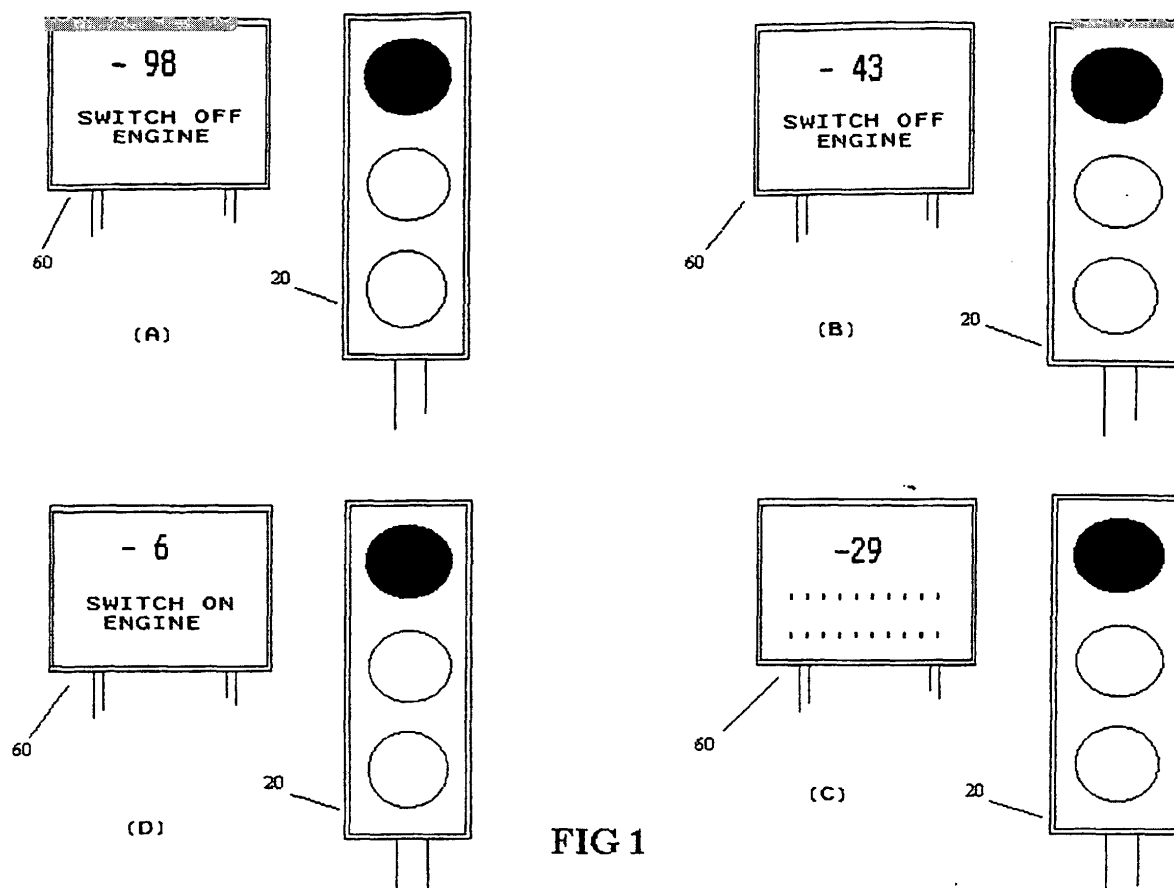


FIG 1

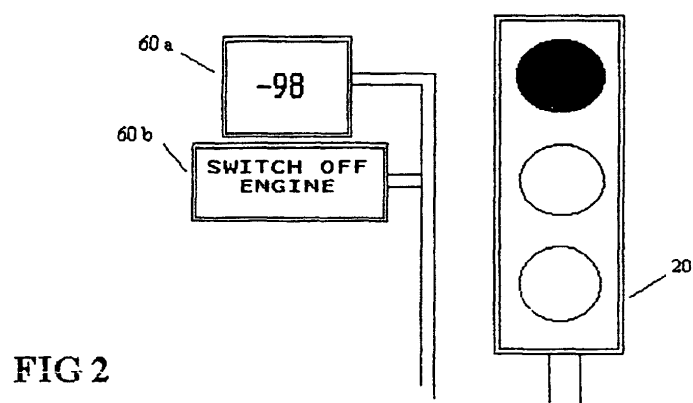


FIG 2

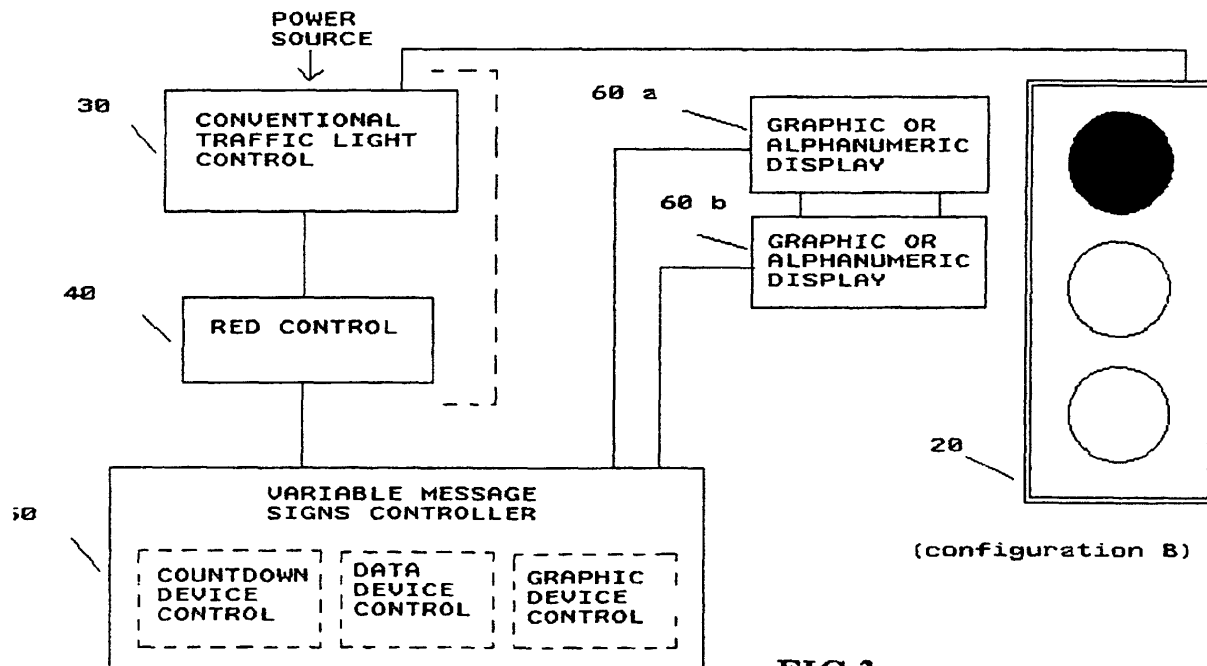
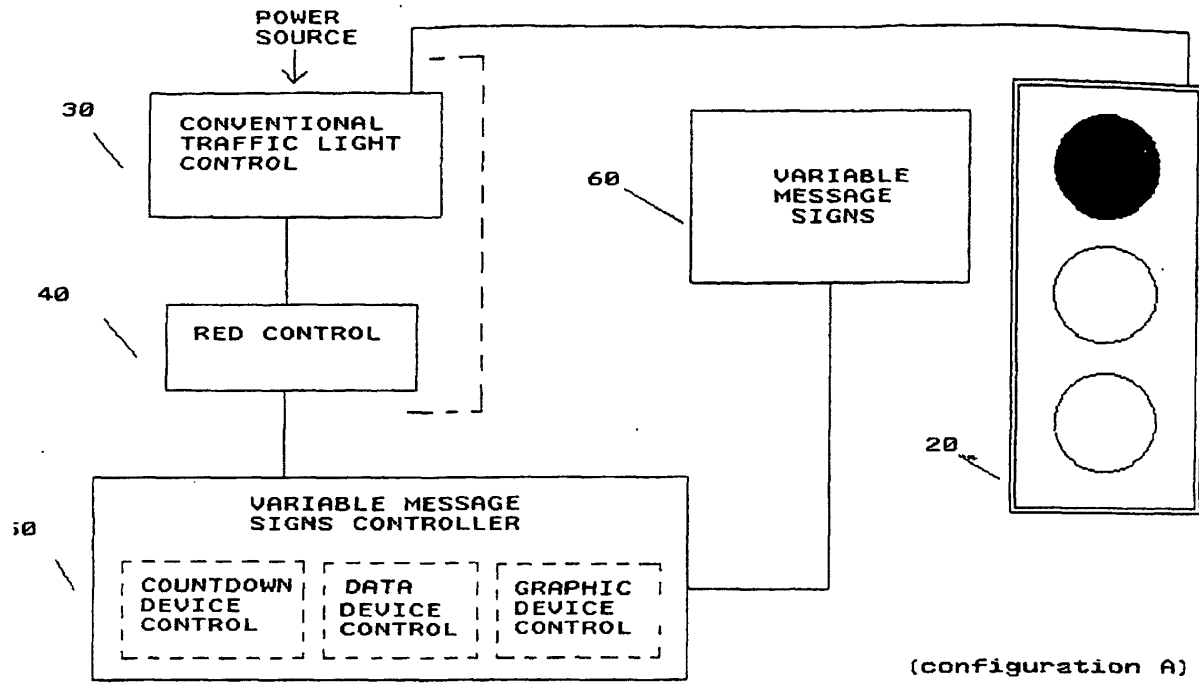


FIG 3.