THE INFLUENCE OF DRIVER'S DISTANCE ON ACCIDENTS INITIATION

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Mostly accidents happen when road users do not have an opportunity to carry out a safe maneuver, which allows to avoid the accident. Such situations are typical both for a high speed driving out of the city, and a low speed city driving.

For the road safety purposes, the opportunity required for secure maneuvers are primarily characterized by the available space or safe distance between vehicles in different road situations: from trail traffic flow to the distance remaining between vehicles stopping in front of the crosswalk.

Currently, accidents occur due to the driver's negligent actions, Therefore, the problem of a wrong choice and keeping the distance becomes one of the most actual. The problem is caused by the fact that drivers do not pay due attention to the choice and keeping a safe distance, which corresponds to the traffic intensity, speed and other road conditions. The dependence of the safe distance on the type of vehicles, as well as on the other road users' action, including pedestrians, is not taken into account. Drivers leave too short distance between the vehicles, thus, they overestimate both their resources and the capabilities of the vehicle.

As a result, the right choice and keeping distance is one of the most important elements that ensure the safety of road users.

1. **Methods of the distance choice and the factors influencing the distance choice assessing.**

The literature analysis [1-2] shows that a number of factors influence the distance choice, namely, traffic speed; road surface (quality and condition) combined with the time of the day and weather conditions; the driver's personal skills and the driver's general condition; the vehicle condition; traffic density; number of passengers or cargo weight; mistakes and incorrect actions of other drivers, as well as the behavior of other road users.

It is generally viewed [3], that the optimal safe distance is the following:

Tab. 1. The optimal safe distance

Dry coating	Wet coating	Slippery road
speed / 2 (i.e, for the speed of 60 km /h – 30 meters) Or it can be measured in seconds and equals 2-3 seconds (the time needed for the vehicle to travel the distance to the front of a moving vehicle (vehicle leader)	equals to the speed or 4 seconds	equals to double speed or 8 seconds

Among the existing methods of determining the distance the system of automatic emergency braking Emergency Brake Assist (EBA) should be noted. The system includes infrared sensors that detect insecure situations in transport flow in a radius of 100-500 meters. If the speed of the vehicle leader decreases, the sensors signal to reduce the speed. If the distance between two vehicles becomes dangerous or the vehicle leader stops in the flow, an automatic braking of the vehicle moving behind takes place as the result [4].

2.**Traffic modes study.**

A study of traffic modes was conducted for determination the driver's distance influence on the accidents initiation. Measurements were performed between two vehicles moving one after the other using the RACELOGIC device. The results of the study are presented in Fig.1.

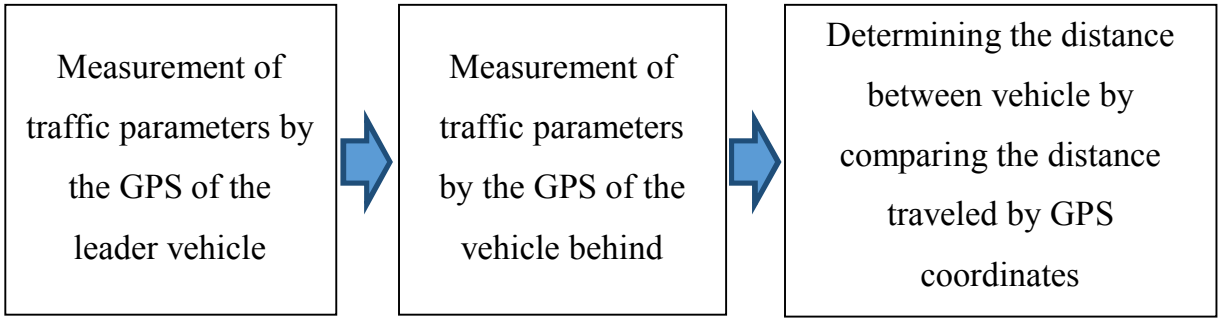

Fig.1. *The structure of the study of the distance between vehicles*

Fig.2 shows the speed of vehicles indicated in different colors. The leader vehicle is marked in gray. It started the movement first at 109 second of measurement. Moreover, Fig.2 shows the dynamics of change of speed depending on the time of movement.

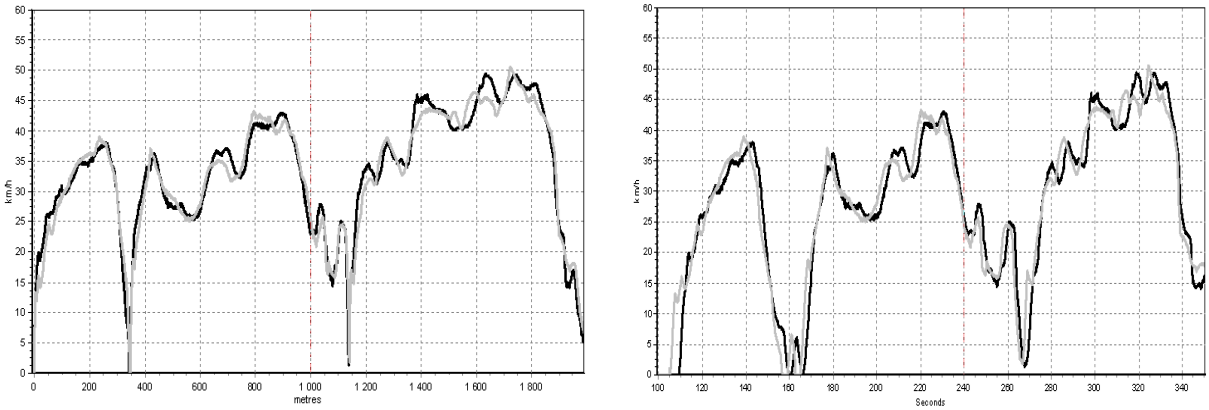

Fig.2. *The vehicle speed depending on road distance and the travel time*

Conclusions

1. Therefore, the presented graphs prove that there is a close relationship between choosing the right safe distance and the speed. If the speed between two vehicles in the traffic flow increases, the distance between the specified vehicles accordingly increases, i.e., the distance of the vehicle moving behind depends on the speed of the leader's vehicle. Reliable means of safe movement after the

leader are constant monitoring of its actions, warning signals and keeping a safe distance.

2. Moreover, there is an inverse relation, in which the speed depends on the selected distance.

References:

1. Systemology in transport. Ergonomics / Gavrilov E. V., Dmitrichenko M. F., Dolya V. K. and others.; ed. MF Dmitrichenko. – Kyiv: Knowledge of Ukraine, 2008. – 256 p. – (5 books / Gavrilov EV, Dmitrichenko MF, Dolya VK and others; book 5).

2. Gavrilov E. B. System design of highways / E. V. Gavrilov, A. M. Gridchin, V. N. Ryapukhin. – Moscow – Belgorod: ACB, 1998. – 138 p.

3. Azemsha S. A., Galushko V. N., Skirkovski S. V., Vrubel Y. A. (2015) Data analysis of traffic accidents and their causes 2013 and 2014, Science & Technique, 3, 65–73.

4. Avineri, E., Shinar, D., & Susilo, Y. O. (2012). Pedestrians' behaviour in cross walks: the effects of fear of falling and age. Accident Analysis & Prevention, 44(1), 30–34.

INFRASTRUCTURE OF A COTTAGE VILLAGE

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Since the beginning of the 2000s, cottage villages have become increasingly popular, which have many undeniable advantages over unorganized development. Cottage village is an organized residential complex of low-rise buildings with a land plot allocated in kind with a fence and with the obligatory presence in the village of an administrative building for staff and security.

Everyone who wants to buy a cottage seeks to get not only a well-maintained house with the most modern level of urban comfort, but also have a commercial and social infrastructure. It is desirable that its facilities are located as close as possible from new housing, so that there is an opportunity to buy groceries somewhere, have a nice free time, be treated, arrange children for kindergarten or school, and have a possibility not take them downtown every. All this can be provided by a well-conditioned cottage town.

When designing a cottage village, infrastructure facilities are necessarily provided, because living in the country with urban comfort is the norm of a civilized buyer. Infrastructure should be designed and created in such a way that the residents of a suburban village would be interested, convenient and comfortable. All objects should be located in accessible places, designed by several blocks for sports, recreation and necessary needs.

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