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ENHANCEMENT OF CONTROLLING DEVICE OF BUSES TRAFFIC SAFETY

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In 2015 a joint team of departments of technical universities designed controlling device of buses traffic safety. The device is related to urban public transport and may be used for improvement vehicle's traffic safety.

According to the results of traffic safety researches in the European Union and the USA, improvement of public transport traffic safety can efficiency reduces injuries and deaths on the road [1].

The issue which must be solved by proposed invention is enhancement of the device ensuring buses traffic safety by installation alarm button of driver's vigilance in driver's cab in bus [2].

Technical result of proposed invention consists in improvement traffic safety of public transport on a route. This technical result is achieved by the fact that in construction of examined controlling device of city buses traffic safety (which includes a control unit, cruise control, GPS, speed sensors, sensor of determine prohibiting signals of traffic lights) the following alteration is made: the alarm button of driver's vigilance is installed in driver's cab.

The device of city buses traffic safety includes (see Fig. 1): control unit 1, GPS 2, speed sensors 3, sensor of prohibiting signals of traffic lights determination 4, cruise control 5, alarm button of driver's vigilance 6.

Device of city buses traffic safety operates in the following way (see Fig. 1):

- driving the bus is under general control of control unit, which controls speed limitation and observes driver's vigilance through connected to it GPS, speed sensors, sensor of determine prohibiting signals of traffic lights;
- speed limitation of bus controlled by control unit according to route and compliance of traffic rules through speed sensor;
- if the driver fouls speed limitation, control unit, according speed sensor's data, sends signal to cruise control, which blocks acceleration of bus;
- route of bus's movement recorded in control unit's memory and, if the driver drives off the route (determined by sensor 2), goes to oncoming lane (determined by sensor 2), exits on pavement (determined by sensor 2), drives during prohibiting signals of traffic lights (determined by sensor 4), alarm button of driver's vigilance 6 will be activated and it gives a signal (sound and light) in driver's cab;

- at this time the control unit blocks bus's acceleration with its following stop after 3 seconds through activation brake cylinders;

- the mentioned situations can occur when driver's health deteriorates (sharp loss of consciousness, blurred in the eyes and other cases in which the driver is not able to manage a vehicle)

- if the driver is able to drive the bus, he can stop the process of blocking acceleration through pushing alarm button during 3 seconds since process is started.

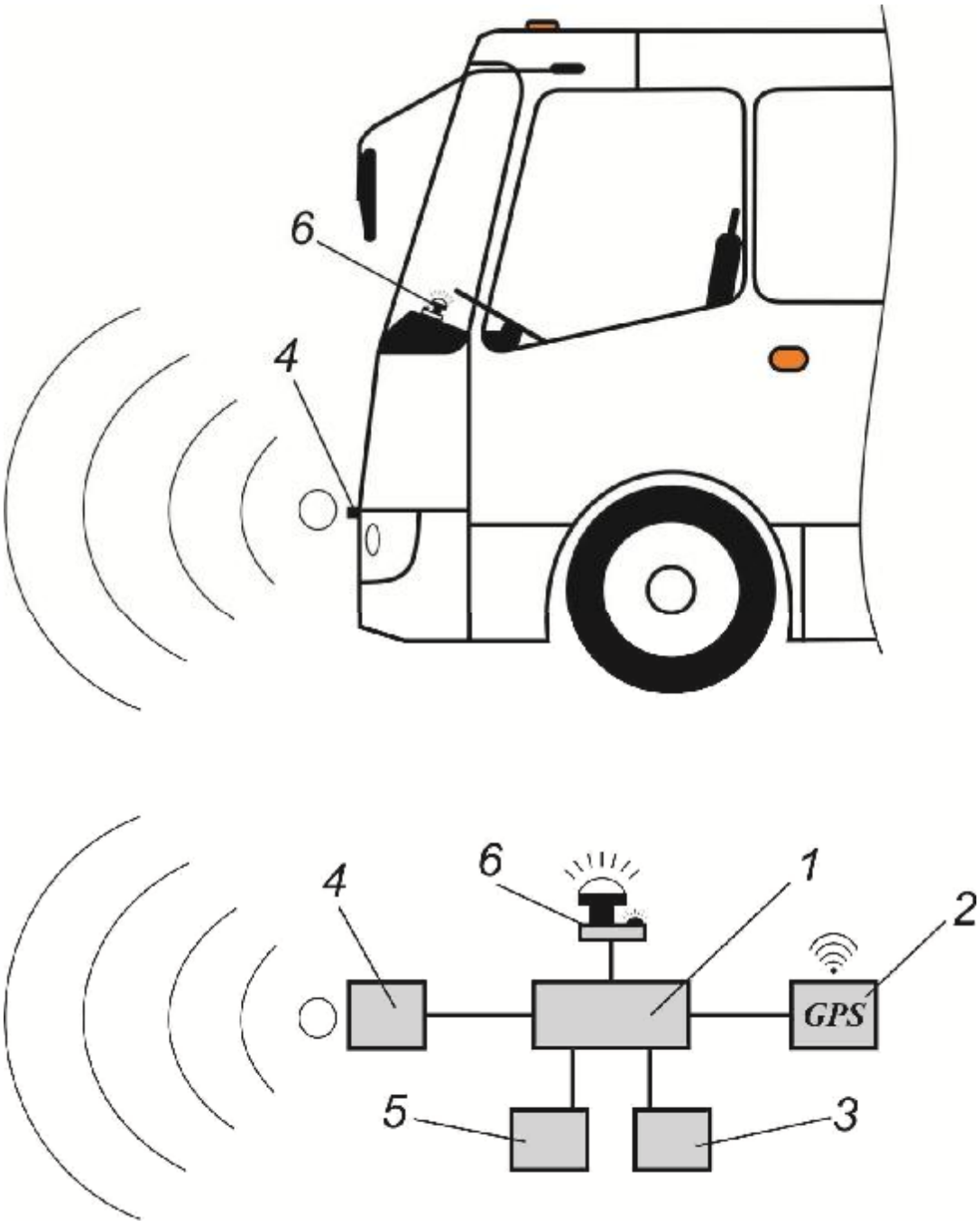

Figure 1 – Controlling device of city buses traffic safety

Therefore, the developed device can effectively improve traffic safety of urban public transport on a route and prevent road traffic accidents, reduce crashes, injuries, deaths on the road and etc.

References:

1. S. Cafiso, A. Di Graziano, G. Pappalardo. Road safety issues for bus transport management. Procedia – Social and Behavioral Sciences.Vol. 48. 2012

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