

## Input – Prof. A. Koric

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Dear Colleagues from the GRRF – AMEVSC WG

I send you my kind regards, and wish you a successful work with GRRF Commission.  
 I want to say something about my constructive solution of Stability system of Electronic Vehicle Control in the curve and in the other conditions of unstable driving.

I have been working for 32 years to find this system and I have been improving it all the time. I have made improvements of the system four times, and I have tested the system on my own vehicle. This solution is applicable to traction vehicles and trailers. Both options can work both simultaneously and for themselves depending on which part of the composition is unstable-traction vehicle or trailer.

Prior to this system I have discovered a mechanical law. The pendulum law in the vehicle in the curve and other unstable driving conditions. The application of this law was realised in the construction of electronic device for the vehicle stability control. The first constructive solution emerged as a signal device for vehicle stability- and was reported to the Patent Office in Belgrade, and later on in the Patent Office in Sarajevo-BAPO1823. In the other construction ( Device for the automatic speed limitation of the vehicles in the curve and other unstable driving condition). Signal Device for the Vehicle Unstability kept its function, but was used as the sensor of the vehicle instability. I managed to do this by taking out the signal impulse and its usage for activating work mechanism of the vehicles by using electrical relay for automatic switching on of work electrical magnet in electrical circuit with vehicle battery, and its purpose is to reduce speed of the vehicle in unstable conditions. Electrical magnet reduces engine gasoline. Electrical relay enables simultaneous gasoline reduction and braking. In my patent documentation, which exist in Patent Institute in Sarajevo, you can find a description of this device, the options of the possible usage and the best way of its usage. ( Patent BAPO41608)

I presented this device on the Work meeting of the GRRF group-64-28 and you can see it in 28 position. The advantages of my system are:

1. They are reliable in all driving condition
2. The activity is based on the natural action of the inertia force which effects the pendulum and the vehicles in unstable driving as well as driving in the curve- where most of the accidents take place.
3. The device can be set up according to the condition of the surface-dry, wet, snow, ice:
4. The device is the most reliable when it is set in the position for the most dangerous driving condition,  
 Winter-snow-ice

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Autumn and spring-wet

Summer-wet and if it is summer with stable weather condition you set the selector on the position dry.

5. The advantage of the using of this device is that the price of its making and setting is low. This is very important due to recession.
6. The system for the electronic stability control of the vehicle and trailer does not depend on the type and weight of vehicle.
7. The price of the maintenance has to be minimal
8. The device is designed to secure the reaction of the vehicles in the most dangerous driving condition.
9. My device construction is set in the vehicles and is not affected by the atmosphere condition ( water, dust, etc.), and is not available to the direct influence of mean people. For example if somebody sticks a gum on temperature sensor, the device will not function.

The law of action

The basic work element of the device is the pendulum which is affected by every unstability as well as the centrifugaql force in the curve.

I have established the connection between the frictional coefficient and the angular deflection of the pendulum

$$\operatorname{tg}(\alpha) = \mu$$

$\alpha$  - is the angular deflection of the pendulum under the influence of the acceleration  
 $\mu$  - is the frictional coefficient. It should be emphasized that this device includes negative angle of the inclination of the surface of the curve, so it acts carelier making corrections of the speed in the best possible way.

Note

Existing electronic solution of the control of vehicle stability depends on compiter and input.

The data on weather condition comes from the sensor of temperature, himidity of the air and some other factors. These sensors, placed outside the vehicles, are affected by atmosphere condition, corrosive effect of the some products, and it leads to the destruction of the sensors.

As a result of this we have a blockade of the engine work.

It should be emphasized that the driving conditions arte changing every second, so the vehicle is an equation with 100 unknowns. You should set 99 unknowns and solve that system with standard methods which is impossible.

Three basic functions which directly define driving security are:

- 1, The driver s state( his psycho-physical state, driving training, age)
2. The state of the vehicles ( technical state etc)
- 3, The state of the traffic conditions.

We live at the beginning of the twentieth century and we should not make the cars for the twenty second cenntury. The drivers should be trained properly, they should drive carefully, should pay more attention if using cell phones, the engine power should be

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standardised and the speed should be limited to 160-200 mph. This should be done on the UN level, to prevent disloyal competition between producers. The one who wants to travel fast, should travel by plane. One should take into account the psycho-physical state of the driver which decreases as the speed increases. My 52-year-experience leads me to conclusion that this should be considered. Only well-trained and careful driver can provide a safe, comfortable ride for himself and others. This kind of a driver can not be replaced by a computer.

With kind regards

Sarajevo, 7.4. 2010

Prof. Ahmed Koric