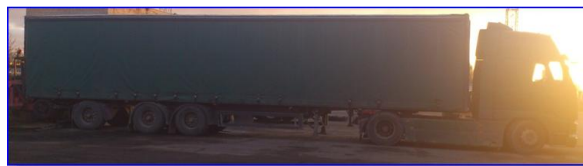
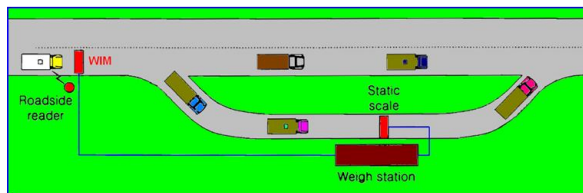


FIBER OPTIC SENSOR APPLICATIONS FOR AUTOMATIC MEASUREMENT OF THE WEIGHT OF VEHICLES IN MOTION: RESEARCH AND DEVELOPMENT

Problem definition

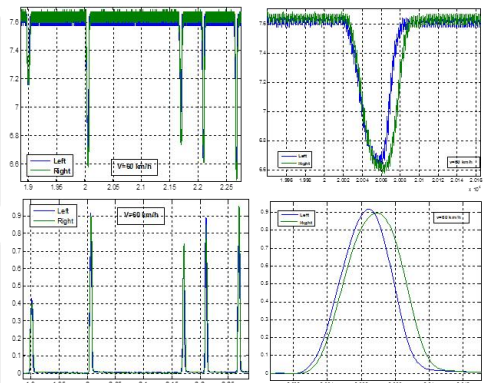
Latvia is a country highly orientated on transportation services. But the lack of modern ICT tools in this sphere lead Latvia to the significant expenditures. Expenditures could be observed from two points of view: one is connected with insufficient number of static weighing of trucks on the territory of Latvia, this points leads to the economical loses the second one is connected with expenditures connected with a huge budget dedicated to the roads maintenance. To decrease budget on road maintains it is necessary to organize a control of trucks weight and preventing them to damage roads surface. Main aim of this project is to develop weight of vehicle in motion system for Latvia. Some tasks of the project could be drawn as follows:

- * electrical signal form and repeatability research driving up on the sensor by car with weights different;
- * electrical signal processing algorithm development;
- * weight controller projection and development
- * software for vehicle weighing station development



- * On the roads: to determinate the speed of vehicles, classification, number of vehicles;
- * To determinate the traffic jams on the roads and switching frequency of traffic lights;
- * On the railway: vehicles weighing, definition of damaged wheels, switching of railway arrows;
- * Building industry: to determinate a deformation of the constructions, for example- bridges and etc.

The developed product includes two main components the hardware and software. The software part includes software for vehicle weighing stations and different kind of algorithms for electrical signal processing. The hardware part consists of fiber-optic sensors which must be located on road to collect the necessary data. The



obtained should be processed to obtain weight value of the vehicles. The project executed by with the institute staff and with the technical specialists, which will bring an invaluable contribution to the technical execution of the project and

projects management. Such cooperation will improve the scientific work of the Institute and will significantly expand its activities.

Results

As the result the prototype of the weight of vehicle in motion system will be presented to the industrial sector for next serial implementation and use on the Latvia. The prototype will include a hardware prototype and developed software.

Proceeding

As was mentioned before, the main objective of the project to develop weight of vehicle in motion system with high level of the reliability. As the solution, was proposed to use fiber-optic sensors. This provides to the market a new type of product, which absolutely a new and unique product, which currently hasn't analogues in the world. This innovation can be used in other areas and sectors:

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