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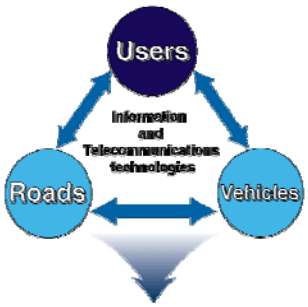
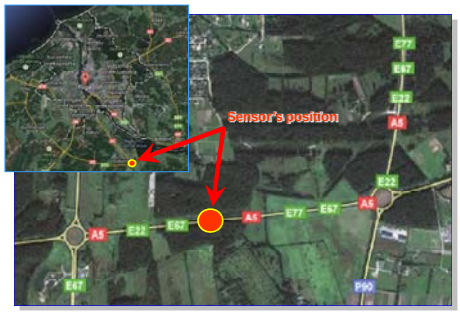
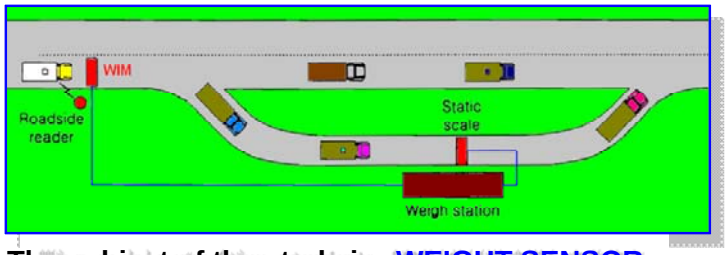
ERDF project

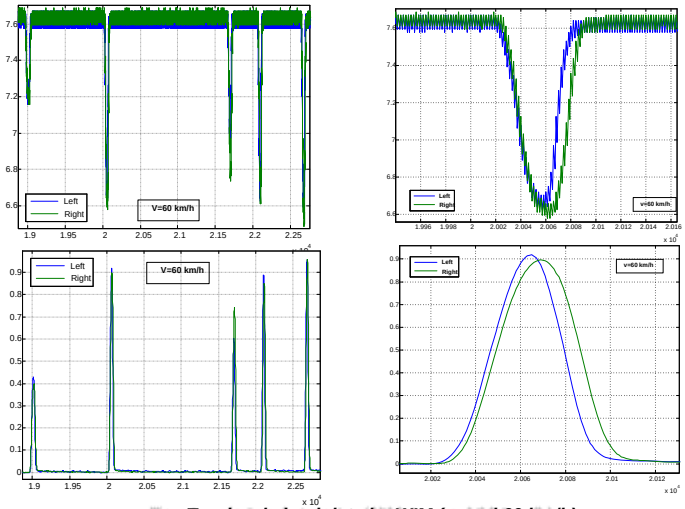
„FIBER OPTIC SENSOR APPLICATIONS FOR AUTOMATIC MEASUREMENT OF THE WEIGHT OF VEHICLES IN MOTION: RESEARCH AND DEVELOPMENT" (SVARI) 2010-2013

by LR Ministry of Science and Education (No. 2010/0280/2DP/2.1.1.1.0/10/APIA/VIAA/094 from 19.12.2010)







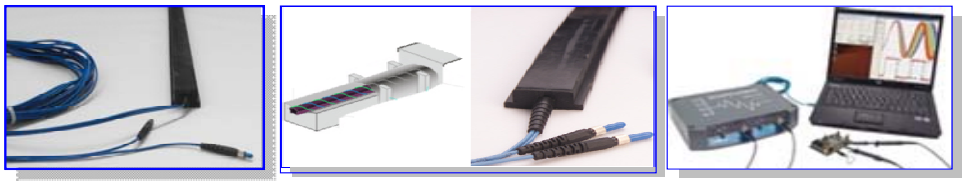


The subject of the study is WEIGHT SENSOR

General aim of the project:

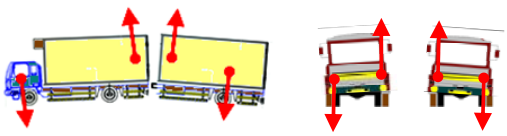
Research the possibility and develop the technology of fiber-optic sensors for axle loads of trucks in motion. The project will create a prototype of the weights on the basis of new materials and technologies. Planned resource of weights exploitation is 10-30 years.

Truck axis load data by WIM (speed 60 km/h)

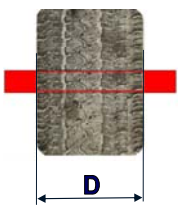


In the course of the project the following activities will be carried out to achieve the target:

1. Electrical signal form and repeatability research driving up on the sensor by car with different weight;
2. Electrical signal processing algorithm development;
3. Weight controller projection and development;
4. Computerized device will be developed, which transfer analogue signal of the sensor into digital signal (weight) units using special algorithm;
5. Weighting station software development;
6. Property protection consolidation.



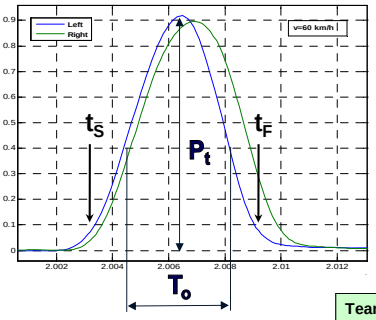
Dynamic load changes of each wheel



$$W_{ha} = A_t \cdot P_t \qquad A_t = D \cdot \upsilon_W \cdot T_0$$

It is a classic way, where υ_W is the speed of the wheel

Weight Measurement: Load on axis weight is calculated as the wheel tire pressure P_t on the square A_t of the footprint.



Place of the Project:	**Transport and Telecommunication institute**
Duration of the Project:	**36 months**
Estimated expenses of the Project:	**273674 LVL out of which 253147 LVL or 92,5% are co-financed from the European Regional Development Fund (ERDF), 20527 LVL or 7,5% are co-financed from the budget of project's submitter.**

Team of the Project:	**Transport and Telecommunication institute (7 researchers, 3 Master's Students, 4 engineers)**
Partner in the Project:	**SIA "Kemek Engineering" (Latvia), SENSORLINE GmbH (Germany)**

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Research is granted by ERDF funding, project "Fiber optic sensor applications for automatic measurement of the weight of vehicles in motion: research and development (2010-2013)", No. 2010/0280/2DP/2.1.1.1.0/10/APIA/VIAA/094, 19.12.2010.