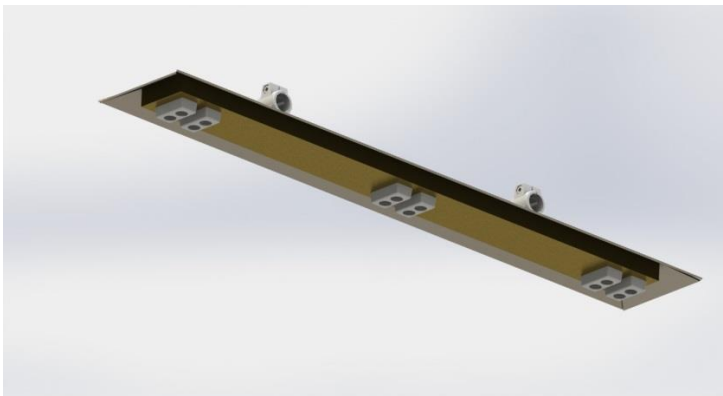


Dense Laser Curtain for Vehicle Velocity Measurement at Short Ranges (DLCV)

Dr. Frucht Systems Ltd specializes in LADAR based sensors for Home Land Security applications.

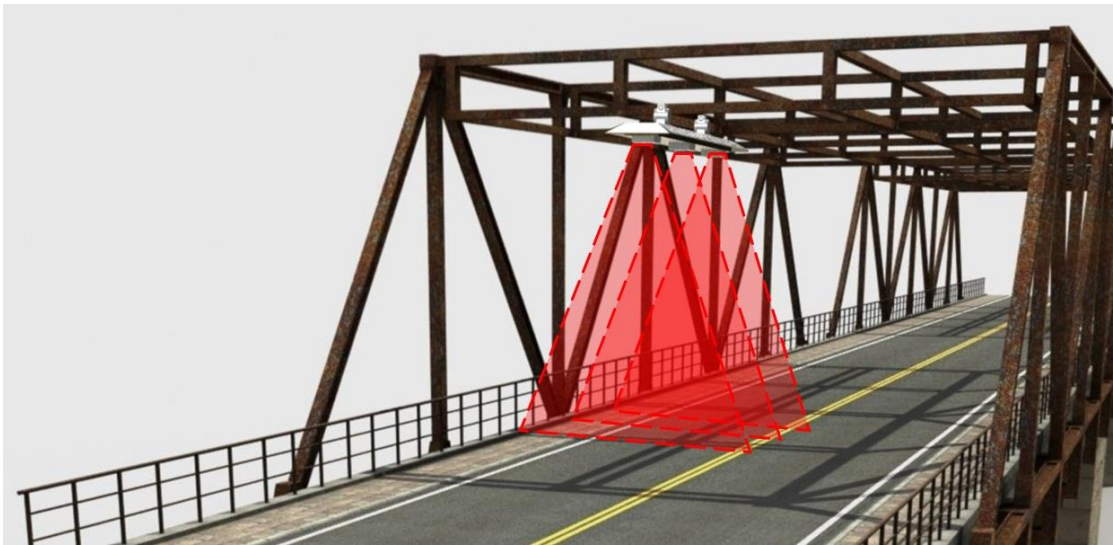
One of the special sensors which was developed by the company is DLC: http://www.smartsecsystems.com/prdct_dlc.htm . The company developed the basic sensor and the know how to adapt it to the customer needs, thus, the specific system design is tailored to the customer needs. The basic sensor is based on a proprietary, wide angle laser, accompanied by a special electronic which enable high probability of detection of fast moving bodies and algorithm for velocity evaluation and filtering of false alarms.

The suggested architecture is shown in the pictures below.

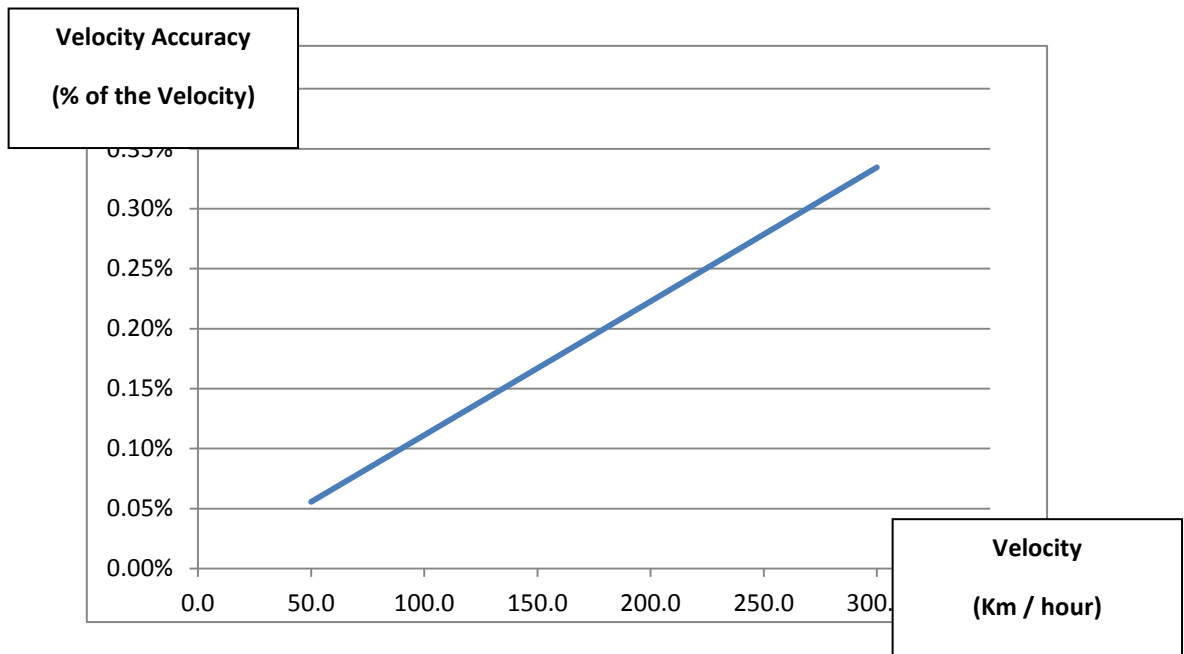


In order to reduce maximize the probability of detection and the accuracy of the velocity measurement it is suggested to integrate 6 special Laser Sensors. To enable operation at high temperatures, they are equipped with cooling device and packed in a hermetically sealed box. They are connected to a Signal Processing Unit which integrates their readings and communicate with the “external world”. The design ensures no interference between the Laser Sensors. The Preliminary DLCV Spec is brought up in the Annex.

The sketch below illustrates the suggested way of installation:

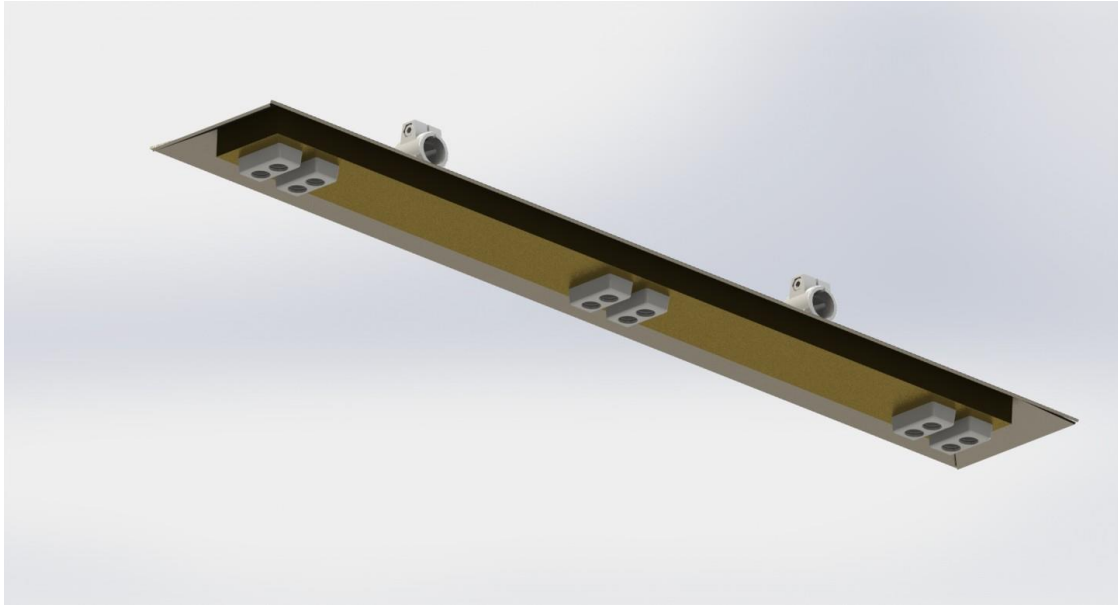


The sources of the inaccuracies in the Vehicle Velocity evaluations are: the geometrical alignment of the Laser Sensors in the DLCV box and the exact moment when the vehicle crosses the laser curtain relative to the laser pulse transmitted by the Laser Sensor. It is assumed that the biases due to the geometrical alignment will be practically eliminated during the assembly of the DLCV. The graph below shows a first estimation of the error in the Velocity Measurement.



DLCV can also provide an accurately the length of the vehicle and an rude evaluation of the height of the vehicle (accuracy of 0.3-0.5 m).

Annex: Preliminary Spec of DLCV



Parameter	Value
FOV (each Laser Sensor)	0.5° x 25°
Number of Laser Sensors	3 x 2
Pulse Repetition Frequency (PRF)	25 KHz
Max detection speed	350 km/ hour
Mounting Height	7.5 m
Pass Width on the road	3.5 m
Output Interface	RS 485
Laser Safety Class	Class 1 (eye safe) from 0.5 m
Wavelength	905 nm
Operating Ambient Temperature	- 25 °C ÷ + 55 °C
Storage Temperature	- 35 °C ÷ + 70 °C
Supply Voltage (not include heater)	12 V_DC ±10% @ 0.7 A (8.5 Watt)
Enclosure rating	IP 66
Weight	5.8 Kg
Dimensions (W x D x H)	173 x 1100 x 112 mm