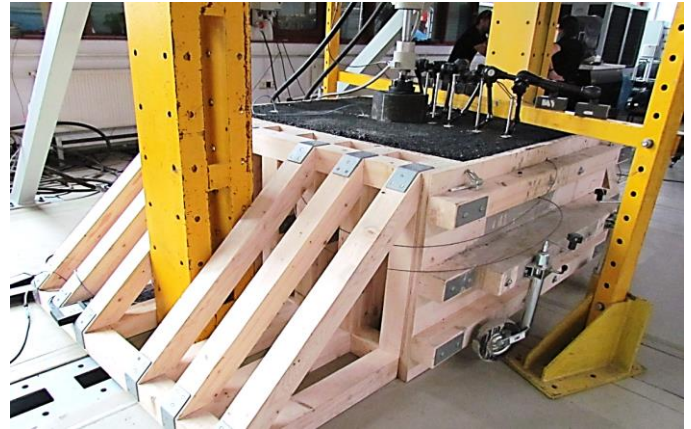


Fatigue strain measurements in different layers of a road structure

EpsilonSensor: Case Study

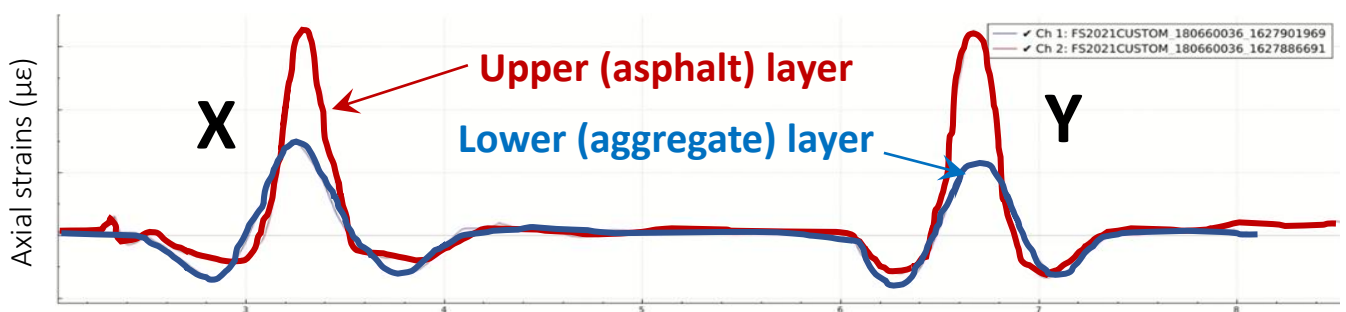
EpsilonSensors were embedded inside the laboratory field, simulating the real road structure. Both longitudinal (X) and transverse (Y) sections were investigated at two levels: in the aggregate (lower) and asphalt (upper) layer. The internal nervous system allowed for detailed analysis of structural behaviour (strain distributions over the length and strain development over time) during fatigue loads (1,000,000 load cycles). Data were used for FEA validation and further optimisations.



Benefits of application

- Simultaneous strains measurements **inside the aggregate and asphalt layers**
- Reliable **high-frequency data during fatigue tests** (1,000,000 load cycles)
- Thousands of measurement points **without reinforcing** the road layers
- Detailed **scientific data** for design procedures, FEA validation and optimisation

Example results



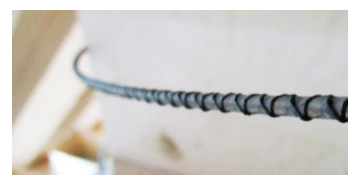
 **1 153** measurement points

 **6 m** of sensing path

 **4 x** EpsilonSensor

 **short-term (laboratory)**

The plots above show example (at selected time) strain distributions over the length of the sensors embedded inside the aggregate and asphalt layer. At the same time, two layers and two directions (X, Y) were investigated with 25 Hz frequency.



project
partner:



RZESZOW UNIVERSITY
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