

PRESS RELEASE

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Permanent condition monitoring at the push of a button

Notably car drivers are affected: Long traffic jams or reroutings due to protracted restoration works on bridges – frequently even being on too late as some of the bridges yet are in danger of collapse and thus being – in the worst case – subject of demolition. But why not intervening and sanifying at an early state? That’s what engineers of Fraunhofer IZFP have thought about and, as a result, developed an intelligent, modular monitoring platform as a fast and cost-effective corrective to-be.

Ageing infrastructure systems pose great challenges for us to accommodate both, technical progress and steadily rising mobility. Requirements for technical safety of infrastructure and traffic constructions can only be fulfilled by reliable condition monitoring and assessment. Accidents of a devastating extent can be avoided by a permanent condition monitoring allowing for a timely condition assessment, since manual inspections are time-consuming and often performed too late. Next to bridges, examples include the safety of cableways, the requirements in power plant engineering and chemical industry, as well as high-rise masts and traffic lights in the city center. In these areas, incidents due to material aging and corrosion have already become known.

Modular, energy self-sufficient, and cost-efficient infrastructure monitoring systems

Scientists and engineers of Fraunhofer IZFP in Saarbrücken, Germany, have developed a cognitive sensor platform for the easy and cost-efficient implementation of necessary prerequisites of a steady, modular, and cost-efficient infrastructure monitoring – as simple as pushing a button. Expensive and maintenance-intensive server networks – often prone to hacker attacks – and interference-prone systems which require periodic maintenance: All of this might soon be a thing of the past. By individual sensor interfaces the modular, low-power measurement system allows for a tailor-made solution of any inspection task. Time-consuming, randomized inspections become decrepit by

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the innovation of Fraunhofer IZFP. And this all can be easily read out locally via radio interface.



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Miniaturized sensors steadily searching for cracks and alterations in the fabric

Minute sensors, permanently attached to an infrastructure of interest, detect even the tiniest alterations in the fabric. A single unit contains, amongst others, a long-term data memory which can be read out via radio interface at any time, thus, providing the basis for an extensive condition assessment of the construction. The cognitive sensor platform shall keep its functionality over a period of 10 years without any need for maintenance or replacement. To this each unit contains a long-term power supply by a renewable, forever available energy source. All necessary nondestructive testing procedures for this novel monitoring system will be adapted and made suitable for series production by Fraunhofer IZFP itself.