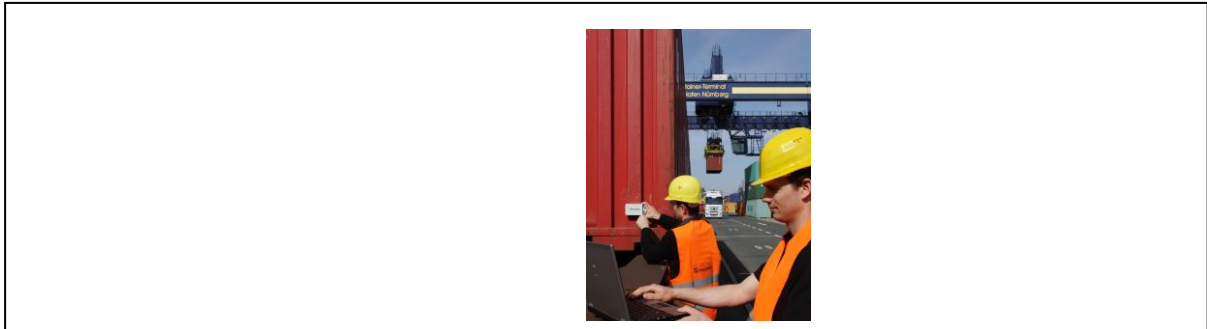


Access provider – FhG-IIS

Select access type - Energy Harvesting

Access description: Recording of EH sources and EH systems in application environment

Access to data loggers with different sensors, UMTS and GPS module (for position or speed) to measure and record different kinds of ambient energy sources and characterize complete systems in application environments.



Technical offering

- Characterization of environmental conditions for the use with energy harvesting systems
- Measurement and recording of light, thermal gradients and vibrations at any kind of objects (vehicles, machinery, buildings, persons, etc.)
- Measurement and recording of power output of any kind of energy harvesting systems (solar cells, thermoelectric generators, vibration harvesters including power management) in working environment
- Post-processing of the raw data measured by the data-loggers to determine the potential energy available with different kinds of harvesters
- Available library of recorded acceleration data in different scenarios: freight trains, forklift trucks, bikes, cars and subway trains

Main equipment

- Data-loggers with the following features:
 - Integrated GPS modules to measure position and velocity
 - Integrated UMTS modules for online data transmission and analysis
 - 9-Axis accelerometer
 - Temperature sensor
 - Interface for external sensors
 - SD-card for storing measurement data for several weeks

Typical applications

Characterization of vibrations at any kind of moving vehicle with online-data transmission and analysis via UMTS for later design of vibration harvesters; Measurement of output power of an energy harvesting system like thermoelectric harvester with power management in final application.

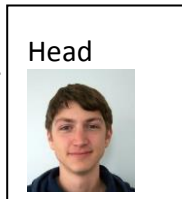
Case study

Data-loggers mounted on gas cylinders, where thermoelectric generators use heat for powering sensors. Data-loggers measure and record output power of thermoelectric generators difference over the course of several hours.

Vibration harvesters mounted on railway trains measure and record the acceleration in 3 axis over the course of several days.

Responsible

Johannes Knauer



<p style="text-align: center;">Data-Logger Hardware</p>	<p style="text-align: center;">Data-Logger in housing with battery for 3 days</p>	
<p>Keys specifications (Example)</p>		
<ul style="list-style-type: none"> ● GPS position 1 Hz ● Acceleration 2 Hz ● Data transmission every 30 min 		<p style="text-align: center;">●</p>