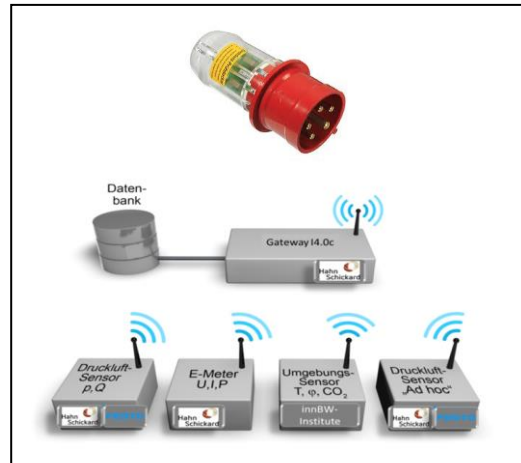


Master Thesis

Energy Harvester for Energy Monitoring Devices

Abstract

Cyber Physical Systems are a hot topic in industry and science. In our institute, we develop such systems about wireless energy and data transfer and apply them in "Industry 4.0". One topic is energy monitoring of electrical by magneto-resonant sensors. The devices should work in low maintenance, so their circuits need some harvesters, utilizing the magnetic field in power devices. There is a big challenge because of the low frequency and the narrow installation space. So, the circuits have to work in power saving and realized a sufficient signal amplification.



Workpackages

- You study state-of-the-art energy harvesters and compare against literature
- You participate in optimizing an 50-Hz-energy harvester and its energy management layout
- You layout the sensor, extract parameters from layout and re-simulate.
- You participate on works about packaging
- You test the demonstrator devices to do first early characterization

Requirements

- Studies in Micro Systems Technology, Embedded Systems Engineering, Electrical Engineering, Physics or similar
- You are familiar with or interested to get deeper into energy physics (for example inductive energy harvesting), measurement techniques (Oscilloscope, Multi Function Calibrator...)
- Your software skills cover: LabView, MathLab, ANSYS or COMSOL
- You are open minded, fascinated about the new and eager to learn.

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