

Transport Information Days

Uppsala University

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Brussels



Uppsala University, Sweden



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Microwave group's expertise:

- Communication in very harsh environments
- Wireless Interface and conformal antenna design
- Wireless sensors network deployment
- Power scavenging
- RF Integration

Partners:

- Swedish Rail Administration
- WISENET consortium
- AMTAB & Upwis & Sensinet (SMEs)

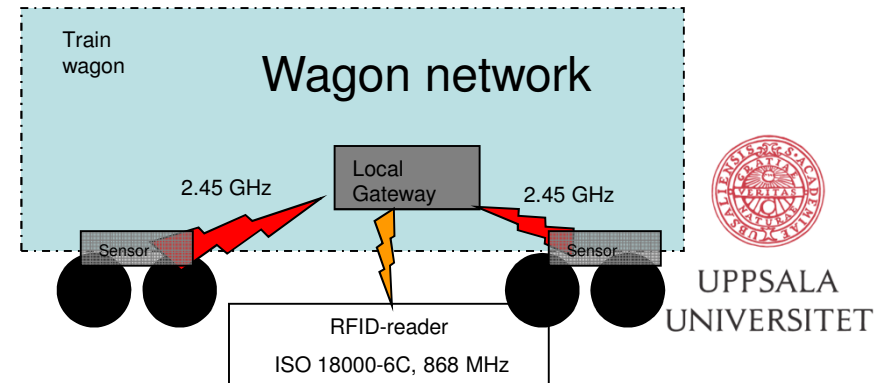
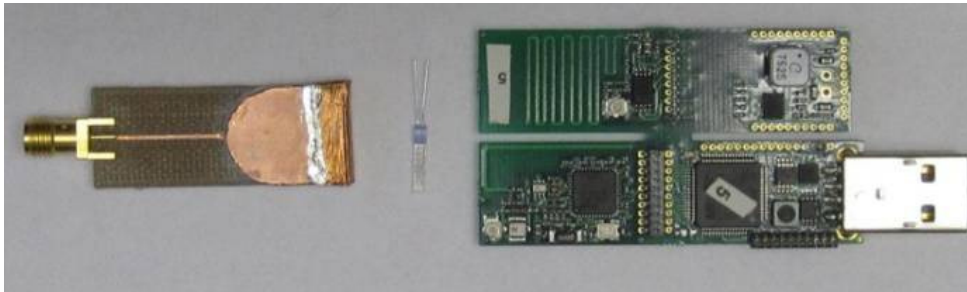


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WISENET project



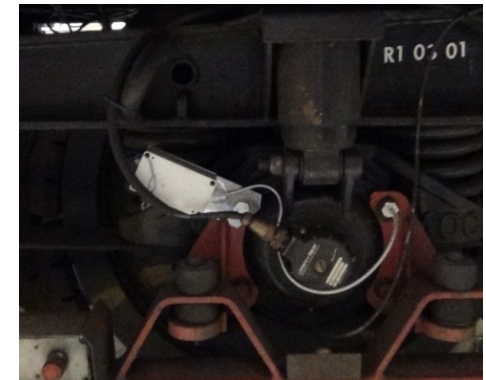
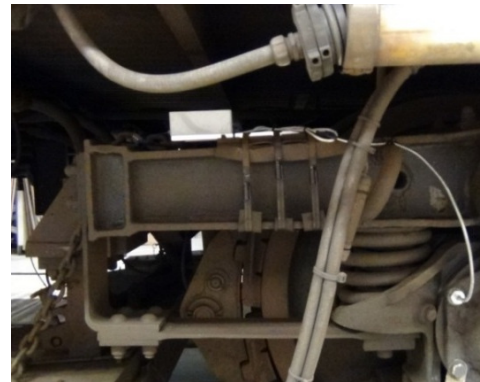
- What:
 - autonomously monitoring ball bearings defaults on rail wagons and wirelessly transfer data
- How:
 - measure ball bearing's heat to foresee failure
 - power scavenging for powering sensors and com.
 - embedded sensors and wireless gateways network



WISENET project



- Two successful field trials already performed
 - First ever test bed on railway wagon
 - Node and Gateway radio design
- Temperature measurement on ball bearings
- Evaluation of techniques for power scavenging
- Communication robustness demonstrated
- Gateway antenna for high speed trains and novel antenna node implemented



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Our Profile



- Wireless interface and conformal antenna design
 - wireless communications
 - radio-wave propagation in extreme environments
 - antenna design
- System integration
 - integration of sensor nodes
 - inter-nodes communication
 - gateways communication
- Power scavenging
 - techniques for power scavenging in train env.
- Wireless sensor platform

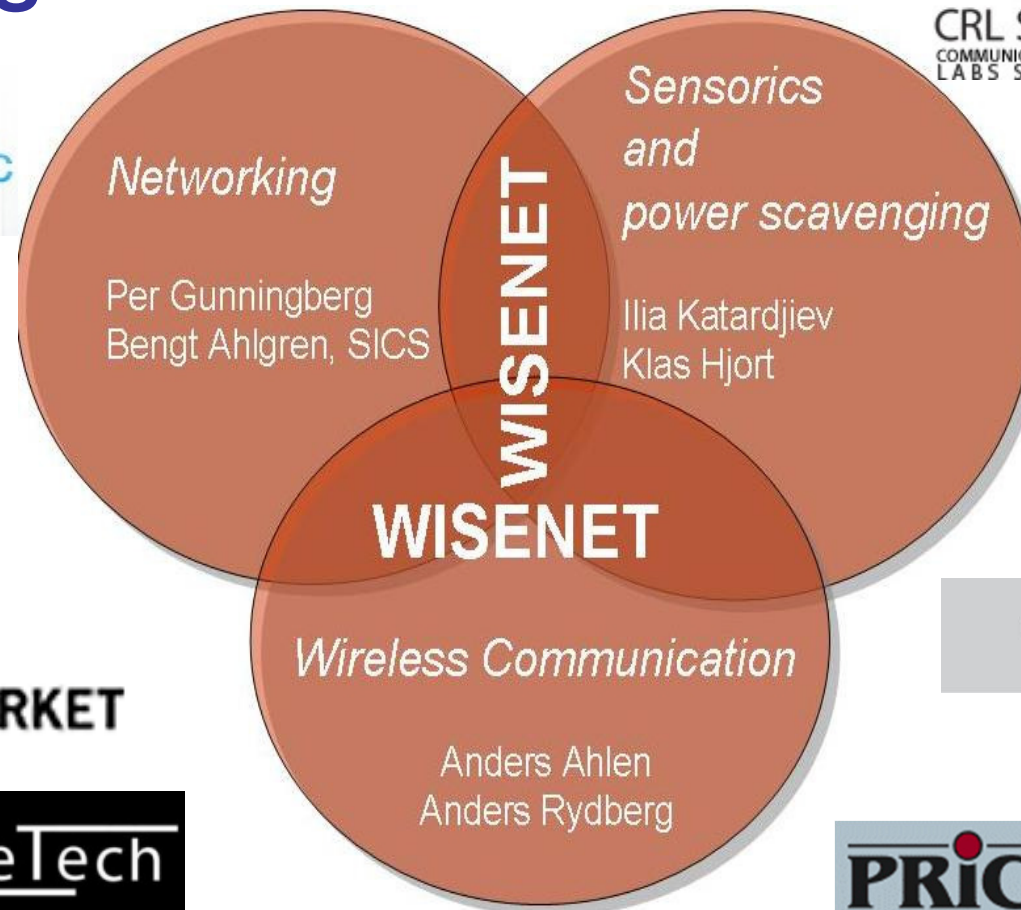


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Uppsala Center for Wireless Sensor networks

Competencies and partners

UPWIS



SensiNet



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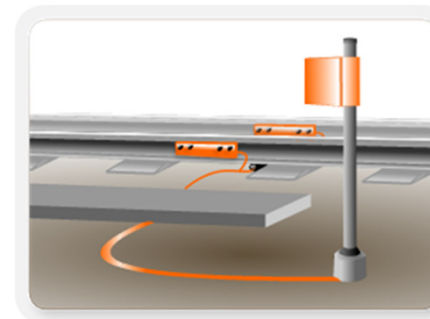
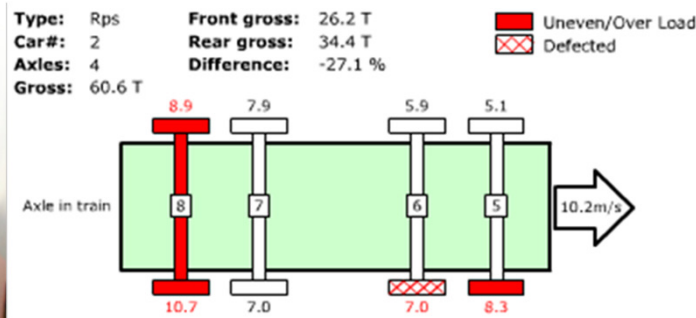


AMTAB

AMTAB offers advanced train detection technology,
high precision measurements on the move.

Swedish tradition, highest quality, roughest environments.

AMTAB has developed equipment for advanced train detection for more than
20 years, with passion for quality within the art of engineering.



Weighing In
Motion

Wheel Flat
Detection

Train
Detection



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Partner Profile



- Follow-up WISENET project in EU-project
- Partners
 - railways operators
 - general safety improvement
 - improvement of train handling
 - dedicated control and communication
 - sensors
 - power scavenging
- Topics of interest from the coming transport call:
 - **SST.2013.2-2.** New concepts for railway infrastructure and operation: adaptable, automated, resilient and high-capacity
 - **SST.2013.2-1.** Next generation of train control systems in the domain of urban and main line European railway systems
 - **SST.2013.4-1.** Ships in operation (within 7.2.4. Improving safety and security)
 - **TPT.2013-1.** Technology transfer in the area of Transport
 - **SST.2013.1-1.** Railway infrastructure optimisation and monitoring for further noise reduction



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