The Fraunhofer Institute for Integrated Circuits IIS is one of about 60 applied research-oriented institutes of the Fraunhofer-Gesellschaft with the aim of providing a technological basis for innovative products.

For our department Locating and Communication Systems, location Nuremberg, we are looking for…

Interns or Diploma/ Master/ Bachelor Thesis (m/f)
For Combination of Energy Harvesting and Passive UHF RFID for Sensing Applications

RFID technology is well known from its many applications in the field of object identification. Passive RFID tags do not have an internal power supply and therefore they get the required power from the electromagnetic field transmitted by the RFID reader. As a result, the tag power consumption limits the system read range and also the use of other technologies such as sensors. The combination of passive RFID with energy harvesting provides an extra source of power that can enable many applications and use cases that are not possible at the moment. In this project, several energy harvesting sources and different sensors will be considered and as a final result a working prototype is expected.

You should have knowledge related to some of these areas
- Basic analogue electronics (wireless systems, RFID, AC-DC and DC-DC converters).
- Hardware design (schematics, layout).
- Radio frequency (RF) measurement equipment.
- Microcontroller programming.
- Antennas (the design of the antenna is optional).
- Language: German and/or English.

You will carry out the following tasks
- Understand RFID and energy harvesting technologies.
- Analysis of the state-of-the-art.
- Review and understand the previous work carried out in this field in the research group.
- Design and simulation of a feasible tag architecture including RFID, energy harvesting, battery and sensor(s).
- Design and layout of the prototype (in the research group we use the design tool Mentor Graphics).
- Tests and measurements in different scenarios and use cases.
- Documentation and presentation.

Moreover, we offer an open and cooperative working environment as well as freedom to develop your own interests, knowledge and skills.

Interested?
Do not hesitate: Join our team and work with us on the Technology of tomorrow!
Reference number: **670695**
Please inform us, how you found out about our job offer.

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