# Masterthesis at NXP

NXP is a top 10 semiconductor company founded by Philips more than 50 years ago. Headquartered in Europe, the company has 37,000 employees working in 20 countries across the world. NXP creates semiconductors, system solutions and software that deliver better sensory experiences in mobile phones, personal media players, TVs, set-top boxes, identification applications, cars and a wide range of other electronic devices.
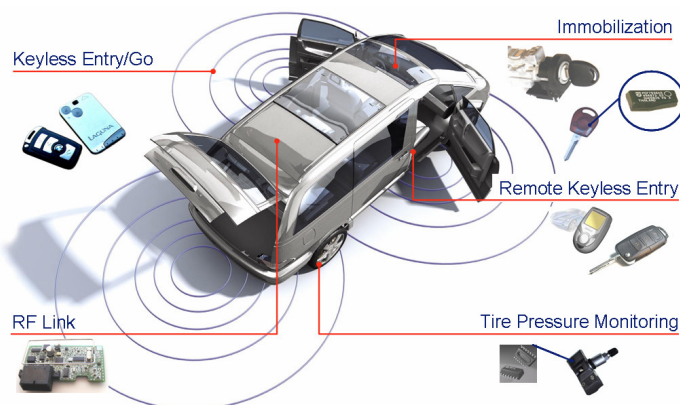
NXP Semiconductors provides world-wide leading chip solutions for the Identification market, including ICs for smart cards, smart labels / tags and car access and immobilizers. Building on its leadership position in contactless chip solutions and high-level security for smart cards, NXP supports a wide range of application areas - from banking and mobile communications to e-government, public transport, supply chain management and logistics.

Design of a Mixer

For future automotive applications which are linked to wireless communications, specific transceiver concepts in the 900 MHz range have to be investigated. The design of a mixer for up- and downconversion represents a critical element in the overall chain. Parameters like maximum linearity and noise figure are relevant parameters. Furthermore a trade-off between noise and intermodulation distortion is of significance. In particular it is aim to develop and design the described elements under the constraints of CMOS Technology.

Details and Workplan:

- Literature studie of different/possible concepts – comparison of concepts
- Parameter-Characterisation – constraints due to application (Power, necessary linearity, distortion,…)
- Choice of a specific topology
- Design the chosen topology in Cadence (under guidance of an experienced designer)
- Layout
- Performance characterisation by measurements
- Writing your thesis

General Parameters:

- Typical duration: 6 months
- Financial conditions according to NXP guidelines
- Contact person: Dr. Harald Witschnig (**harald.witschnig@nxp.com**)

Ansprechpersonen am Institut für Elektronik:
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