

# Development of a 24 GHz radar transceiver with off-the-shelf components

## Background

During the last years, various leading companies developed ICs for mm-Wave radar frontends. These ICs are commercially available for a low-cost price. Nevertheless, evaluation boards are pricey and are overloaded with various functions, without even providing raw data for the development of own signal processing algorithms.

Within the thesis, a 24GHz radar transceiver shall be designed, which provides an easy access interface for a terminal device.

## Tasks

The students' task is the development of a 24GHz radar frontend with off-the-shelf components, which provides raw data to a terminal device in a simple way.

- Development of a PCB for the radar frontend, including mm-Wave IC, microcontroller, baseband amplifier, control interface, powers supply, antenna design etc.
- Programming the microcontroller
- Programming an API for the terminal device in Python, C++ or similar
- Implementing basic signal processing functions on the terminal device
- Measurement and testing

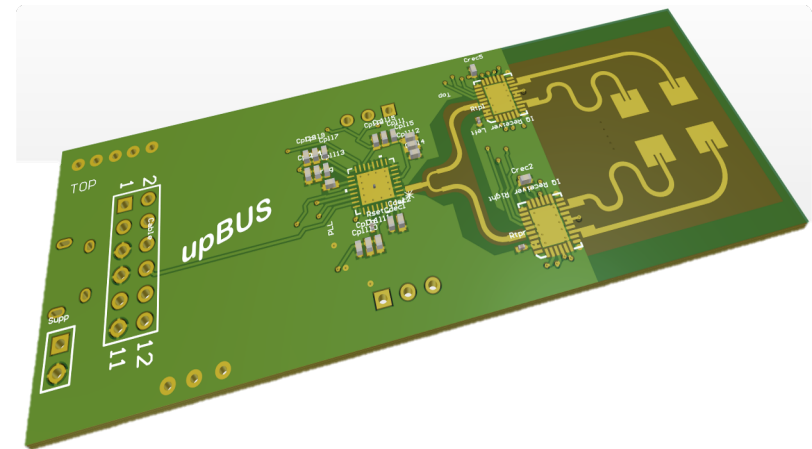


Figure: Prototype of a 24 GHz receiver frontend.

## Contact

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