Development of a hardware prototype for a mobile USB audio interface

The internship is inside a startup that introduces a new product: a low entry hearing aid with a high quality sound. The smart phone is used as a high performance computing device so that it can run the state-of-the-art DSP algorithms in order to bring the most optimum sound to the user.

The product consists of hardware and software: the hardware is an audio interface device that is connected to the smart phone and the software consists of DSP algorithms and applications for control, connectivity and measurement that run on the smart phone. The USB connector of the Android smart phone is used to transmit digital audio signals to a dedicated device with A/D and D/A converters and amplifiers.

Requirements and challenges: high sound quality expressed in SNR, THD and possibly user tests; low latency; high headphone output power; low power consumption; small dimensions.

Activities:
- review the architecture for the hardware
- select the components
- build an experimental setup with evaluation boards
- make a detailed design for the prototype hardware
- design a Printed Circuit Board layout
- test the device
- optional: develop the software for the embedded micro-controller

What can you expect:
- get experience with latest technologies
- work in a professional environment with a high degree of freedom and independence
- work close with the director and witness all aspects of a new product introduction
- work in an inspiring environment
- if you are interested: get experience with patents and governmental regulations
- a chance on a (part-time) job after the internship