Explore the next sense

Radar Gesture control for True wireless Earbuds

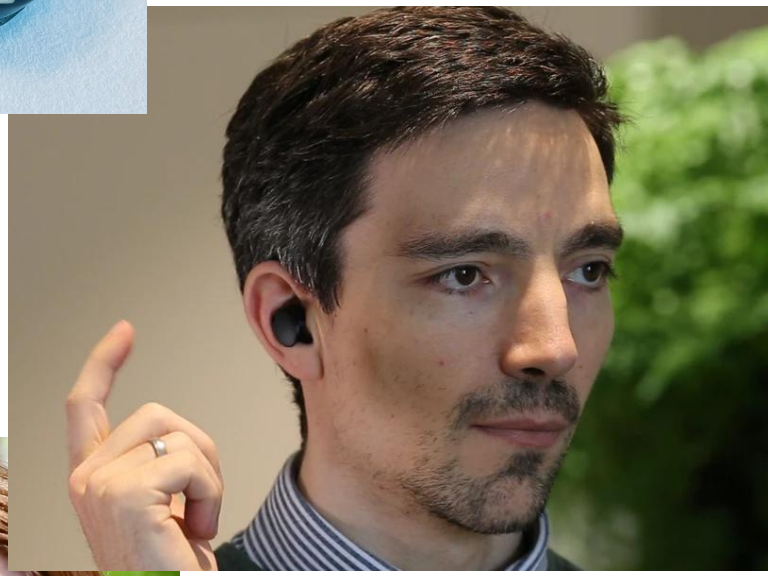
October 2021

Explore the next sense

Acconeer's "Pulsed Coherent Radar" (PCR),
a breakthrough in sensor technology

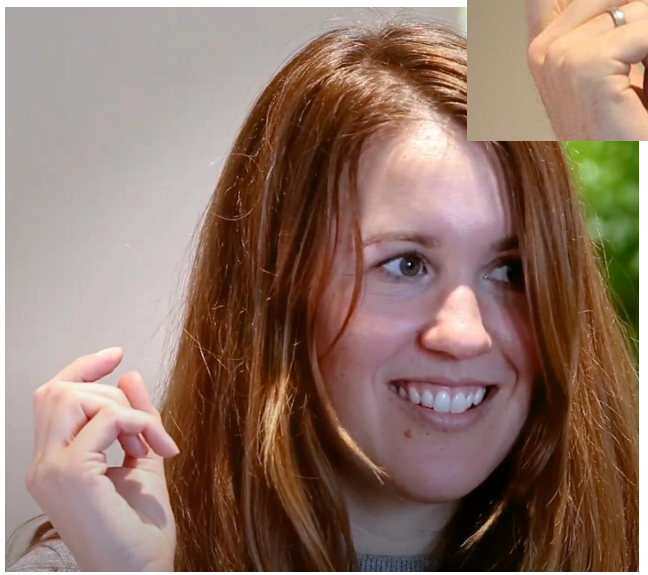
The world leader in ultra low power radars for battery driven devices

True wireless earbud prototype



- Acconeer has together with Imagimob and OSM group developed a **True wireless earbud prototype supporting gesture control using radar**

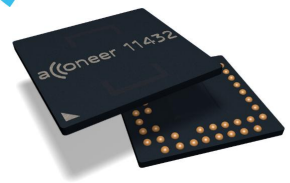
- Gesture control provides a **perfect fit for True wireless earbuds** with flexible and accessible interaction



- Based on customer feedback, the gestures are designed to be **easy to use, close to earbud and robust**

YouTube https://youtu.be/ZTyJz3yCjiM

Gesture Control with Pulsed Coherent Radar



Pulsed Coherent Radar

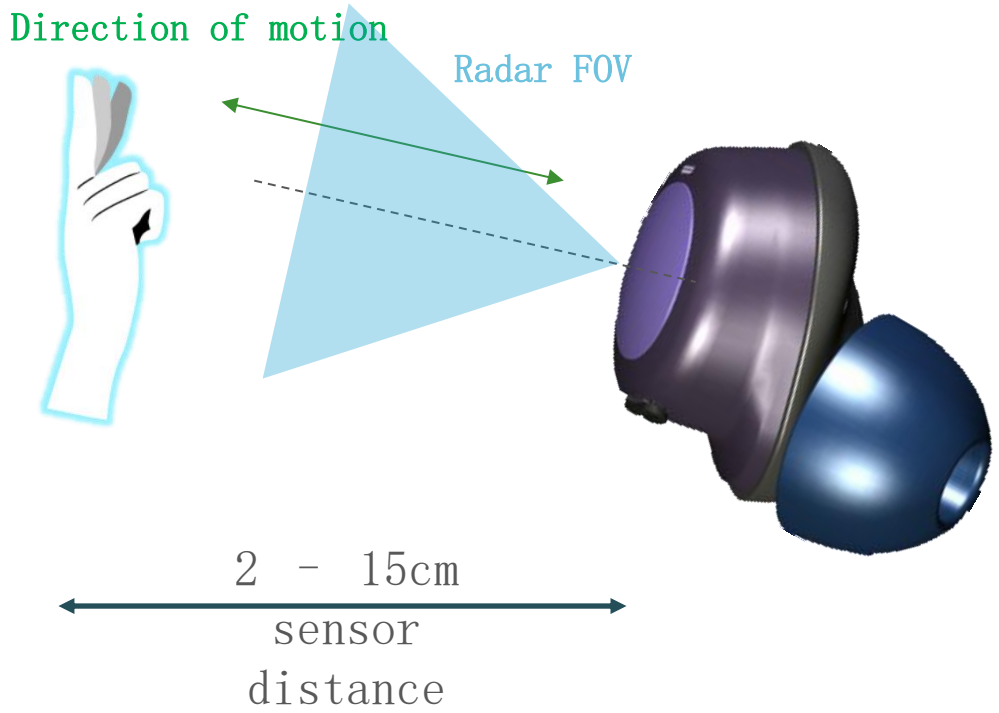
+

imagimob

Edge AI

Robustness	Robust gesture detection
	Radar signal, no natural disturbances
Advanced Detection	Accurate and extremely sensitive
Ultra low power	Pulsed coherent radar system
Easy integration	Low memory footprint
	Small package, integrated behind plastic

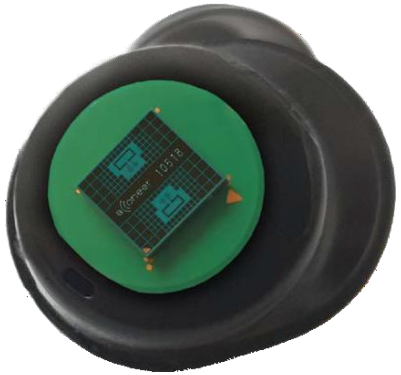
Earbud gesture control prototype

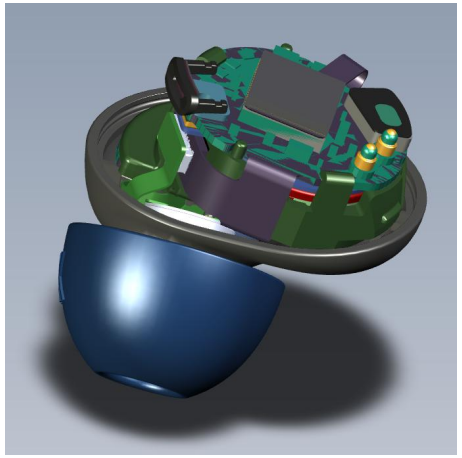


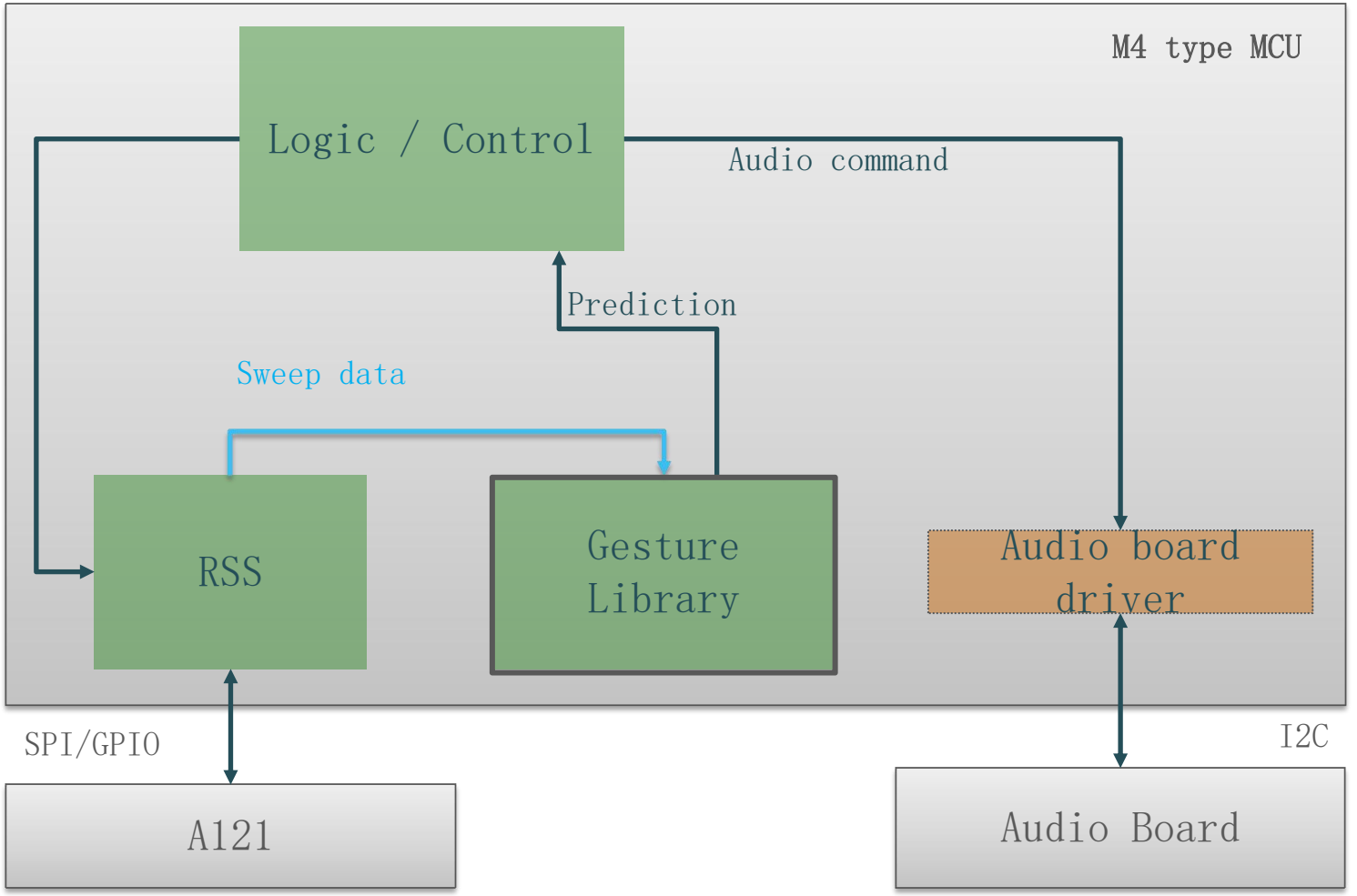
Earbud gesture control prototype

- Weight: 4,93 oz
- Fully integrated A1 Pulsed Coherent Radar (86.6 mm^2)
- Cortex® M4 executing radar processing and AI
- Total memory footprint (radar processing + AI model): <25 kByte RAM, <200 kByte Flash
- Very low latency gesture operation: less than 500 ms
- Gesture hit rate >96%
- Gesture false positive rate <0.5%
- Battery time with 40 mAh battery: approx. 3 hours active use of gesture control

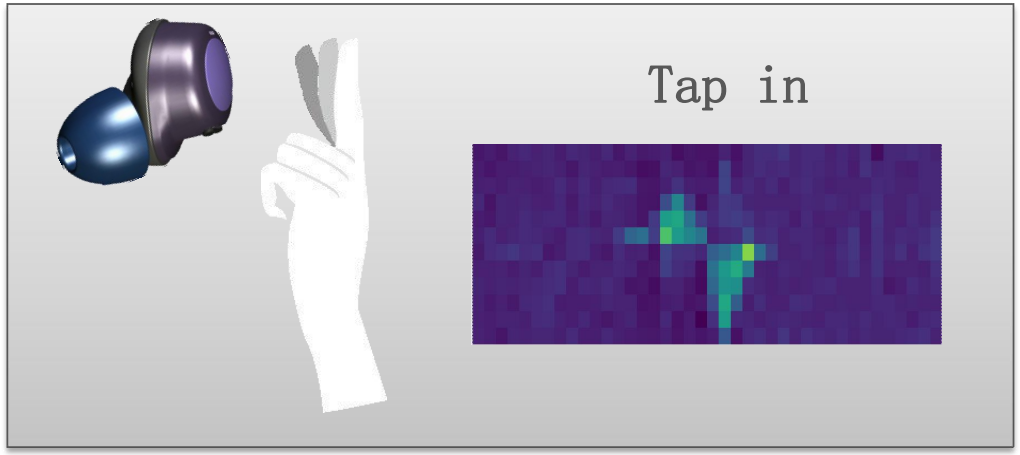
General workflow

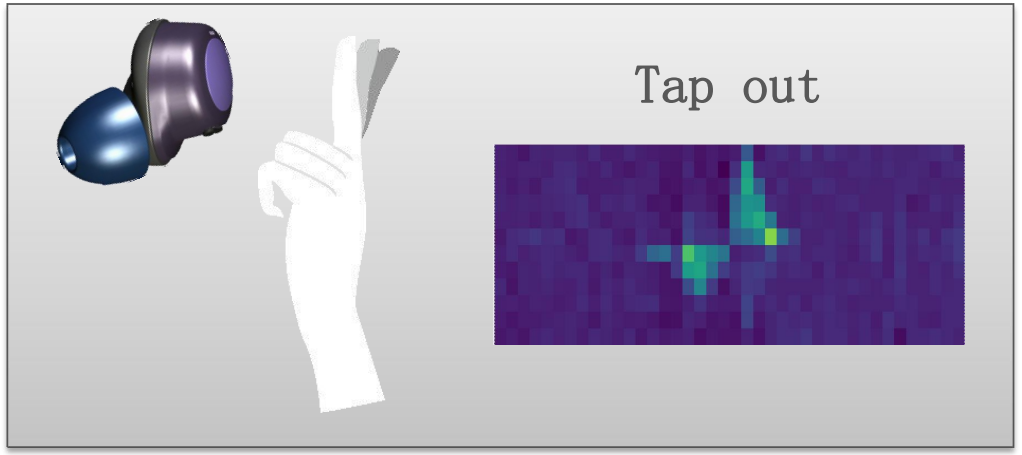


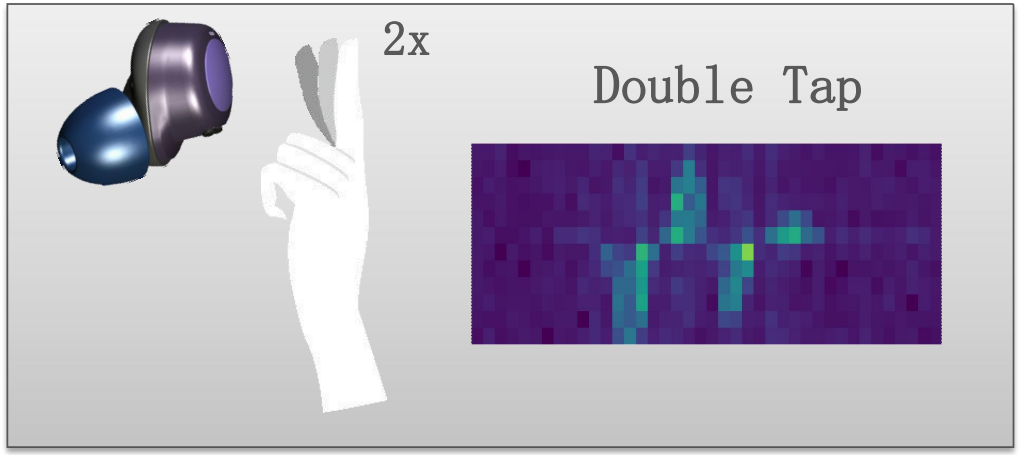


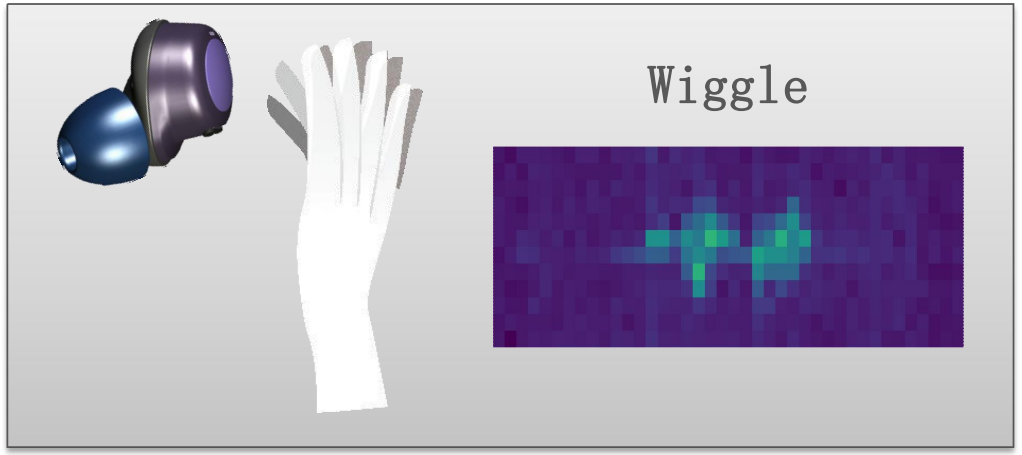


Gesture definition









Gesture Mapping: