RA Ecosystem Partner Solution

High Performance Voice UI with Local ASR

Solution Summary

The RA Ready Voice UI solution from Sensory and DSP Concepts delivers best-in-class machine listening in noisy environments with customizable wake words & command-sets. In addition, this solution provides true endpoint intelligence on the RA MCU with no network connection required making it perfect for all types of smart voice controlled devices. Out-of-box support is now aviailable for the RA family of MCUs.

Features/Benefits

Best-in-Class Performance

- TalkTo™ identifies & eliminates noise-sources for high performance voice-control in extreme noise conditions
- TrulyHandsfree™ has fast response times, ultra-low current consumption, and excellent performance.
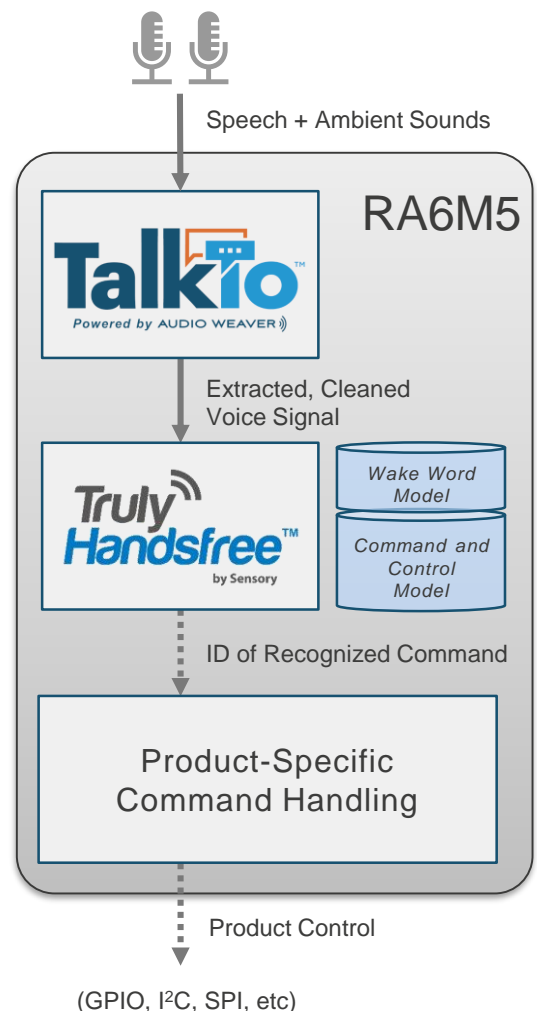
Fast Time to Market

- World-class expertise and engineering support
- Supports multiple languages, and wide range of use cases.
- RA Ready out of the box solution and demo available on the DK-RA6M5 (contact factory for availability)

Cost Effective

- Voice UI & System-control on the same MCU reducing BOM cost
- Significantly reduced engineering effort with a ready to go building block solution

Target Markets and Applications

- Home & Commercial Smart Appliances
- Smart Home and Smart Buildings
- Industrial Process Control
- Consumer Devices

Speech + Ambient Sounds

RA6M5

TalkTo — Powered by AUDIO WEAVER

Extracted, Cleaned Voice Signal

Truly Handsfree™ by Sensory

Wake Word Model

Command and Control Model

ID of Recognized Command

Product-Specific Command Handling

Product Control

(GPIO, I²C, SPI, etc)

2021.05

Innovation is a team sport.
Here's the game-plan.

1 DSP Concepts advises your mechanical/ID team on voice hardware considerations

2 You integrate Audio Weaver into your product's embedded software

3 You validate your early HW and SW using DSP Concepts' graphical validation tools

4 You create your customized TrulyHandsfree™ models for your product using Sensory's VoiceHub online portal

5 DSP Concepts delivers the TalkTo™ model for your product & helps tune it to your HW

6 You validate and ship your product!

Wake Words & Command Sets

Customer can use the VoiceHub online portal to develop wake words and small to medium sized command sets (approx. 100 words). THF supports fully customizable wake words and command sets that are fine tuned to a target demographic and specific use case. Custom and "off-the-shelf" models in multiple languages, dialects, and writing systems are available for ideal performance and an excellent user experience.

TalkTo™ Features

- Exceptional far field performance
- Mono, Stereo, or multichannel AEC
- Adaptive Interference Canceller
- Beamforming
- 1, 2, 4, 6, or 7 mic standard geometries
- Custom mic-arrays supported
- Noise reduction
- Optional voice-calling feature
- Optional loudspeaker processing
- MIPS and memory optimized for ARM Cortex M33 on RA6M5 MCU

Smart Appliance example commands

- Turn on the light
- Turn the light off
- Open the garage
- Close the garage
- Begin wash

EK-RA6M5 Reference Design

- Demo SW and board provided by FDI
- Standard Array: 2-Mics @ 70 mm
- AudioWeaver libraries perform audio front end processing in real-time using the RA6M5 @ 200 MHz

Competitor range: 2m

TalkTo™ range: 6m+

www.dspconcepts.com/talkto   www.sensory.com/wake-word/