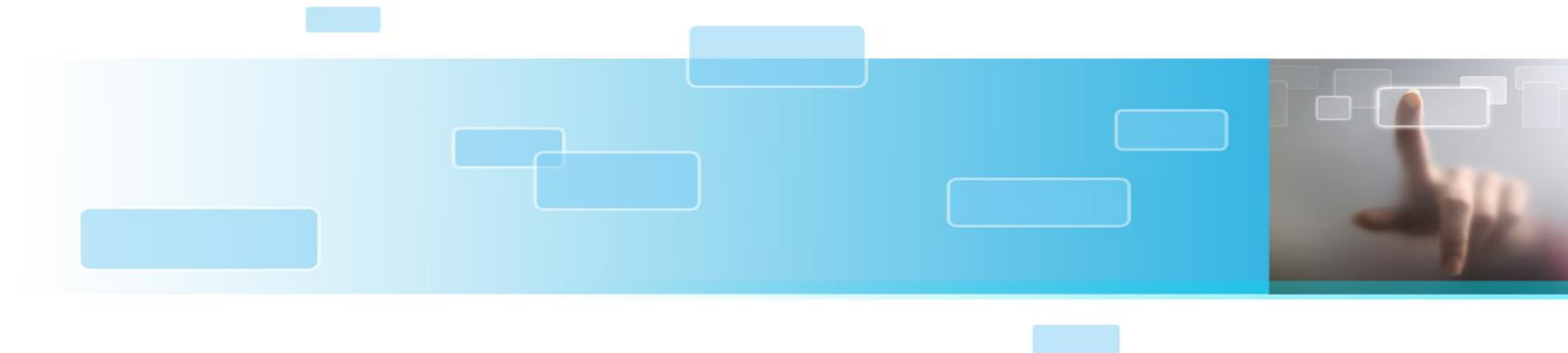


Goodix CarVoice

Voice enhancement software solution for
automotive applications



Goodix At a Glance

- **Shenzhen** headquarter
- **24** WW offices including **21** R&D offices
- **>2,200** employees WW, **90%** in R&D
- **IPO** 2016
- **\$1B** annual revenue
- **Top 5** IC company in China



CarVoice

- ❖ CarVoice is an ultimate voice enhancement software solution for automotive, significantly improves voice quality for in-car handsfree calls by removing echo and reducing unwanted car noises. The solution is based on Goodix market leading VoiceExperience technology for mobile
- ❖ CarVoice is known for its modest resource footprint and performance robustness, maintaining outstanding voice quality even in acoustically challenging circumstances (talkers moving, people talking at the same time, windows open, wind noise etc.)
- ❖ Fully automotive-certified (CarPlay, P.1100, P.1110, P.1150, MISRA) and optimized for all major automotive platforms and cores (NXP, ARM, Tensilica, Qualcomm, ADI)

Success stories for Goodix CarVoice solution



QOROS
观致汽车



- Automotive solution derived from Goodix market leading Mobile offering (deployed in 3.7 billion mobile products)
- Bringing new innovative use cases along with proven solutions
- Higher performance than competing offerings and fitting on the currently used automotive platforms

CarVoice

BT-ECNR

Echo cancellation
and noise reduction
for **voice calls**

VR-ECNR

Echo cancellation
and noise reduction
for **voice recognition**

Keyword Spotting

Lightweight always-on
trigger word engine

In-Car Communication

Improved driver-passenger
communication

Karaoke

Entertainment

BT-ECNR

Echo cancellation
and noise reduction
for **voice calls**

Key Features

- Up to 4-mic support (far and close-spaced)
- Personal Interference Cancellation
- Neural networks noise suppression (HW upgrade or SOC)
- Wind noise suppression
- Multichannel echo canceller
- Downlink enhancements
- AudioWeaver support
- Full-band support: from 8 to 48kHz rates to fully support EVS and VoIP
- Automotive certified

Certifications

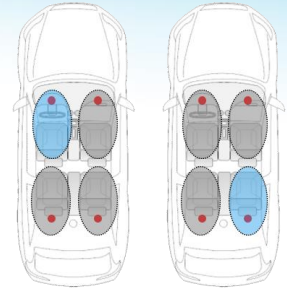
Type	Certification	State
Voice Call	ITU-T P1100 ITU-T P1110	Qualified. ITU-T P.1110: fulfilled with class 1 double talk at nominal level
Voice Call	Apple CarPlay	Qualified

BT-ECNR

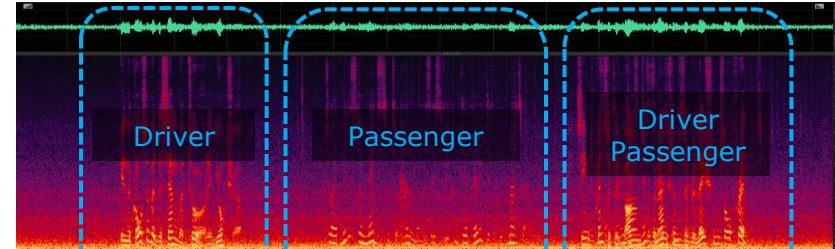
Echo cancellation
and noise reduction
for **voice calls**

Personal Interference Cancellation (PIC)

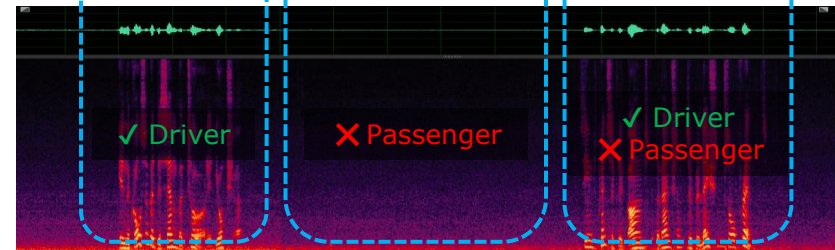
- Completely removes interfering speech
- Far and close-spaced mics
- Up to 4 mics



PIC
OFF



PIC
ON

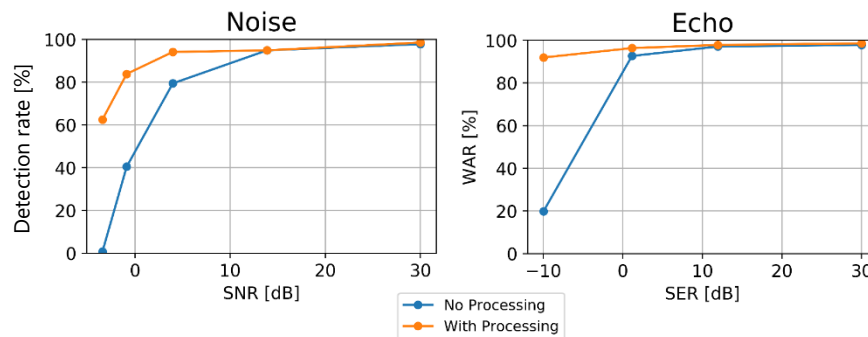


VR-ECNR

Echo cancellation
and noise reduction
for **voice recognition**

Key Features

- Multi-mic VR preprocessing:
 - Echo cancellation and echo suppression (barge-in)
 - Noise suppression
 - Personal Interference Cancellation
 - Active zone detection
- Linear preprocessing / non-linear preprocessing depending on the recognizer used
- Optimal tuning for the chosen recognizer using the Automatic Tuning Tool

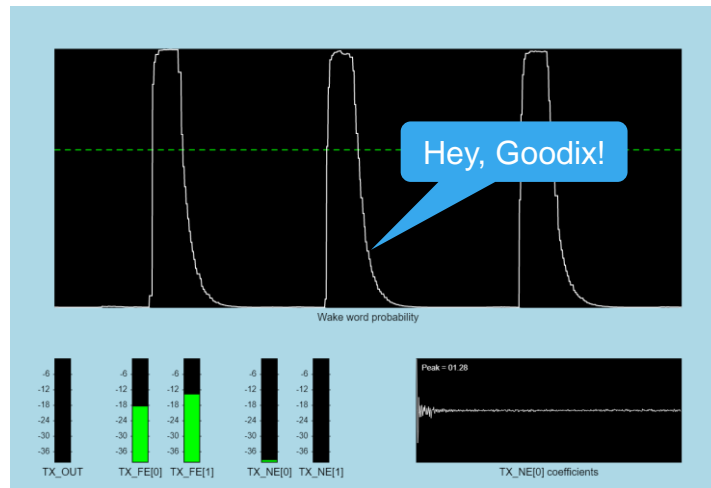


Keyword Spotting

Lightweight always-on wake word engine

Key Features

- Tiny memory and MCPS footprint
- Multiple customizable wake words and short commands
- Amazon AVS compliant



In-Car Communication (ICC)

Improved
communication
between driver and
passengers

Key Features

- Improved driving safety: the main effect is for the rear passengers, but the main benefit is that the driver doesn't need to turn his head to get himself understood.
- Feedback cancellation and noise suppression
- Available during music playback
- Automatic ICC volume adjustment depending on ambient noise
- Dynamic EQ for improved perception
- Automotive certified

Certifications

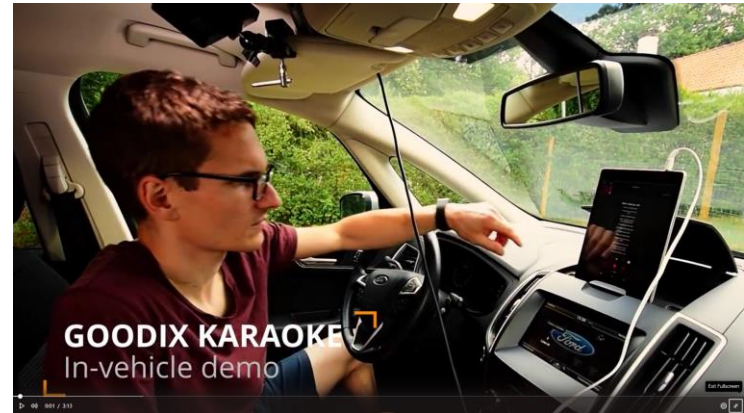
Type	Certification	State
In-Car Communication	ITU-T P1150	Qualified

Karaoke

Entertainment

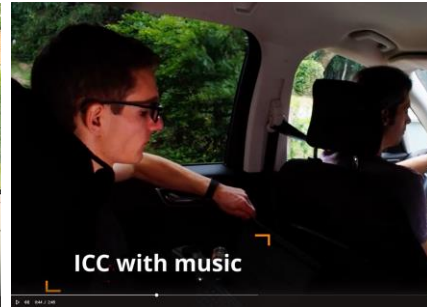
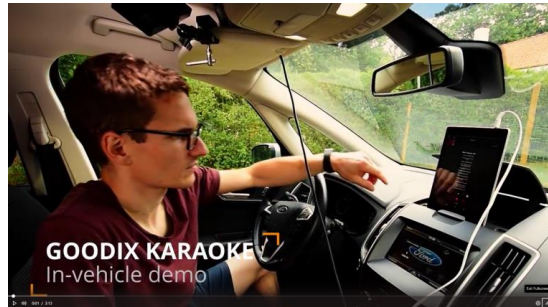
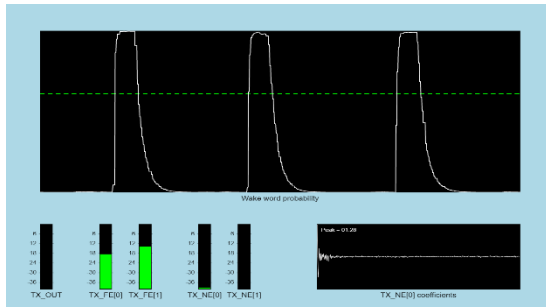
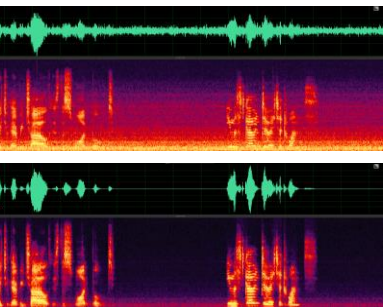
Key Features

- Feedback cancellation and howling prevention
- Noise reduction
- Audio effects (EQ, concert hall reverb, delay) to enhance singer's voice



Contact us!

- ❖ We are continuously working on improving existing features and adding new ones. There is more under the hood!
- ❖ We are happy to demonstrate our technology in-car
- ❖ Contact us to get latest product updates!



GOODiX

Enrich Your Life Through Innovation

