

# Automotive Ultrasonic Sensor SoC Solution

The Automotive Ultrasonic Sensor SoC Solution is an advanced system-on-chip featuring an integrated CPU, low-noise programmable gain amplifier, analogue and digital signal processors, and a precision 14-bit analogue-to-digital converter. Engineered to eliminate blind-spot hazards during reversing and parking manoeuvres, this cutting-edge solution delivers enhanced situational awareness in complex driving environments. Currently in the packaging and testing phase, this solution is scheduled for mass production and market launch in late 2026, heralding a new era of intelligent automotive safety systems.

## Industry Challenges

- **Low signal-to-noise ratio:** makes it difficult to detect weak echoes amidst background noise
- **Multiple echo interference:** overlapping reflections hinder accurate object detection

## Major Benefits

- **Auto-calibration methodology:** maintains a stable transmission insensitive to ambient temperature variation, aging, and environmental changes
- **Digital signal processing algorithm:** realises accurate real-time echo analysis, and lower the noise effectively, improving SNR by 63%

## Application Areas

- Automotive safety system
- Automatic parking system
- Blind spot detection

## Collaborator

Microelectronics manufacturer

## Award(s)

International Exhibition of Inventions Geneva,  
Hong Kong Innovation and Technology Award



ASTRI achieved breakthrough in ultrasonic sensor SoC design, creating China's first domestic ultrasonic reversing radar chip alternative, enhancing blind spot detection and smart parking capabilities

