IMS Solution on NXP I.MX 93

Overview

Based on NXP I.MX 93 SoC to make up IMS functions by the software solution. It uses 120 degree IR camera, the range includes driver and passenger, and uses software solutions to implement IMS to improve driving safety and interact with the vehicle. According to lightweight and merging deep learning architectures, computer vision, computer graphics, heterogeneous multi-core scheduling, and memory access optimization technologies to solve challenges in image quality, variable driving environments, and hardware resource requirements. This solution could be the cost-effective purpose, and speed up time to marking, reduce R&D costs, and enhance product differentiation and competitiveness.

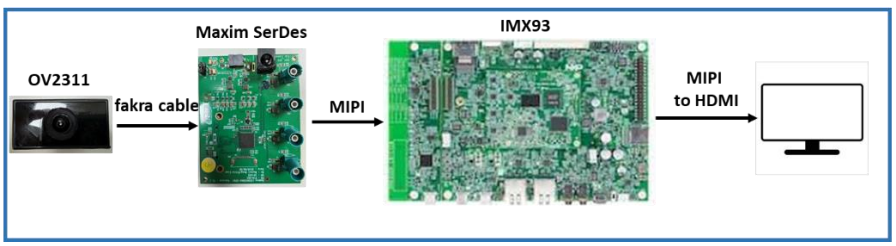
Strength

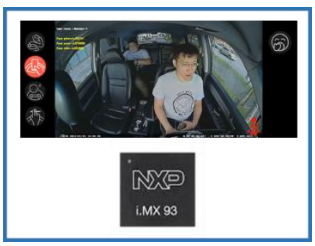
1. Technologies with 100% self-development to support customization and software defined products.
2. Customized lightweight and merging deep learning architectures based on I.MX 93+'s 0.5 Tops NPU.
3. We can quant the floating to int in multi-architectures, but not lose it accuracy, for example：classification, object detection, key points.
4. Support production tools to reduce requirements of FAE resources.
5. On-board calibration tool supporting, and small space requirement for the calibration processes.
6. One model supports multi-camera and multi-function to reduce requirements of computing power and memory.

Feature

1. IMS function at driver includes detection of turning head, closed eyes, smoking, using mobile phone to improve driving safety.
2. IMS function at passenger includes detection of gesture which can be for application at interaction with the vehicle.

Block Diagram





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