ADAS All-in-One Solution on NXP I.MX 8QM

Overview

Based on NXP I.MX 8QM SoC to make up full functions by the software solution. It could stitch four images from wide-angle cameras of different locations to achieve AVM, Freespace functions, and combine DMS function by IR camera to improve driving safety and reduce possibility of accidents. 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.

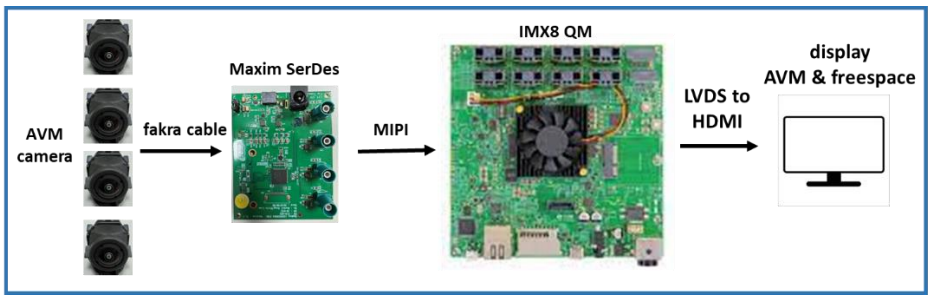
Strength

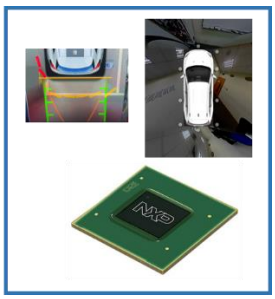
1. Technologies with 100% self-development to support customization and software defined products.
2. Solution working with installed AVM cameras to achieve Freespace to identify 3D object on the road, and DMS by IR camera to identify driver's behavior functions, simultaneously.
3. Support production tools to reduce requirements of FAE resources.
4. On-board calibration tool supporting, and small space requirement for the calibration processes.
5. One model supports multi-camera and multi-function to reduce requirements of computing power and memory.
6. All-in-One box supporting different vehicles, and software update reducing maintenance costs.

Feature

1. 2D/3D AVM supports any view angle changes from the 2D or 3D page.
2. Support Freespace to identify 3D object on the road under 0-10 km/h self-vehicle’s speed, with range of 3 m around the vehicle, which can be replaced or fusion with ultrasonic sensor.
3. AVM pages and 3D vehicle’s model can be interactive with real vehicle's signals.
4. DMS functions include detection of turning head, closed eyes, smoking, using mobile phone, and is adaptable to drivers wearing masks and glasses.

Block Diagram





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