

## Overview

IntelliVision's ADAS (Advanced Driver Assistance System) Smart Auto solution is an aftermarket camera-based solution for OEMs which comprises the following applications:

- Forward Collision Warning (FCW)
- Lane Departure Warning (LDW)
- Pedestrian Collision Warning (PCW)

Distractions or fatigue can turn the driver's attention away from the road. IntelliVision's ADAS/Smart Auto solution continuously monitors the road and lanes ahead and alerts the driver to lane departure, or potential collision with a car or pedestrian.

The system can be programmed to alert the driver with various alarm options such as audible alarm, lights, HUD display and vibration, so that the driver can refocus attention and take corrective action.

Highly configurable for sensitivity levels and operational in both day and night conditions, the ADAS solution can be implemented in a car DVR, mobile device or even directly onto a camera chipset, giving application developers multiple options.

## Benefits

IntelliVision's ADAS/Smart Auto solution provides the following benefits:

- Improves road safety by alerting the driver to potential collision or lane departure
- Saves the end-user money as a cost-effective aftermarket ADAS solution
- Saves the end-user time and aggravation through simple installation and automatic calibration
- Flexible C/C++/Java API allows easy integration and configuration for application developers
- Highly efficient algorithms with small footprint, optimized for low-power embedded platforms
- State-of-the-art Deep Learning-based algorithms



## Features

- Automatic scene calibration
- Configurable minimum activation speed
- Configurable sensitivity levels (low, medium, high)
- Alert options (audible alarm, lights, HUD display, vibration)
- Can be enabled and disabled by the user
- Flexible implementation options including directly onto camera chipset, car DVR, or mobile platforms
- LDW/FCW operational in day and night conditions

## Forward Collision Warning

FCW detects a potential collision with the preceding vehicle in the driver's lane. Time-to-collision (TTC) and headway are computed and if below a safe threshold, alarms (audible, LEDs, HUD display, vibration) are set off to alert the driver. FCW requires a forward facing camera. Efficient algorithms within a single sensor system do not require specialized hardware, keeping costs low.

Time to collision is adjusted automatically based on vehicle speed and deceleration/acceleration.



## Lane Departure Warning

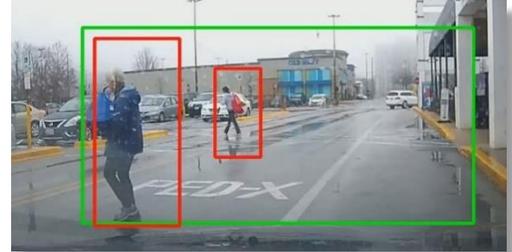
IntelliVision's LDW continuously monitors lanes on the road and alerts the driver to deviation. Lane monitoring detects and displays the type of lane marking – solid or broken – and reports the direction of departure (left or right).

LDW can be suppressed when the turn signal is on.



## Pedestrian Collision Warning

PCW detects pedestrians ahead in the driver's and adjacent lanes, and alerts upon detection. The algorithms are based on patented Deep-Learning/CNN algorithms which have been optimized for embedded platforms. The region of detection is configurable and the level of performance can be adjusted based on hardware capability.



## Platforms and Hardware

- Car DVR or mobile device with forward facing camera
- 720p or 1080p image @ 30 fps
- Range of detection is a function of the camera FoV
- LDW/FCW can run on single-core ARM chipsets
- PCW requires multi-core ARM, and can also leverage embedded GPU if available
- Android, Linux, or RTOS

## About IntelliVision

IntelliVision is a market leader in AI and Deep Learning-based video analytics and video cloud software for Smart Cameras. IntelliVision Advanced Driver Assistance Systems (ADAS) improve car and road safety in automobiles. IntelliVision solutions also provide actionable insights for security and monitoring in Smart Home/Enterprise/City/Retail applications. IntelliVision is a subsidiary of Nortek Security & Control with headquarters in San Jose, California and offices in Asia and Europe.

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