SUCCESS STORY

Outdoor traffic cameras

ENHANCING EXISTING ALPR SYSTEMS USING SMART FUNCTIONALITY

Adimec uses cost efficient but effective solution to deal with CCD smear artifacts in automatic licence plate recognition systems.

The situation

In 2010, Adimec was engaged to offer a camera solution to a leading manufacturer of intelligent traffic systems. This company was faced with obsolescence of their current traffic camera and needed a replacement. Since the accuracy of many vision based traffic systems depends on the image quality, the expectations of the new camera were very high. They compared Adimec with similar cameras and chose Adimec based on image quality. Other decision criteria were the GigE vision interface and costs. Adimec started a project to offer a customer-specific camera utilizing GigE vision to add value to customers' ALPR system while keeping the total cost of ownership in mind.

The solution

The current ALPR system was based on the Camera Link interface. The bandwidth of this interface technology is ideal to transmit high quality video at high speeds which is required for accurate optical character recognition (OCR). Together with the real-time triggering capabilities of this interface, Camera Link can be very suitable for traffic systems. But, the required frame grabber makes it is also a relatively expensive and the maximum cable length is limited. Using GigE vision based cameras, costs are reduced by eliminating the need of a frame grabber and less expensive cables while also allowing much longer cable length.

The ever changing outdoor environmental lighting conditions is a constant challenge for cameras. Since image quality is essential for reliable OCR, CCD sensor technology was preferable over existing CMOS technology. But the smear and blooming artifacts of CCD sensors i decreases the reliability significantly when the camera is facing direct sunlight. To overcome this problem, Adimec implemented a smear compensation function. This functionality limited the smear effect. As a result, the accuracy of the system improved significantly when the camera is facing direct sunlight. By implementing this functionality, Adimec increased the value of their system by reducing the number of false readings of the ALPR system.

To improve results during night time operation, an external IR LED was used to read license plates in low light situations. This IR LED was synchronized with the camera by the external trigger output of the camera.

The result

Adimec delivers added value by enhancing the total accuracy of the system and contributes to the cost reduction of the total ALPR system. The firm won a large tender based traffic project by using this customer specific solution.