

Lumenera Helps Aldis Inc. Make Traffic Monitoring Systems Safe and Efficient

Aldis Inc. Recognizes Inefficiency in Traffic Monitoring Systems

Aldis, Inc. was formed in 2006 with the aim of bringing their efficient traffic and energy management technology and services to municipal partners. Focusing on the traffic signal and management segment, Aldis recognized a problem with the 20 % per year failure rate of current traffic monitoring systems and sought to change the market. The traffic monitoring systems used today rely on loops buried into the road to detect the presence or absence of a vehicle at an intersection; these loops have been proven temperamental and unreliable. The costs associated with these loops are also a problem for many municipalities as it costs \$3,000 to \$5,000 to repair a single loop.

Lumenera's Imaging Solution Chosen to Improve Traffic Signals

To eliminate the drawbacks of traffic loops Aldis developed GridSmart, a vision based traffic-monitoring and control system using Lumenera's Le575 advanced digital camera. This technology replaces inefficient loop systems and obsolete central control systems, with high-performance camera technology paired with a proprietary and custom built 160 degree lens.

Le575 Provides Clear and Stable Images

One of the major obstacles faced by Aldis in designing GridSmart was ensuring all of the captured images were stable and clear, which is difficult when the camera is mounted above a traffic intersection and subject to movement. Rather than uncompress the prospectively distorted images into real-world coordinates, image stabilization is performed on the Le575 camera. This reduces the processing overhead and allows the other valuable functions supported by the camera to be embedded as well.

After images are compressed they are transmitted along with time and date information to a host computer over the camera's Ethernet output. Several processors will then track pertinent objects within the images such



Highlights

- Aldis, Inc., formed in 2006 to address the 20% per year failure rate of current traffic monitoring systems.
- Lumenera's Le575 was chosen for use in GridSmart, a vision-based traffic monitoring and control system.
- Lumenera's advanced digital camera technology is used by GridSmart for clear and stable images in difficult lighting conditions.
- GridSmart is an ideal imaging system for ensuring safety measures are enforced and accidents are properly investigated.
- The Le575 megapixel camera delivers outstanding picture quality and performance. Featuring optional true day/night functionality.



as pedestrians, bicycles and motor vehicles. As each object is tracked, the software identifies objects in the view and their location. This important digital information can be used to operate a standard traffic controller with the PC digital and I/O interface.

Another obstacle to overcome in the system design plan was compensating for the various lighting conditions experienced in outdoor traffic monitoring systems. During the day, sunlight can potentially saturate the image sensor, and at night the system must be able to react to a car's headlights in the dark sky. These extremes are accommodated in Lumenera's smart camera by using various sensor images, some with a +120 dB range. Furthermore, by embedding a Global Positioning System within the Le575, the position of the Sun can be calculated at all times and used to aid in tracking.

Conclusion

The GridSmart system using Lumenera's high performance digital cameras can communicate with existing controllers so any pre-existing infrastructure used to power and supervise lights is retained. It also allows for traffic statistics to be downloaded for analysis and used in intersection planning and road management.

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Le575 Megapixel Digital Camera



Aldis Inc. Smart Camera

About Lumenera

Lumenera Corporation, a division of Roper Technologies, headquartered in Ottawa, Canada, is a leading developer and manufacturer of high performance digital cameras and custom imaging solutions. Lumenera cameras are used worldwide in a diverse range of industrial, scientific and security applications.

Lumenera solutions provide unique combinations of speed, resolution and sensitivity in order to satisfy the most demanding digital imaging requirements. Lumenera customers achieve the benefit of superior price to performance ratios and faster time to market with the company's commitment to high quality, cost effective product solutions.

For further information about Lumenera, please visit www.lumenera.com or call 613-736-4077.

