Technology Solutions for Tolling and Traffic Management

ITERIS®

Video Detection Technology and Marketplace

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ITERIS

Traffic Management Technologies

Iteris leads the traffic management market in the development and application of advanced technologies that reduce traffic congestion, minimize environmental impact, and improve the safety of our surface transportation system

Iteris' Offerings

Roadway Sensors

- Vantage® video detection systems for traffic control applications
- Tools to mitigate roadway congestion by modifying traffic signal timing or detecting incidents more quickly
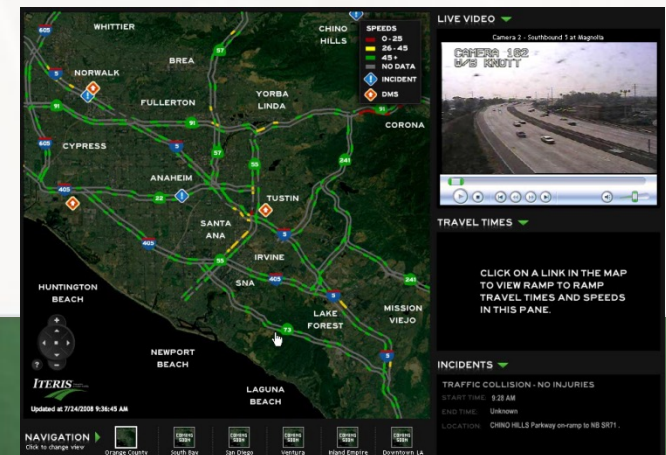
Vehicle Sensors

- AutoVue® Lane Departure Warning System, the first-of-its-kind to be deployed in the heavy truck & passenger car markets

Transportation Systems

- Consulting and professional engineering services for Intelligent Transportation Systems (ITS), traffic engineering, and transportation planning

Company

Orange County, CA based

- FY 2008 revenue of $65M
- 250 employees

Iteris "Vantage" product is market leader in video detection

- Installed base of 70,000 cameras

Market Need for Detection

High Cost of Congestion

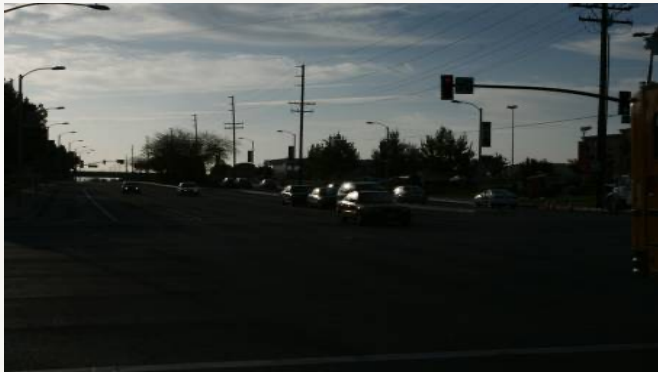Vehicle detection is key ingredient of traffic management systems

Market Need for Detection

Garbage in, garbage out

Traffic Management systems only as good as the accuracy and availability of their inputs

Enhanced image quality

Traditional Imager

Improved Imager

Technology Alternatives

In-pavement and above ground technologies

Inductive Loops

Radar
Acoustic
Ultrasonic
Magnetic
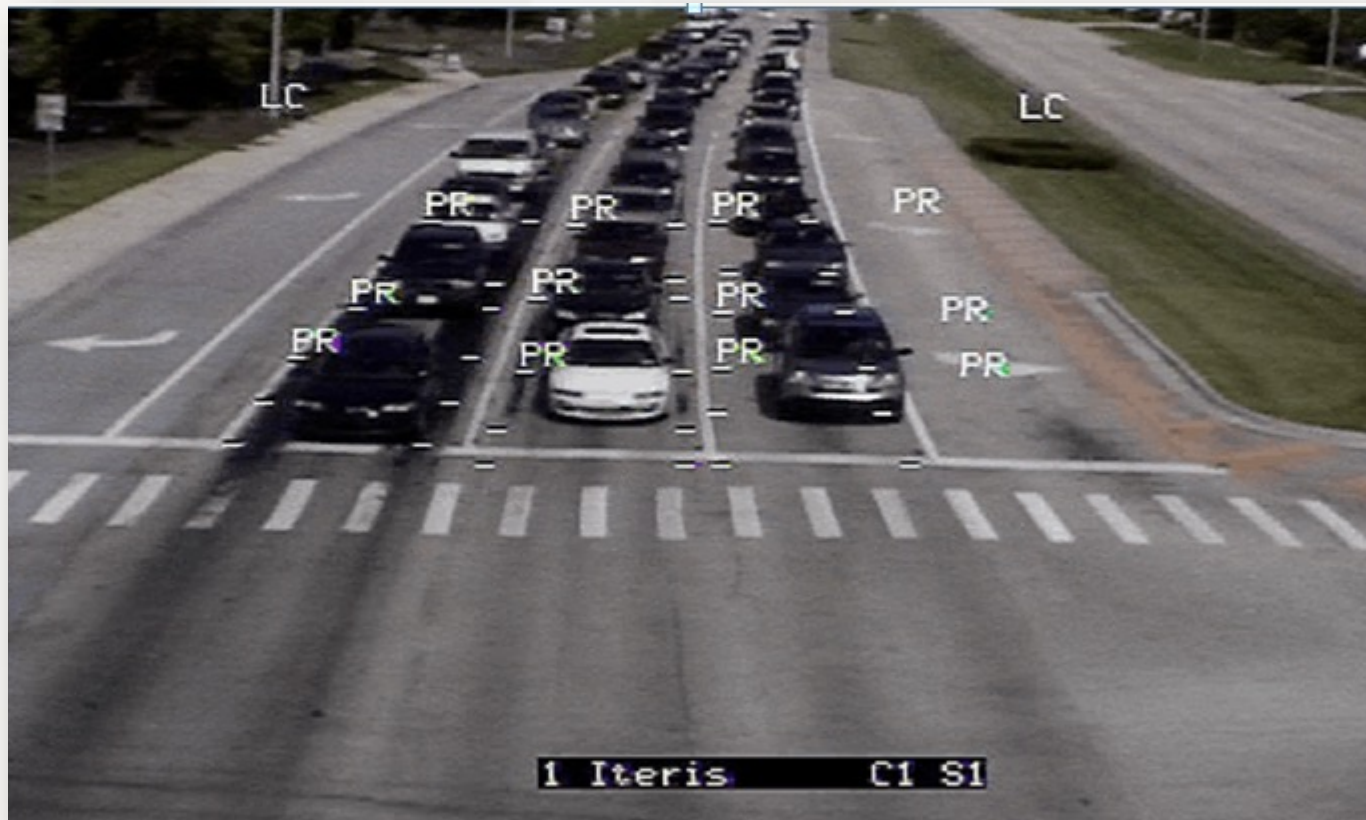Video

Typical Intersection Geometry

Video Based Vehicle Detection

- Analyze video in real time, 30 frames per second
- Characterize and 'learn' background
- Sophisticated algorithms analyze the scene and make detection decisions
- Detect changes in contrast, motion, edges, time and space
- Zones can be changed without physical field work

Typical Intersection Field of View

Video Detection Evolution

The technology is constantly evolving

- Camera technology
  (Example: resistance to glare, better contrast in shadows)

- Algorithm improvements

- Product life extension
  (Example: Use of flash memory enables easy software updates to add functionality)

The "user experience" keeps getting better

- Ease of use, training, documentation, pricing and range of applications
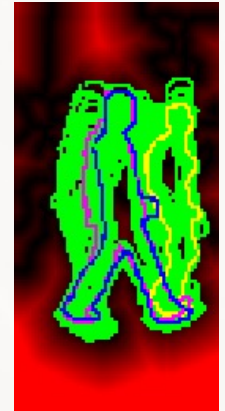
Traditional Detection Applications

- Signal actuation

- Ramp metering

- Incident detection

- Data collection

Emerging Detection Applications

- Wrong way vehicles

- Pedestrian and bicycle safety

- Red Light and Speed Enforcement

- Security

DO NOT ENTER

Market Overview

Estimated 150,000+ video detection cameras operating in the U.S.

Broad market acceptance reflects the following:
- Maturation of the technology
- Competitive pricing vs. other technologies
- Recognition and acceptance of key video detection benefits

Video Detection Benefits

Vehicle detection and video images from one system

- Image can be transmitted to remote site
- Video is the only detection technology that lets the user "see" the situation

Accurate detection

- Superior "availability" compared to in-pavement detection

Video Detection Benefits

Easy Installation

- Reduced lane closures … safer for installers
- Typically mounts on existing structures (signal or lighting poles, or sign structures)
- Wireless systems reduce installation costs when underground conduit is not available for cables

Procurement cost

- Installed cost often lower than loops
- Up to 24 detection zones per camera enables outstanding "cost per detector" economics

Video Detection Benefits
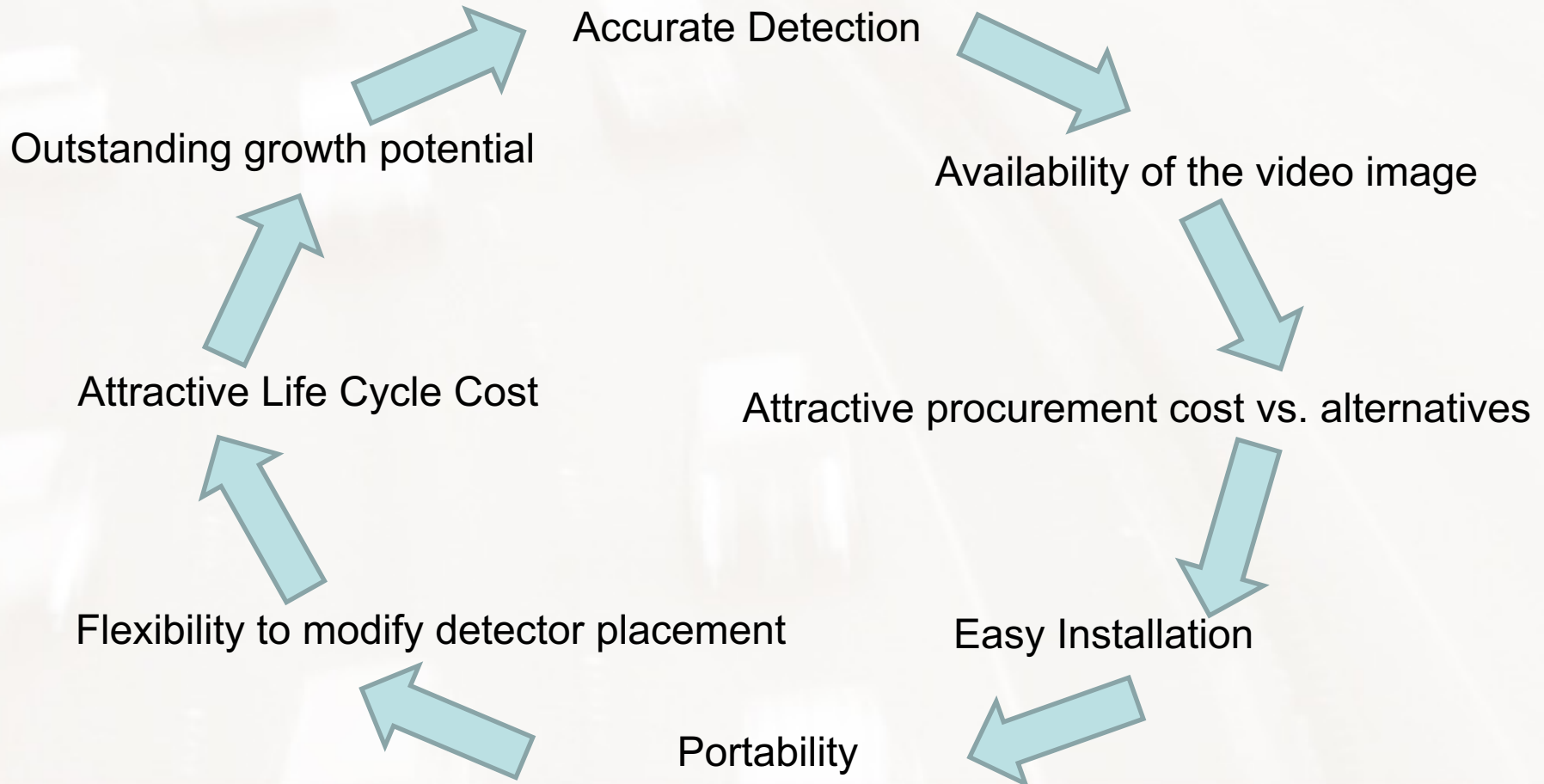
Low life cycle cost

- Installation does not damage the roadway

- Unaffected by daily traffic volumes

- Unaffected by pavement failure or resurfacing

Very flexible

- Enables rapid changes to detector configuration to accommodate changing detection requirements

- Easily accommodates construction or lane re-striping

Video Detection Benefits
"The Power of AND"

ITERIS

Accurate Detection

Outstanding growth potential

Availability of the video image

Attractive Life Cycle Cost

Attractive procurement cost vs. alternatives

Flexibility to modify detector placement

Easy Installation

Portability
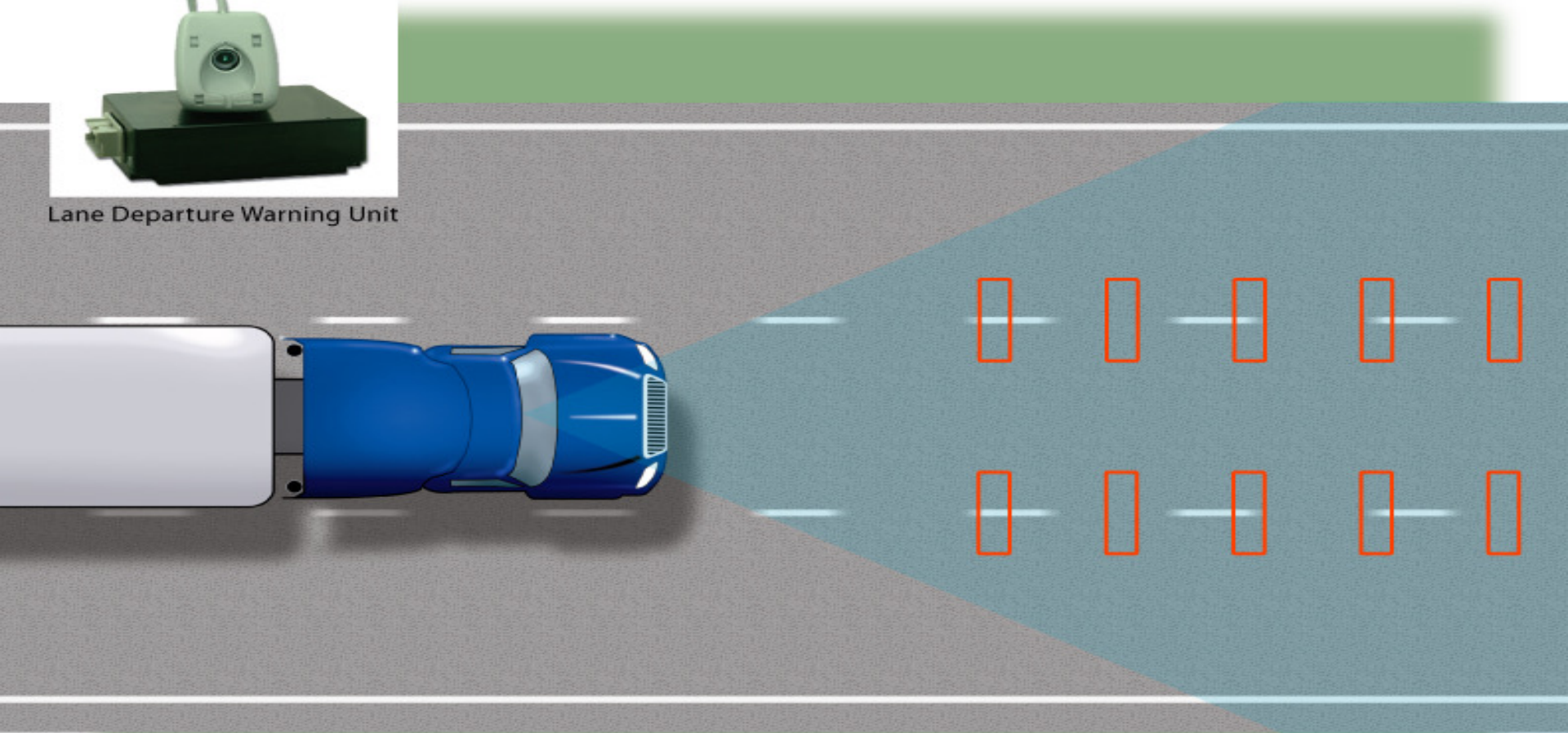
Lane Departure Warning Technology

- Windshield mounted camera that uses "machine vision technology" to track visible lane markings

- LDW warns drivers when they are leaving the lane or roadway, unintentionally, anywhere there are lane markings

Lane Departure Warning

Lane Departure Warning Unit

- Gives Directional warning when crossing lane marks
  - Above 37mph
  - When turn signal is not used

Customer/Fleet Results

- PRIME, Inc. ranked the largest truck fleet, reported a 65% overall reduction in LDW accidents within one year

- Maverick, a U.S.-based fleet of 1,000 reported a 65% decrease in LDW-related accidents within 18 months of deployment

- Cargo Transporters, another U.S.- based fleet reported a 91% decrease in LDW-related accidents

Peering into the future ...

Sensors of all types will continue getting better

Video detection will continue to gain market share

Farther out, vehicles themselves will be increasingly "self detecting"

- Cheap and available GPS, RF links
- Vehicle Infrastructure Integration (VII)

Conclusions

High economic cost of congestion ... congestion relief initiatives will continue to get funded

The use of detection will continue to grow

Above ground detection in general, and video in particular, will continue to grow faster than in-pavement solutions

Future is bright for detection technology, and additional solutions will emerge!

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