ECONOLITE Group, Inc.

Bicycle Detection System

TAOC
Transportation Solutions

PROJECT DESCRIPTION

Bicycle detection has become a popular feature of high demand in cities and agencies across the United States. California has recently mandated that all new limit line detector installations as well as modifications to existing limit line detection must provide bicycle detection. This has created the need to develop detection methodologies which are able to detect bicycles as well as differentiate them from vehicles. The objective of this project is to utilize Econolite Control Products' Autoscope Encore video detection solution to design and validate a methodology which is able to detect and differentiate bicycles from vehicles. The intersection that the cameras are being designed for are East Peltason Drive and Pereira Drive around the University of California, Irvine.

Prepared by T4 | Transportation Associates of Orange County
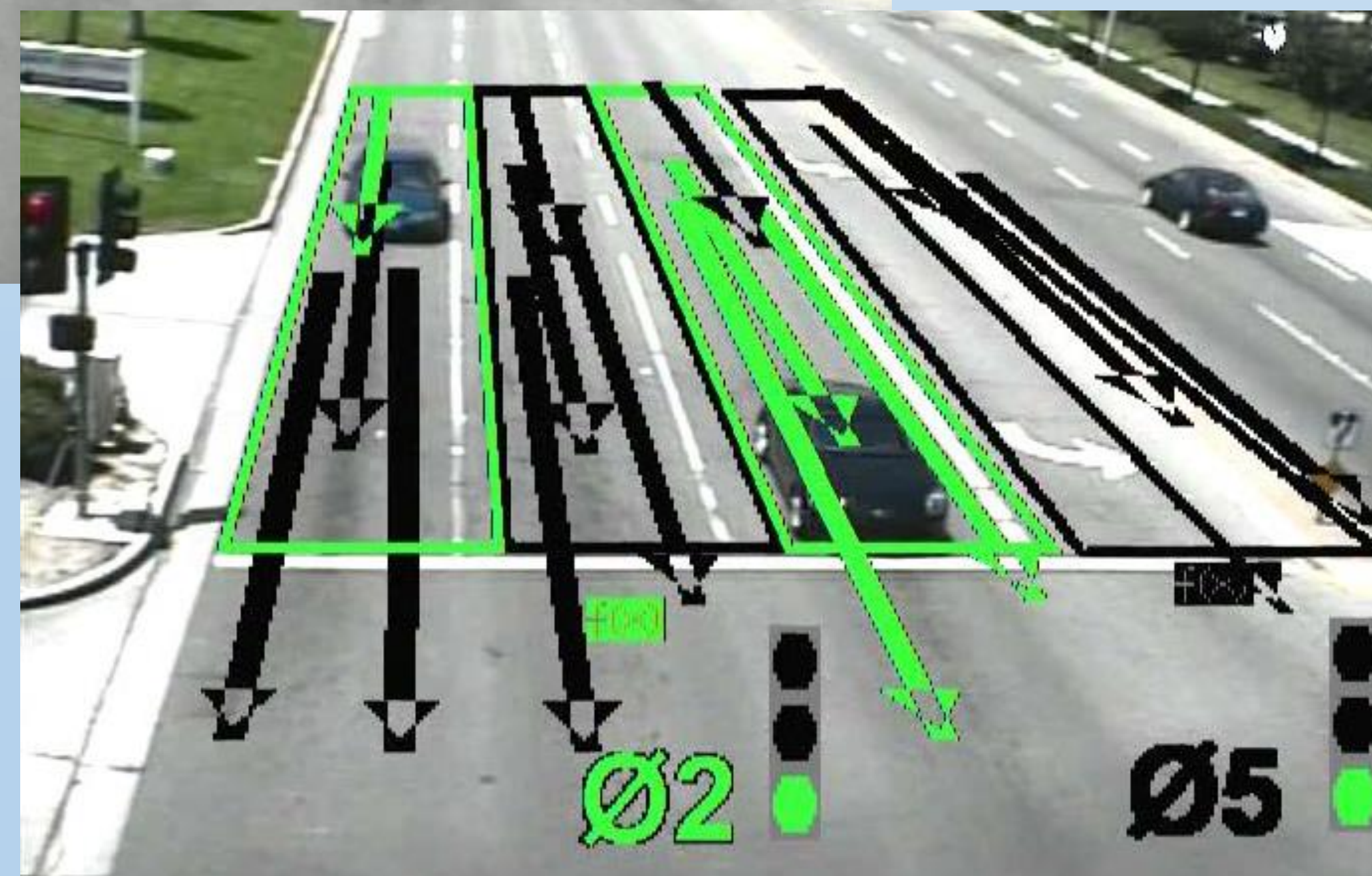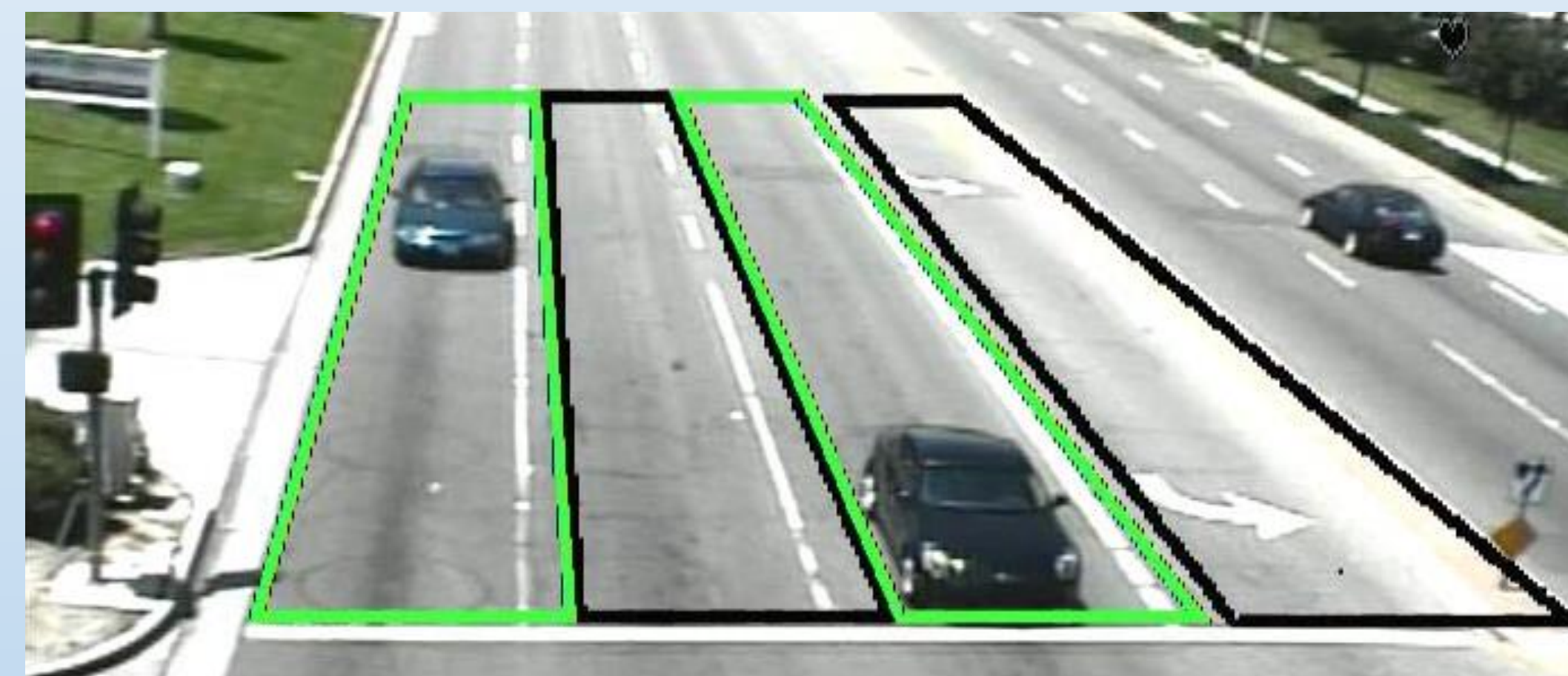
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The TAOC Team at Econolite headquarters

Autoscope® ENCORE Video Detection Solution

Autoscope® software detector file capturing vehicles as they enter designated detection zones

COST ESTIMATION

According to Econolite's cost estimator, the project will approximately cost $30,000 (~66% for equipment and materials and 33% for installation and labor).

Autoscope® RackVision™ Terra™ Technology

DESIGN CONSTRAINTS & PARAMETERS
- Installation
  - Camera glare caused by the sun
  - California Building Codes and Standards
  - OSHA guidelines
- Program
  - Occlusion
  - Shadows cast by buildings and trees
  - Wind, fog and time of day
  - Uncertainty of cyclist behavior
  - 2D detection vs 3D surveillance

PRELIMINARY DESIGN RESULTS

Created a vehicle detection file that achieved over 90% accuracy.

DESIGN APPROACH
1. Introduction to traffic control
2. Familiarization with Autoscope® software
3. Training with Econolite's Autoscope® RackVision™ Terra™ video detection system
4. In-depth training with Autoscope technicians
5. Create a detector file algorithm that accomplished the following:
   1. Vehicle detection with at least 90% accuracy
   2. Vehicle and bicycle detection with at least 90% accuracy
   3. Differentiation between vehicles and bicycles with at least 90% accuracy

PLAN FOR NEXT PHASE
- Analyze intersection activity
- Create a detector file that will detect and differentiate vehicles and bicycles with at least 90% accuracy

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