Effective Monitoring System for Tunnel
Important Instruction

- This solution contains three sub-systems, the first is Event Detection system, the second is Traffic Status Analysis system, the last is Section Speed Measurement system.
- The first system provides around-the-clock automatic alert for traffic security in tunnel with cutting-edge technology of video analysis.
- The second system real-time monitors traffic status and provides different data such as Congestion, Slow, Smooth and the vehicle quantity of every lane.
- The last system provides accurately ANPR and the average speed of the vehicle is measured in the specific section.
Challenges

- Traffic Accident
- Traffic Congestion
- Difficult to Rescue

- Incident detection system is in favor of saving lives and avoiding the secondary accidents, by automatic detecting lost cargo, exceptional stopped vehicle, pedestrians and many other traffic events instantly.
incident Detection System in Tunnel

Traffic flow analysis camera

Detection of pedestrian

Event detection server

Pedestrian Detection

Stopped vehicle detection
System Introduction -- Event Detection

Detection Effect

- Pedestrian Detection
- Abnormal Parking
- Parking on Emergency lane
- Littering from Vehicle

System Architecture

- Event Detection Server
- Front-end Subsystem
- Network Transmission Subsystem
- back-end Control Center Subsystem

Figure note:
- Optical fiber
- Ethernet cable
- Central Platform
- Event Detection Server
**Products Introduction -- Event Detection Server**

- Support ordinary camera, intelligent monitoring camera
- Event Detection Type: Traffic Congestion, Abnormal Parking, Over lane line, Abnormal Turning Round, Reverse Driving, Pedestrian, Littering from vehicle, Over lane driving
- Provide SDK to the Second development

**iDS-TP40-16B**  
**Event Detection Server**  
- 4ch 10/100/1000M Ethernet port  
- 4ch USB3.0, 2ch USB2.0  
- 1ch ch VGA  
- Hot plug Efficient 1+1 Redundant Power Module  
- Dimensions: 439 mm (W) × 591 mm (D) × 44 mm (H), Standard 19 inch 1U crate design  
- Support auto detecting 16ch 3MP IP Camera Event Detection, Event Capture, Traffic Data Collection

**First Choice for Security Professionals**
DF8 series EXIR PTZ

- 2/4/8MP resolution
- 36/23X optical zoom
- *Darkfighter ultra-low illumination
- 120dB WDR
- Auto tracking with more VCA functions
- IP66, *vandal-resistant
- Hi-PoE with 24VAC dual power in
- Optimized installation and cabling experience

Products Introduction-- Event Detection Server
Hikvision’s traffic status is a highly reliable instead of loops and other detection technologies. By detecting traffic status (vehicles quantity, smooth, slow, congestion), it is able to provide the instant data to improve intersection control.

- Improve city traffic efficiency
- Reduce unnecessary delays
System Introduction— Traffic Status Analysis System

- All of intelligent algorithm build-in Camera
- Vehicles counting
- Length of queue
- Traffic status monitoring: slow congestion smooth

• 2MP 1/1.8”CMOS
• 2048*1536@25fps
• 1 to 3 lanes analyzing
• 11-40mm lens
• 1 RS-485
System Introduction—Section Speed Measurement

- Section number: A1-134; Section length: 7000m; Limit speed for car: 20km/h;
- Actual average speed: 50km/h; Over speed percentage: 150%

\[ V = \frac{\Delta S}{(T_2 - T_1)} \]

calculated by terminal server
TS-5012-F
Section Terminal Server

- 4 3.5”/2.5” SATA HDD interface, 1 e-SATA interface
- 8 10/100M Ethernet interface
- 2 1000M Ethernet interface
- 2 USB/1 VGA interface
- Picture recording/Video recording/Data uploading/Video stream forwarding
- Automatic synchronized by NTP or GPS

DS-TL2000AI-L1
Supplement Infrared LED Light

- 5000K ~ 7000K color temperature
- +5V DC level trigger
- Light angle: 40°
- Support 220/110V AC
- Power consumption ≤ 36W
- Invisible Illuminating for vehicle plate
VCU-7004-ITIR
3MP Traffic Video Unit

- 3 MP, 1/1.8" progressive scanning CCD,
- 2048 × 1536 resolution, 25fps
- Support dual-stream, capture frame use JPEG encoding
- Built-in vehicle number plate recognition (35 Europe Countries)
- Built-in vehicle classification recognition
- Built-in opposite driving detection
- Multiple capture types: Coil triggered capture/RS-485 triggered capture/Video detection triggered capture/Network triggered capture
- Coverage: Single lane
- AC220V
Solution Introduction--Checkpoint System

DS-2CD4026FWD/P-IRA(11-40mm)(B)
2 MP Invisible infrared Box Camera with Housing

- 2MP 1/1.8" CMOS;
- 0.002 Lux/F1.2(color);
- 1s~1/100,000s;
- Wide dynamic range 120db;
- 50fps 1920 × 1080; 60fps 1920 × 1080;
- vehicle capture,
- IRA: 120m;
- Built-in vehicle number plate recognition(35 Europe Countries)

SL-1211-2I
Inferred flash supplement light

- Single lane
- Invisible illumination
- Compensated effective distance 18~25m
- Flash energy 200J
- Flash frequency: Max. 6 times/s
- Recycle time<67ms
- Trigger mode: TTL level and switch trigger
- Illumination to identify driver and recognize the type of vehicle

First Choice for Security Professionals
Features Introduction—Section Speed Measurement

- Section length range: 500m-10km
- Speed Range: 10-250km/h
- Calculation Accuracy: ≤3km/h (V≤100km/h); ≤3% (V>100km/h)
- Detection type: Video (Recommend), Radar, Loop
- Automatic Number Plate Recognition: 35 Europe Countries; Accuracy ≥95%
- Time synchronized by GPS or NTP
- Vehicle classification: Bus Car Truck
- Multiple Speed Limits Be Set Base On Different Types of Vehicle
Thank You