CohuHD Costar, LLC
Business Overview
October 2014
## Complete Product Solutions

### Critical Infrastructure
- IP67 “Flagship” 3900 Series
  - Hybrid Operation
- IP67 LWIR Thermal 5900 Series
- Ultra-Long-range 8800HD Series

### Commercial Security
- High Performance IP Series
  - 3700 Series
- 3100 Series
- Indoor, Outdoor Multi-Megapixel

### VMS Control
- Video Management Software
- Video Recording Accessories

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Comprehensive end-to-end product solutions

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www.CohuHD.com
Helios™ Family

- Electronic Image Stabilization (EIS)
  - Mount on existing structures or vehicles
- Built-in Defog Image Processing
  - See through smog, fog, haze and other obscurants
- HD Resolution with Sensitivity of SD
  - 0.005 lux sensitivity
- HD with High Power Zoom – See Farther than SD
- NTCIP over IP for Interoperability
- Hybrid IP and Analog Operation
  - Integrate or migrate to IP
- ONVIF, RTSP & NTCIP
  - Streamline integration
Marquee Projects

Defense

- USS Ponce, & many other ships
- MK4 = Israeli tank
- Stryker Armored Vehicles
- Kennedy Space Center
- Ames Wind
- Maverick™ missile
- Jordan Border

Transportation

- Freeways of Rio
- Alaskan Ice Roads
- Freeways around the world
- Celebrity Yachts
- Skyway Bridge Tampa, FL
- CalTrans
- Big Dig Tunnel
- Staples Center

Critical Infrastructure

- Radiation Portal Monitors
- Brooklyn, NY
- Saudi Oil Fields
- Princes’ Palaces
- Hanscom, AFB
- Malaysian Mining
- Equate Petro, Kuwait
- Golden Gate Bridge
- Nuclear Power Plants

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Pedestrian Detector and Counter
&
Bicycle Detector and Counter

Dr. Bo Ling
Migma Systems, Inc.

November 6, 2014
Pedestrian Detector

MigmaIntersection™

This product detects pedestrians waiting to cross the street.

Upon the detection of pedestrians, it can place a ped call automatically.

Working with APS pushbuttons, it can also trigger the locator tone when pedestrians are within 12 ft to the signal pole. Otherwise locator tone is muted.

It can be used at intersections without any pushbuttons.
Pedestrian Detector

MigmaMidblock™ is an outdoor passive pedestrian detector at the midblock crossings for automated beacon flasher actuation (flashing beacons) to alert the approaching vehicle drivers about the pedestrians who are about to enter the crosswalks.

- High resolution IR LED stereo camera for day and night detection
- Industrial single board computer (SBC) running Windows XP
- Remote view, configuration and diagnosis over Ethernet (option)
- Robust pedestrian detection using stereo vision analysis
- Directional detection to avoid unnecessary detections
- Instantaneous detection and fast response

MigmaMidblock™ utilizes the field-proven technologies for pedestrian detection and offers advanced features.
- Analyzed video image and 3D pattern recognition
- Pedestrian detection both day and night, even in total darkness
- Operable under any weather conditions
- Configurable pedestrian detection zone
- Interfaces with beacon flasher through relay contact
- Standard size suitable for pole-mounted cabinet
- Single wiring and connection using CAT5e Ethernet cables
- Over 99% detection rate and negligible false calls per day

SPECIFICATIONS
- Image Sensor: 1/3" Sony CCD Chip
- Camera Resolution: 600 TV lines
- Camera Mounting Height: 10' - 15' ft
- Activation Time: ~1 second (configurable)
- IR Range: 160 ft (50m) in total darkness
- SN Ratio: ≥40 dB
- Cable: CAT5e Ethernet cables
- Camera Power: Power over Ethernet
- Operating Temperature: -22°F - 140°F (-30°C - 70°C)
- Operating Humidity: 0% - 90%
- Operating Environment: All weather, day and night
- Chassis Dimension: 36L x 14W x 12H (inches)
- Siren/Camera Dimension: 36L x 12W x 7H (inches)
- Fail-safe and watchdog reset support

This product detects pedestrians waiting to cross the street.

Upon the detection of pedestrians, it can actuate the flashing beacons.

It can be installed near the school area to alert the incoming vehicle drivers about the students ready to cross the streets.
Bicycle Detector and Counter

MigmaBicycle™

This product detects and counts bicycles in both forward and left-turn directions.

Upon the detection of bicycles, the bike call can be placed automatically.

It can separate bicycles from vehicles in shared roadways. Bike images and counts can also be sent to the remote server.

MigmaBicycle™ is an outdoor passive bicycle detector and counter at bike paths or shared roadways. It can be used to place bike calls when bicyclists are detected in forward and left turn directions. Bicycle counts are stored, 24/7, and their summary reports can be easily generated and saved in Excel based on average counts in hourly, daily, weekly, monthly or annually formats.

- High resolution IR LED strobe array for day/night detection
- Industrial single board computer (SBC) running Windows XPe
- Robust bicycle detection/counting using stereo vision analysis
- Bicycle counts and/or images are saved locally on USB drive and/or remotely on data server or Amazon Cloud
- Stored data are organized in terms of intersections and location names such as state, city, intersection and corner
- Standalone system utilizing city network for data transmission
- Counters are powered over Ethernet (PoE)
- Simple wiring and connection using CAT5e Ethernet cables

MigmaBicycle™ is designed to meet the traffic engineering requirements for bicycle detection and counting in the outdoor environment. Short IR LEDs are turned on under the low illumination for night time operation. Specifications:

- Image Sensor: 1/3" Sony CCD Chip
- Camera Mounting Height: 19 – 15 ft
- Activation Time: 1 – 2 s
- IR Range: 100 ft (~30m) in total darkness
- SN Ratio: 40 dB
- Cable and Power: Cable and power over Ethernet (PoE)
- Operating Temperature: -22 °F ~ 118 °F (-30 °C ~ 47 °C)
- Operating Humidity: 0% ~ 95%
- Operating Environment: All weather, day and night
- Failsafe and watchdog reset support

Contact Information
- Web: http://www.migmaprd.com
- Sales: sales@migmaprd.com
- Support: support@migmaprd.com
- Phone: 508-460-0128
- Fax: 508-460-0181

Corporate Headquarters
Migma Systems, Inc.
1500 Providence Highway
Niwot, Massachusetts 01814
This product can count the pedestrians walking across the crosswalk in both directions.

Both ped counts and images can be sent to the remote server and stored based on location and timestamp.

In addition to ped counts/images, it also estimates the pedestrian walking speed and crosswalk occupancy. Accuracy > 95%
Thank You

Company Location
Migma Systems, Inc.
1600 Providence Highway
Walpole, MA 02081

Product Web Site
http://www.MigmaPd.com

Contact
Email: bling@migmasys.com
Phone: 508-660-0328
(See Gerry)
Legacy Fiber Optic
Hardened Ethernet
Commercial Ethernet
Retrofit Network
Wireless Ethernet
Traffic Calming, Pedestrian/School Zone Safety and Warning Systems
ITS MD/Signal Forum 2014

Optical FLIR

ITS Surveillance (24/7, 365)

Intersection

Ramp Metering

Optical FLIR

Automatic Incident Detection

Bicycle
40-45% Match Rate using WiFi

Origin/Destination

Travel Time Reports

Route Delay Reports
We make your traffic flow.
Kapsch - Global Reference Base

- Argentina
- Australia
- Austria
- Bangladesh
- Belarus
- Bosnia-
- Herzegovina
- Brazil
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Czech Republic
- Denmark
- Ecuador
- France
- Germany
- Great Britain
- Greece
- Hungary
- India
- Ireland
- Israel
- Italy
- Morocco
- Mexico
- Montenegro
- Netherlands
- New Zealand
- Norway
- Panama
- Philippines
- Poland
- Portugal
- Russia
- Serbia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Thailand
- Turkey
- USA
- Vietnam
Experience counts

- 250+ Projects in 44 countries
- 80% of Open Road Toll (ORT) Systems worldwide are supplied by Kapsch TrafficCom
- 10,000+ ORT Lanes Installed Worldwide
- 100 cars per second are passing through Kapsch TrafficCom’s ORT tolling points
- 42 +million drivers globally use Kapsch OBUs (On Board Units) as a means of payment
- 26 of the 45 million transponders in the USA are Kapsch E-ZPass OBUs
- 3,500 out of 7,000 toll lanes in the USA equipped with Kapsch AVI Equipment
- $7.3 billion out of approx. $9.5 billion ETC toll revenue collected by Kapsch Equipment
Kapsch - North America Customer Overview

**NTE & LBJ Expressway, Dallas TX**  Fully integrated ETC-ITS-NCS solution for a managed lanes ORT. 29 gantries, 5 segments, 28 Miles, 63 lanes. Phase 1 opened 12/13. $78M Initial Award. Just awarded $26M extension.

**New York State Thruway Authority**  System conversion to AET at 4 plazas including Yonkers, Harriman, Tappan Zee and New NY Bridge. “Traditional” E-ZPass configuration with significant redundancy. 36 lanes, traditional E-ZPass Classification System

**Dominion Blvd Improvements**  New bridge and approaches for Dominion Blvd. 6 lanes, first use of lasers to classify vehicles within IAG. No loops in the roadway.

**E-ZPass**  Supply of readers and transponders to the largest, interoperable electronic toll network in the world, as well as maintenance and support services.
Kapsch - North America Customer Overview

Golden Gate Bridge, San Francisco, CA  Software Maintenance Contract, to maintain and enhance the AET toll lane software across all lanes of the bridge.

Virginia I-495 Express Lanes AVI and Traffic Management System
Traffic and regional traffic management. Provides data to dynamic pricing system, allows automatic express lanes utilization, manages ITS devices, and displays travel time and pricing info on DMS. Kapsch also supplies the AVI subsystem including readers and switchable E-ZPass HOV Transponder.

Boston Central Artery Tunnel IPCS  24/7 management of more than 200 highway and tunnel lane-miles. Seamless control of 20 major operation, ventilation, electrical distribution facilities, and emergency response, communications, fire detection, security, lighting, and environmental systems.
Baltimore Harbor & Ft. McHenry Tunnels

System Features
- DYNAC Software
- Facility Monitoring
- Video Display Wall
- Ventilation Control
- Fire/Security System
- HVAC
- Utility Monitoring
Case Study – New York State Thruway Authority
AET/ MOMS/ Level 2 Maintenance
Overview

- 4 Plazas Total
- 36 Lanes
- Significant In-Lane redundancy
- Kapsch VR platform for ALPR
- Kapsch Janus Readers
- Laser scanners for AVC and image triggering
- Idris loops and lasers used for hybrid axle count /height based classification system
- Redundant Host Interface to CSCMOMS
  - Monitoring
  - Reporting
Case Study
North Tarrant Express (NTE)
Lyndon B. Johnson Express (LBJ)
Systems Integration, Technical Operations, MOMS, Lane HW
Project Location
The Customers

About the North Tarrant Express.
The North Tarrant Express is a $2.5 billion project dedicated to improving mobility along 13.5 miles of the IH820 and SH 121/183 (Airport Freeway) corridor in Northeast Tarrant County. In early 2014 NTE awarded the TCS and ITS for the 11 mile long extension with 10 additional toll points to Kapsch.

About the LBJ Express.
The LBJ Express project will feature dramatic improvements to approximately 17 miles of I-35E and I-635 in Dallas County. The project limits, which go from Luna Road to Greenville Avenue along I-635 and Loop 12 to Valwood Parkway along I-35 are part of a new choice-based highway network.
Thank you for your attention

Christopher Body
VP Sales, NE Region

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Delivering urban efficiency through collaboration. Today.

ITS Maryland
November 2014
Introducing Schneider Electric

At a glance
Schneider Electric – the global specialist in energy management

24 billion € sales in 2013

43% of sales in new economies

150,000 people in 100+ countries

4–5% of sales devoted to R&D

Balanced geographies – FY 2013 sales

North America 25%
Western Europe 28%
Asia Pacific 27%
Rest of World 20%

Utilities & Infrastructure 27%
Industrial & Machines 25%
Data centres & networks 14%
Non-residential and Residential buildings 34%

Balanced end markets – FY 2013 revenue
Tackling the stakes of today and tomorrow to support Schneider Electric’s responsible growth

Green business
- Energy efficiency
- Renewables
- Electric Vehicles
- Smart cities and smart grids

Responsible company
- Access to energy
- Environment protection
- People well being
- Social commitment
- Ethics & responsibility

Measured commitment

Objective 2014: 8/10
January 2012 start: 3/10
- Communicated quarterly
- Audited annually
- Revised with each company programme
Cities, urban areas, everywhere…
…and all of them different.

So what makes a city ‘smart’?
Infrastructures are a city’s building-blocks
Efficient infrastructures are a Smart City’s building-blocks

Making the city efficient, liveable & sustainable
Improving the efficiency of the city’s underlying urban infrastructures
Improving public services: schools, safety, transportation...
Creating jobs
Increasing attractiveness for residents, citizens and visitors
Providing new, innovative services
Boosting competitiveness
Solutions to cities’ needs

Improving operating systems through expertise in Operational & Information technology

Smart Energy
- Smart Grid Automation & Flexible Distribution
- Smart Metering Management & Demand Response
- Renewables Integration & District Energy Mgmt
- Real-Time Smart Grid Software Suite
- Gas Distribution Management
- Shore connection

Smart Mobility
- EV Charging Infrastructure & Supervision Services
- Traffic Management
- Tolling & Congestion Charging
- Integrated Mobility • Public Transit • Traveler Information

Smart Water
- Water Distribution & Loss Management
- Power, Control & Security Systems integration
- Storm water management & Urban Flooding

Smart Public Services
- Public Safety • Video Surveillance • Emergency management
- Digital City Services • eGovernment • Healthcare
- Street management: public lighting & street maintenance

Smart Buildings*
- Efficient Homes • Home Energy management
- Connection to the Smart Grid & Solar Energy for Buildings

Smart Integration
- Integrated Management Platform
- Weather intelligence

Integrated Management Platform
- Resources monitoring & planning for Environment & Sustainability Energy Monitoring

* Office buildings, industrial facilities, datacenters, hospitals, homes….
Government as leader
Citizens at the center
Technology as an enabler
Schneider Electric as a partner
Collaboration to make it all happen

No company or organization can deliver a Smart City alone

We want to be your partner – let’s talk!
Make the most of your energy™
With **EcoTrafiX™**

**OPTIMIZE** your community’s transportation

**Events, Plans, Decision Support**
Advanced Event management and Decision Support for response plans.

**Multi-Signal Systems Cockpit**
Global operational view from multiple traffic systems

**Traffic Data Analytics**
Advanced traffic simulation for complete analysis & forecast capabilities.

**Reporting / Dashboard**
Advanced real-time reporting & dashboard capabilities for complete traffic analysis.

**Adaptive signal control**
Adaptive and proactive control for real-time traffic optimization

**Data Visualization**
Visualization of multiple city information for full situation awareness (Weather, automatic vehicle location, parking information, Asset Management...)

.... and make traffic **Efficient, Safe & Sustainable**
With EcoTrafiX Mobility COLLABORATE with multiple agencies

Multi agency plans, events, decision support

Share situation awareness, adapt layout to each user profile, coordinate on events and improve multi-modal efficiency
Who am I?

Steve Robinson
Business Development Manager
Mid-Atlantic Region

Who is Trafficware?

Just Syncro Simulation Software?
Trafficware is

- Naztec NEMA Cabinets and Controllers
- ATMS.now 2.0 Central Software
- SyncroGreen Adaptive
- Emergency.now
- PSI 33X Cabinets and 170/2070 Controllers
- Valance POD detection systems
How is **SynchroGreen** different?

**SynchroGreen** takes a holistic approach when optimizing traffic signals by considering side-street and pedestrian traffic, in addition to mainline traffic. SynchroGreen will allocate time to each vehicle and pedestrian phase in real time, without any additional modules. 

Finally, as the only true NTCIP-compliant, real-time adaptive traffic control system, SynchroGreen provides peace of mind.

**SynchroGreen** has demonstrated...

- 70% Reduction in Intersection Delay
- 60% Reduction in Total System Delay
- 80% Reduction in Arterial Delay
- 70% Reduction in Arterial Travel Time
• 900 MHz
• Wirelessly detect up to 700 foot from Access Point with out repeaters
• Applications
  • Stop Bar
  • Advance Detection
  • Midblock and exit detection for systems and Adaptive!

Trafficware
Engineered by Naztec