

Commercial Vehicle Enforcement



VI²M™ Bypass Systems with VectorSense™ Sensor Suite
Tomorrow's Sensor Technology Today

DETECT .

Weigh Station & Virtual Bypass Systems

- High and low speed Weigh-In-Motion (WIM) complemented with Vehicle Information In Motion (VI²M™)
- Machine vision cameras
- Automatic Vehicle Identification (AVI)
- Automated traffic data logging
- Single or multi-site network
- Single, super single, dual, and tire footprint
- Static scale integration

MEASURE .

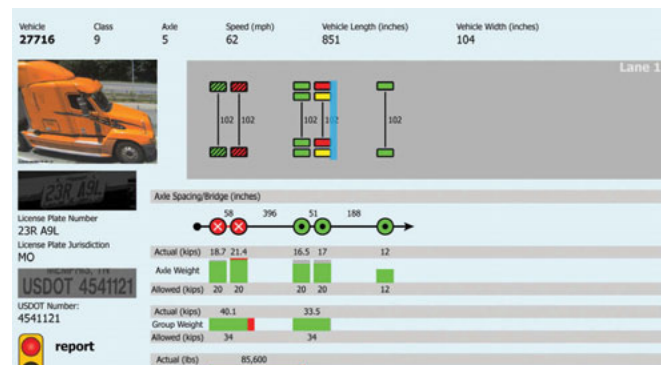
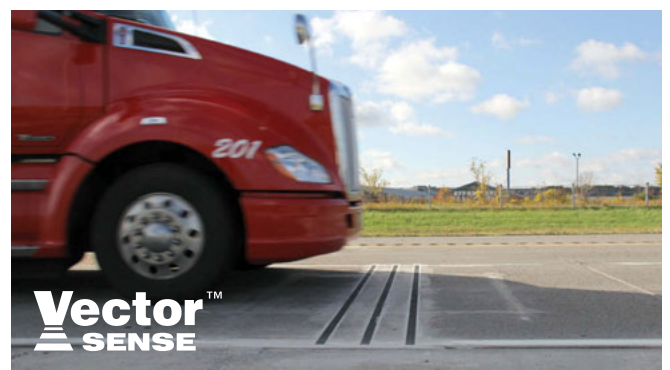
Screening

- Vehicle weight and dimensions
- Notification, tracking and compliance
- Credential screening (e-screening)
- Safety screening
- Custom reports
- Flexible database interface
- Autocalibration with automated hold-and-release
- Tire pressure, vehicle footprint, and lane discipline

ANALYZE .

Reports and Analysis

- Select vehicles for inspection
- Protect infrastructure
- Assign resources efficiently
- Data for highway planning and design
- Detect traffic and vehicle trends
- Operations metrics
- Design and operate customized programs



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NWT DOT

Toll Systems

VI²M™ Toll Systems with VectorSense™ Sensor Suite
Tomorrow's Sensor Technology Today

DETECT .

Manual, Automatic & Shadow Toll Systems

- VectorSense™ sensor suite, DYNAX® treadles, in-road and non-intrusive sensors
- Machine vision cameras
- Automatic Vehicle Identification (AVI)
- Bidirectional/reversible lanes
- Electronic Toll Collection (ETC)
- Single, super single, dual, and tire footprint
- All vehicle classes including motorcycles, three-wheelers, and bicycles

MEASURE .

Classification & WIM@Toll®

- Pre and post classification
- Classification and toll by weight
- Screen for overweight and unclassified vehicles
- Tire pressure, vehicle footprint, and lane discipline
- Independent audit

ANALYZE .

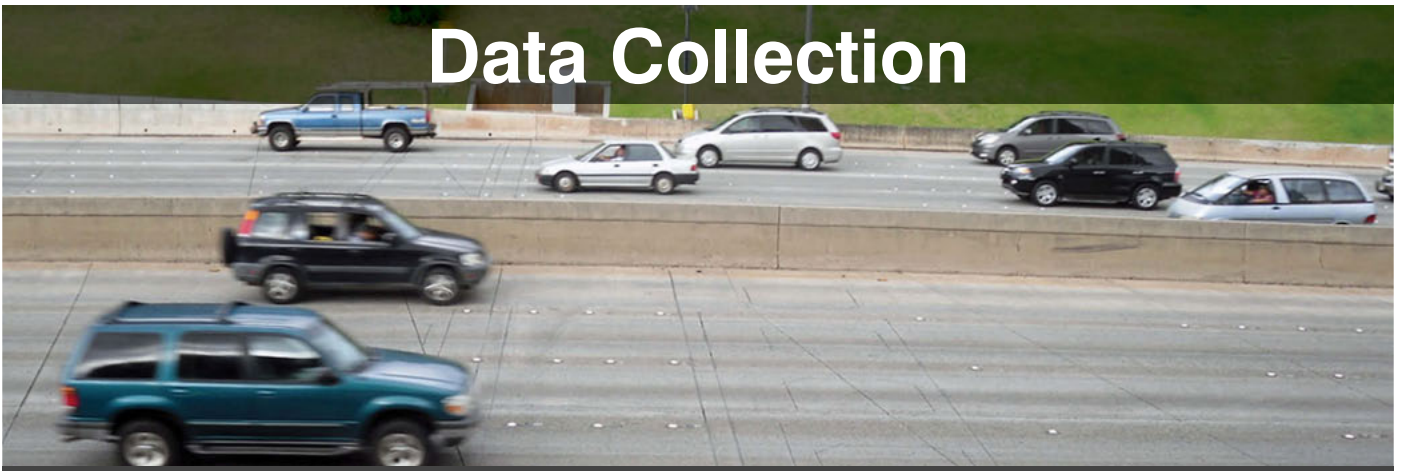
iToll®

- Centralized auditing and monitoring
- Video incident detection
- Automatic Traffic Count & Classification Systems (ATCC)
- Infrastructure protection
- Data for highway planning and design



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Data Collection



VI²M™ Data Collection with VectorSense™ Sensor Suite

Tomorrow's Sensor Technology Today

DETECT.

Sensors & Systems

- Portable, permanent, and non-intrusive sensors
- Weather and ice detection
- Low-power, industrial-grade electronics
- Machine vision
- Flexible input and output interface
- Single, super single, dual, and tire footprint

MEASURE.

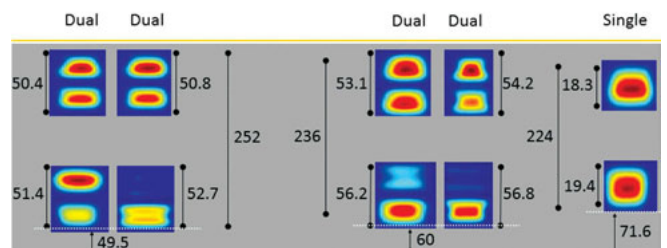
Vehicle Data

- Volume, Occupancy, and Speed (VOS)
- Weight and classification
- Real-time monitoring
- Tire pressure, vehicle footprint, and lane discipline

ANALYZE.

Enterprise Software & Data Services

- Enhanced decision making
- Multiple user remote access
- Real-time vehicle reports
- Custom and user-defined reports
- Local or cloud hosting
- High quality traffic data and WIM analysis
- Traffic Monitoring Guide (TMG) reporting



VI²M™

Tire pressure, vehicle footprint, and lane discipline



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Fleet Management



FLEETSPHERE™ Software

A Powerful Tool for Fleet Management

DETECT .

Internet Based Asset Tracking

- Unauthorized vehicle use
- Schedule and route violations
- Unsafe driving behavior
- Emergency in vehicle
- Unplanned/unauthorized stops

MEASURE .

Vehicle Monitoring

- Fuel consumption
- Time at stops
- Revenue miles
- Working hours
- Response time

ANALYZE .

Extensive Reporting Module

- Route performance
- Job productivity
- Vehicle utilization
- Maintenance costs
- Overtime expenses



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Bridge Monitoring & Safety

VI²M™ Bridge Systems with VectorSense™ Sensor Suite
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DETECT.

Real-time Screening

- Weigh-In-Motion (WIM), dimensioning, speed and classification
- Real-time screening and tracking
- Machine vision and image capture
- Identify vehicles from hot lists
- Statistical traffic data
- Single, super single, dual, and tire footprint

MEASURE.

Vehicle Weight/Bridge Protection

- Identify over-weight, over-height, and over-dimension vehicles approaching bridges
- Automated diversion and image capture of non-compliant vehicles

ANALYZE.

Loading Assessment/Asset Management

- Output data for further analysis
- Monitor changes in traffic over time, including class and weight
- Temporary studies (portable/temporary systems)
- Live load monitoring
- Multiple presence statistics
- Data for bridge design and maintenance



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Security & Access Control

VI²M™ Security Systems with VectorSense™ Sensor Suite

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Authorized Vehicles

- Machine vision
- Automated Vehicle Identification (AVI)
- License Plate Reader (LPR)
- Under-Vehicle Surveillance System (UVSS)
- Weigh-In-Motion (WIM)
- Static and portable weighing
- Vehicle dimensioning and over-height detection
- Vehicle identification and tracking

MEASURE.

Scanning and Dimensioning

- Reduce idle time
- Automate screening and sorting
- Improve efficiency and customer service
- Vehicle footprint

ANALYZE.

Optimize Security Operations

- Increase efficiency
- Expedite compliant and authorized users
- Integrate complementary operations



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Maintenance & Service



DETECT .

Operations Management

- On-site and remote diagnostics
- Scheduled preventative maintenance
- Site assessment and design recommendations
- Self-diagnostics and notification
- Maintenance On-line Management System (MOMS)

MEASURE .

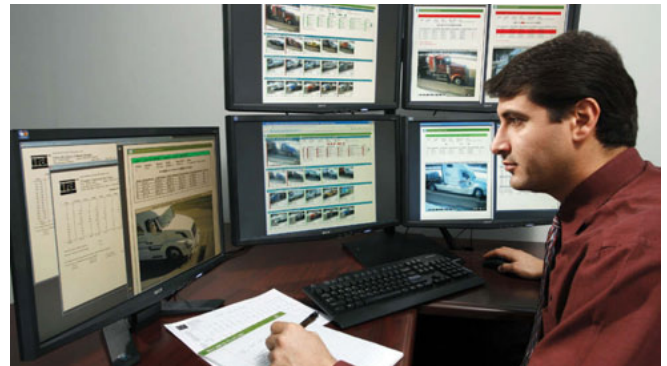
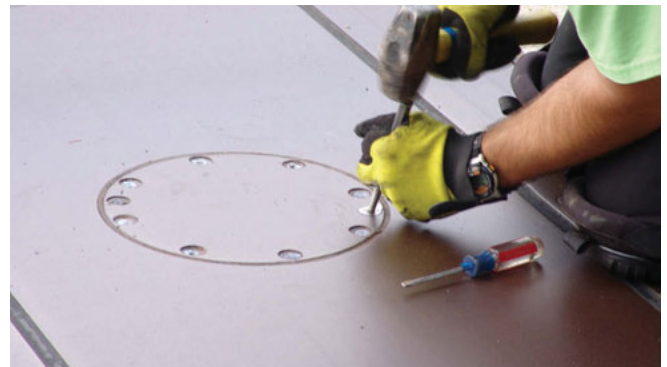
Monitoring and Autocalibration

- Remote monitoring
- 24/7 continuous operations
- Sensor and system health

ANALYZE .

Data Services

- Verification and validation
- Application Service Provider (ASP)
- Reliability, performance analysis and reporting
- Customer support and training



Intelligent Transportation Systems with Environmental Benefits

IRD's ITS technologies reduce fuel consumption and emissions, and increase mobility and safety. By keeping vehicles moving smoothly and efficiently, IRD's Intelligent Transportation Systems (ITS) contribute to significant greenhouse gas emission reductions and system improvements.



Head Office

702 43rd Street East
Saskatoon, SK
Canada S7K 3T9
Tel: +1 (306) 653-6600

Publicly Traded on the TSX (Symbol IRD)
Find out more about IRD on our web site: www.irdinc.com email: info@irdinc.com

IRD International Offices

United States

International Road Dynamics Corp.
Tel: +1 (815) 675-1430

South Asia

IRD South Asia Pvt. Ltd.
Tel: +91 129 257 7900

China

Xuzhou PAT Control Technologies Co., Ltd.
Tel: +86 516-87737997 / 7986

Latin America

PAT Traffic Ltda.
Tel: +56 2 223 9713

Mexico

PAT Traffic Mexico, S.A. de C.V.
Tel: +52 55 27895442

Brazil

PAT Traffic Sistemas de Transportes Inteligentes Ltda.
Tel: +55 11 3807 2297

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