Main Project Team

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Michigan Project Overview

Timing is everything...

Overview:
- September 2013 Contract Issued
- Team: Michigan DOT, Delcan Technologies (Prime), Iteris, Verizon Wireless, DICKEY-john Corporation
- 273 snowplows outfitted over 4 month, across 7 Regions, and 30 garages
- System was used by 200+ MDOT staff
  - Web based AVL & MDSS sites
- 2013/2014 was one of the worst winters on record for Michigan
Keys To Success

- Training, Training, Training... Rinse and Repeat
  - Installation and Maintenance (5 locations)
  - Annual Regional Training
  - Annual Administrator Training

- Communication: On Going Dialog
  - Administrator Meetings: (A team of 20 IT Professionals, Supervisors, and Management from MDOT) meet monthly
  - “Office Hours”: Twice a month open to all users
  - Weekly Project Meetings
  - Central Document Storage and Access (Share-point website)

- Accountability
  - Core Team of Testers and Certifiers (4 MDOT Staff)
Lessons Learned

- **Get input** from all affected areas of the department before undertaking such a project: fleet, IT, executive management, and garage supervisors, at a minimum. Multiple areas should provide input for the RFP requirements.

- **The highest levels** of the agency need to be involved and supportive of the project objectives.

- **Weekly accountability meetings** with vendor and project management staff help to ensure the agency staff and vendor partners are held accountable for their tasks and deliverables.

- **To gain buy-in**, it is necessary to focus more on how these tools can aid with current tasks and reduce manual reporting of labor, equipment and material usage by the operator so they can focus on their maintenance activities.
Monitored Vehicle Data

- Vehicle Information
  - Material Application Rates (Solid & Liquid)
    - Target Rate (what the driver has set the spreader too)
    - Actual Rate (what is being applied to roadway)
  - Material being applied
  - Temperature Readings
  - Camera Image(s)
  - Plow Blade Position (Up/Down)

- Export data to 3rd parties
  - Preventative Maintenance Planning
  - Fuel Management
  - Accounting & Time Sheet

- Engine Codes
  - Odometer
  - Speed
  - Fuel Level
  - Engine Coolant Temperature
  - Engine Run Time
  - Engine RPM
  - Engine Oil Pressure
  - Battery Voltage
  - DST Codes
In Cab Screen

- The Mobile Data Collector (in cab unit) can be outfitted with an optional Touch Screen

  - Displays local and regional weather radars
  - Optional integration with a 3rd party Maintenance Decision Support System provides route specific forecasts and treatment recommendations
  - Drivers can enter in observations about the weather and road conditions
  - Other 3rd party programs can be loaded on to the unit for use by the driver
    - Links to Driver/Operator manuals
    - Timesheet systems
    - Navigation software
    - Etc...

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<td>Sat 09:57 PM</td>
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Main Map View

- Displays current vehicle status
  - Active
  - Idle
  - Inactive
- Updates every 60 seconds
- Tool Tips (blue box) shows important data fields
  - Truck Name
  - Speed
  - Activities
- Zoom to Pre-defined Views (Bookmarks)
- Access Advanced features
24 Hours of Camera Views
Historical Playback

- Playback vehicle activity for up to 5 vehicles
  - Play, Fast Forward, Rewind, Pause, Restart
  - Configurable date and time range (defaults to past 24hrs)
  - User selected sensor/engine data fields update as vehicle moves through “history”
  - Breadcrumb arrows point in direction of travel as vehicle moves through “history”
Geo-Fencing

- Create boundaries of any shape
- Define Alert Parameters
  - Inside Alarm: Vehicle comes inside boundary
  - Outside Alarm: Vehicle leaves boundary
  - Add/remove vehicles
  - Change boundary status
    - Active: Alarm will trigger if vehicle violates alert parameter(s)
    - Inactive: Alarm will not trigger if vehicle violates alert parameter(s) (for boundaries that are not permanent, but seasonal or scenario specific)
- Alarm will disappear when vehicle stops violating alert parameter
Landmarks

- Search for Closest Active Vehicle:
  - Address
  - Point and Click on Map
  - Latitude & Longitude Coordinates
  - Pre-defined Landmark (drop down list)
    - Garage
    - Maintenance Shed
    - Material Stock Pile
    - Hotspot (point of high interest)
    - Other (as needed by agency)

- All Active Vehicles Listed
  - Vehicles listed closest to furthest away
  - Distance Measured “As the crow flies”
Groups

- **Group Vehicles:**
  - Assign, Edit, Delete Vehicles
  - Group by Garage
  - Group by Region
  - Group by Supervisor/Foreperson

- **Assign User Viewing Privileges**
  - Statewide/Fleet-wide View
  - Regional View
  - Garage View
Reports

- **Report examples:**
  - Total Engine Hour
  - Total Odometer Readings
  - Current Vehicles in System
    - List of vehicles and the last time they sent data to the system
  - Material Usage
    - Which types and how much material is a truck putting on the roadway for a given time period
      - *Daily*
      - *Hourly*
  - Salting Speeds Compliance
  - Plow Blade Usage

- **Geo-Fence Materials Summary**
  - Lists which vehicles applied materials inside the Geo-Fence Boundary as well as when and how much
### Geofence Materials Summary

**Dates:** 3/1/2014 to 3/3/2014  
Geofences: (select all)

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Reports Continued

Salting Speeds Compliance - Daily

Region: Superior
Garage: Engadine; Houghton; L Anse; St. Ignace

| Vehicles: 04-1478; 04-1487; 04-1489; 04-1575; 04-1576; 04-1577; 04-1593; 04-1613; 04-1614; 04-1618; 04-1619; 04-1642; 04-1643; 04-1672; 04-1673; 04-1690; 04-1698; 04-3026; 04-3030; 04-3039; 04-3042; 04-3043; 04-4002; 04-4012; 04-4013; 04-4021; 04-4039; 04-4040; 04-4041

Dates: 3/10/2014 to 3/12/2014

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Questions?

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