

Where Is It and What Is It Doing?



ASSET MONITOR APPLICATIONS

Location of assets at set intervals, report sensor's data from your asset, report when leaving a Geofence, and excessive speed, wandering away from a starting point. Satellite or Cell based flow meter reports, pump run times, tank level sensing. Review all Reports from any web based computer.

REPORTING

- Continuous tracking and tracing.
- Determine precise location & Sensory feedback of your asset.
- Flow Rates Frac Jobx. Pump Status. Tank Level Monitoring.
- Corporate multi-user access permissions and notifications.
- Multi user Corporate access and permissions.
- Monitor Legitimate Usage of Assets.
- Reduce Insurance Rates.

SENSING

- Flow Meters: Modbus, Serial, Pulsed output. GPM, Barrels per Day, total Flow.
- Silo or Oil Brine Tank Level Sensors. Ultrasonic, 4-20mA, Serial, Discrete.
- ECM J1939, OBD2 real time telemetry of engine data and most vehicle sensors.
- ECM option to read faults codes, rpm, engine hours, speed, odometer.
- Discrete Inputs and Outputs for remote control.
- Capable of Reading many types of sensors.

BENEFITS

- Eliminate need to visit remote locations to take measurements.
- Track your Assets to Improve Business Processes.
- Environmental Responsibility through fleet management.
- Monitor Non productive Idle Time.
- Satisfy Government Regulations.
- Improved Customer Service.
- Better ROI.
- Lower Fuel Expenses. GPM. Emission Reporting.
- Powerful Alert Capabilities.
- Fleet Overview.
- Real time Alerts.
- Maintenance Reporting.
- Integrate planning & Operational Data.
- Made in USA.
- Low Operational Costs.
- Very long battery life.

SUPPORT

- Live Customer support.
- Nationwide and International Coverage available.
- No activation fees.



Cell Based



Satellite Based

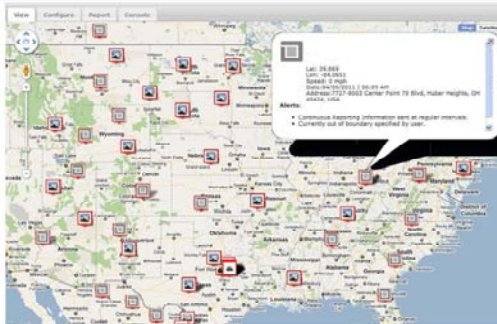
GPS Telemetry Solutions

Patents Pending

Asset Monitoring



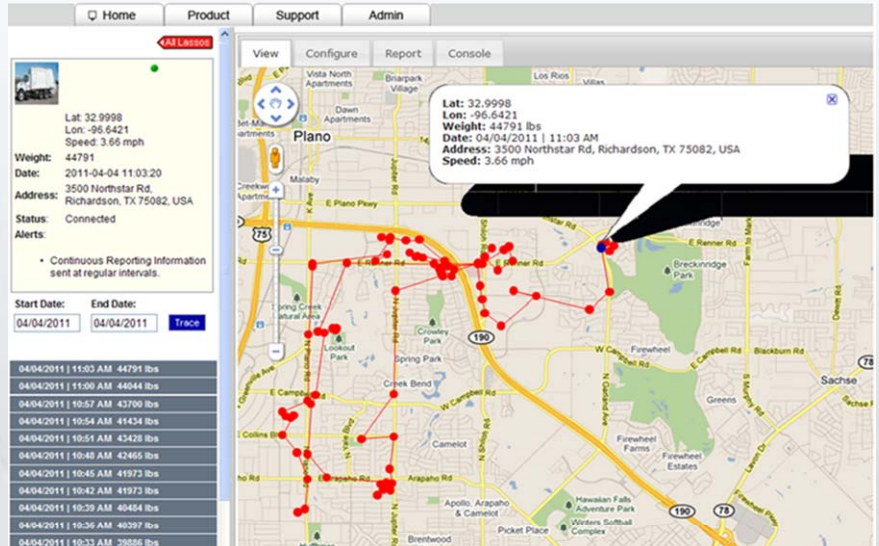
Lasso Technologies provides satellite and cellular based wireless communications technologies that can be used for asset management, location, and machine status.



Asset Real Time Status

MONITORING

- Location
- Access
- Payload weight
- Flow, Temperature, On/Off signals
- Pilferage & Intrusion
- Fixed or Movable
- Motion Detection
- Engine Run Time
- Monitor engine run time
- 3+ Year Battery Life
- Diagnostics and Low Battery Reporting



Bread Crumb and Real Time Tracking with Addresses.

SATELITE PROVIDER

Globalstar is the world's largest provider of mobile satellite voice and data services. Globalstar has 52 low earth orbit satellites and are affiliated with Loral, Qualcomm, Alcatel, Vodaphone, Hyundai and others.



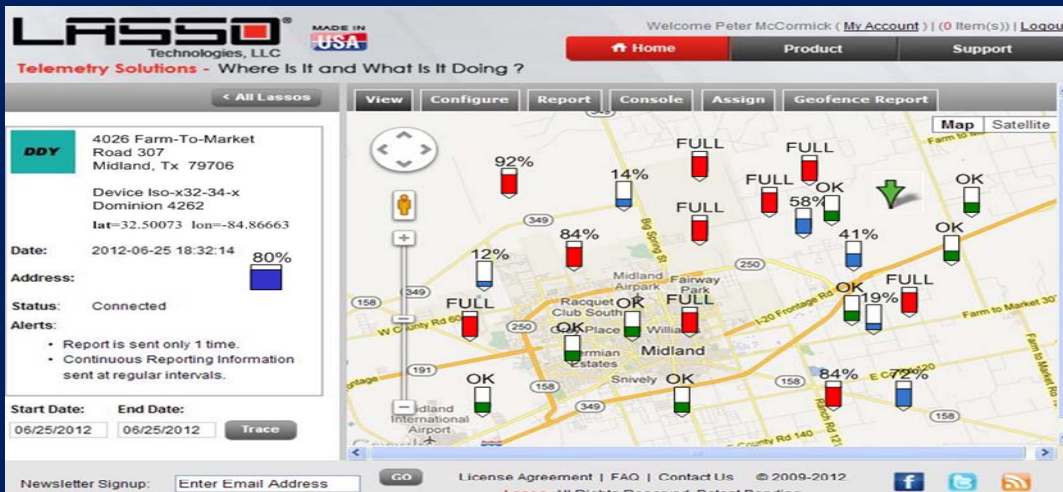
International Tracking and Monitoring of your Assets

Cell or Satellite Tank Level Monitoring

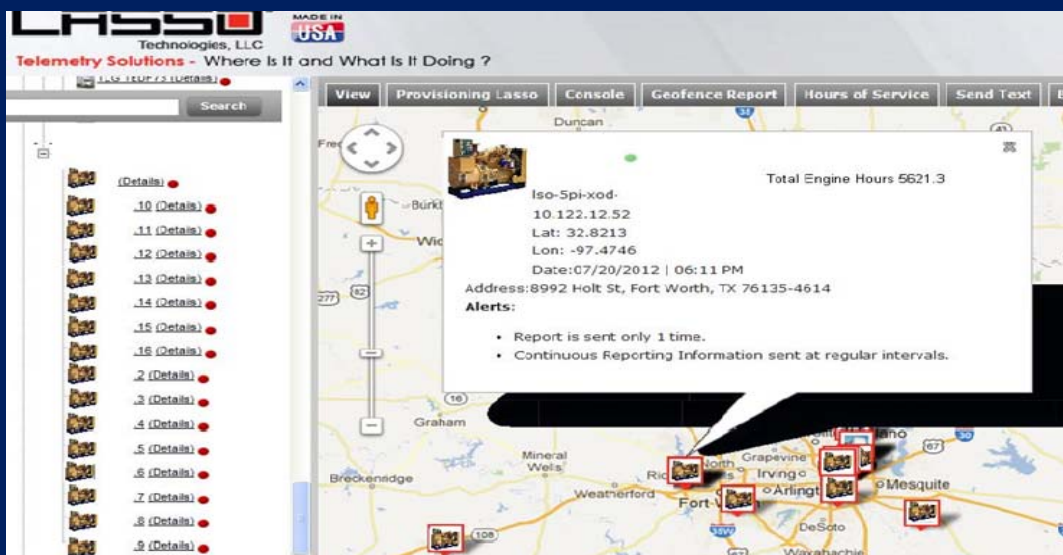


TANK LEVEL

- Monitor Brine-Oil tank levels remotely.
- Email, and automated phone call alerts.
- Satellite based so it can be used anywhere.
- Solar powered with battery backup for years of life.
- Ultrasonic Level sensor impervious to harsh chemicals.
- Quick ROI: Eliminates frequent tank checks.
- Click on any map indicator for details and address of location.



% Indication of Tank Level.
Red if Full and needs service. Blue if OK.



Quick Overview of All Assets

Satellite Based Tank Level

LASSO[®] MADE IN USA
Technologies, LLC

Welcome (My Account) | (0 Item(s)) | Logout

Telemetry Solutions - Where Is It and What Is It Doing ?

Home Product Support

< All Lassos View Configure Report

0-1206477 174 905-6 ●

0-1206477
Iso-lk8-5ct-2om
Lat: 32.8598
Lon: -96.7914

TANK LEVEL IS 5838 GALLONS
Date: 2012-12-22 22:00:10
Status: connected
Alerts:
• No Alerts.

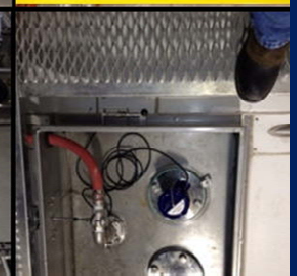
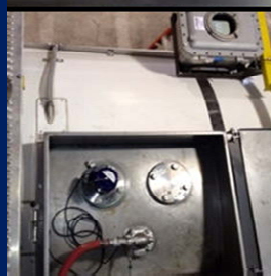
Start Date: End Date:
12/22/2012 12/22/2012 Trace

0-1206477 174 905-6 ●
0-1206477 174 905-6
Iso-lk8-5ct-2om
Lat: 32.8598
Lon: -96.7914
TANK LEVEL IS 5838 GALLONS
Date:12/22/2012 | 10:00 PM
Alerts:
• No Alerts.

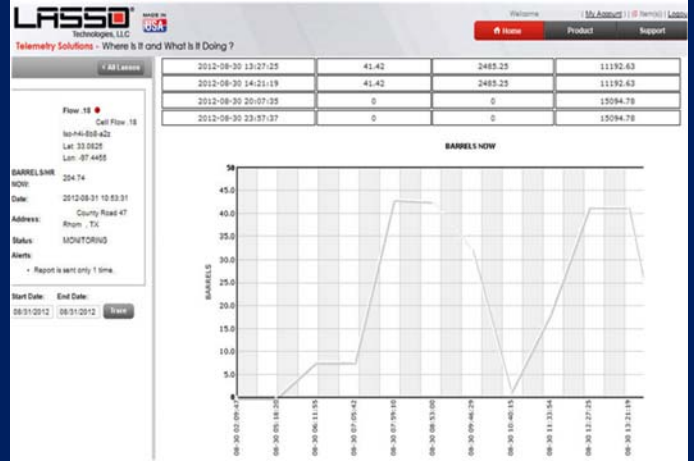
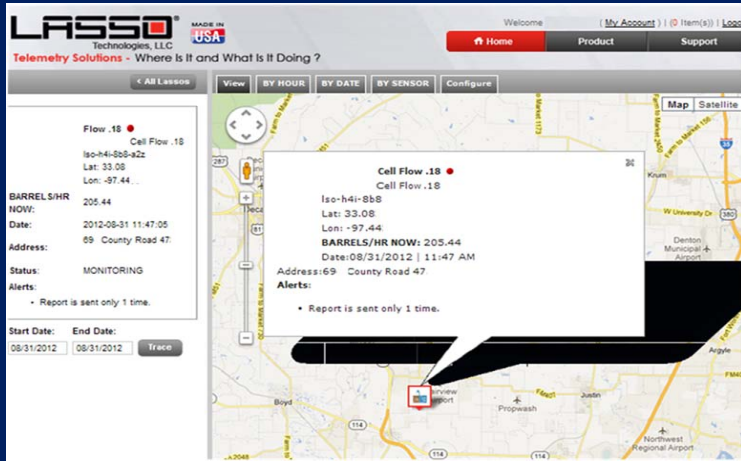
Map Satellite

Clear Creek
Prosper
Farmersville
Rowlett
Lake Ray Hubbard
Heath
Sunnyvale
Irving
Euless
Grapevine
Coppell
Grapevine
Urbank
Park

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Cell or Satellite Water Flow Monitoring



Asset Overview with Current Flow Rates

Select any Time Frame with Graphs

DATE	BARRELS NOW	BARRELS/HR	TOTAL BARRELS
2012-08-27 07:28:01	0	0	0
2012-08-27 08:21:32	11.32	679.02	678.99
2012-08-27 09:15:15	44.66	2679.88	3358.86
2012-08-27 10:08:59	44.66	2679.88	3358.86
2012-08-27 11:02:34	45.75	2745.13	6104.02
2012-08-27 11:56:00	35.91	2154.75	8258.79
2012-08-27 12:49:43	0	0.01	8258.79
2012-08-27 13:43:32	0.94	56.3	8315.08
2012-08-27 14:37:03	21.87	1312.36	9627.45
2012-08-27 15:30:42	45.77	2745.94	12373.38
2012-08-27 16:24:12	45.49	2729.24	15102.64
2012-08-27 17:17:50	45.49	2729.24	15102.64
2012-08-27 18:12:14	21.09	1265.61	16368.23






Works with Cameron, Omega, Seametrics & other sensors

Flow Rates Each Hour During Frac Job



Satellite Based Environmental



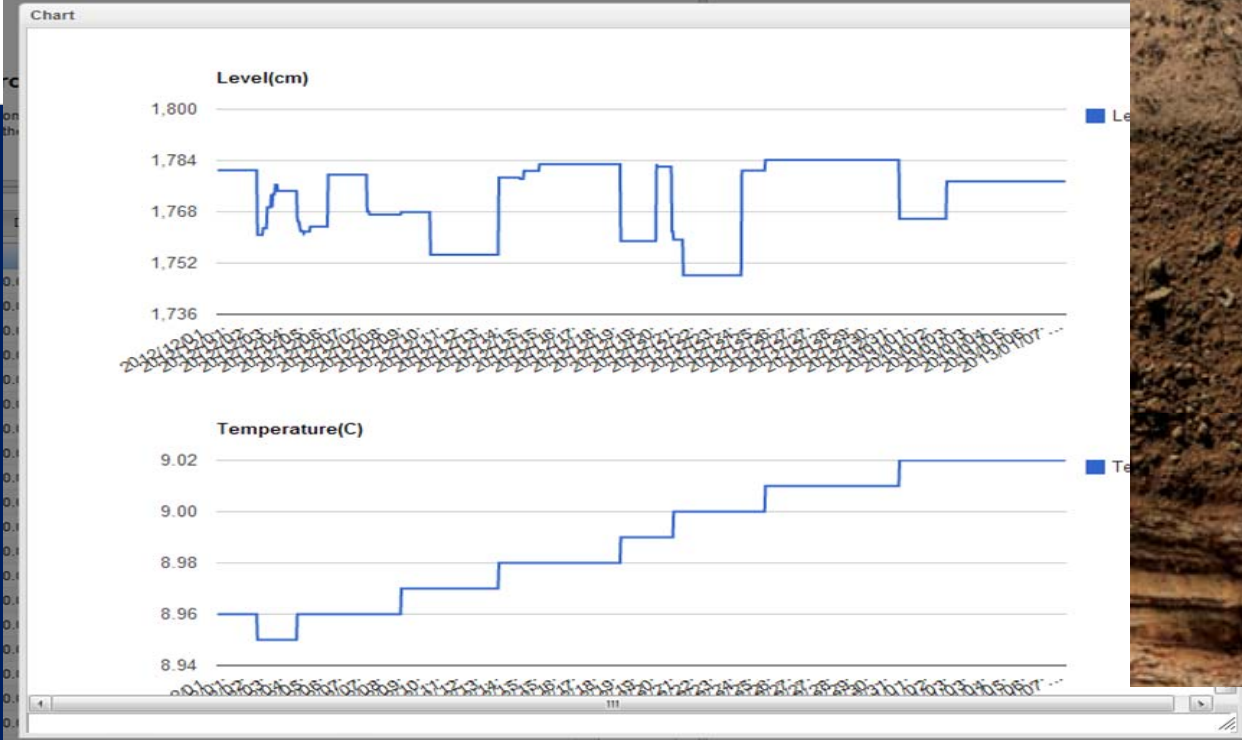
Welcome to the GSTS/Ministry of Environment Well Monitoring Pilot Project test website.

To view the data retrieved via telemetry please select a **Site** from the left-hand list. The data will be retrieved and displayed in the **Data** tab. Press the button below the table to display a chart of the data. Select the **Details** tab to display the sensor information connected to the telemetry.

Site	ESN
--	0-1211135
--	0-1213299
--	0-1213445
W.A. Taylor	0-1247632
--	0-1248213


Time	Level (cm)	Temperature (C)
2012/12/01 03:00:00.0	1781.0	8.96
2012/12/01 04:00:00.0	1781.0	8.96
2012/12/01 05:00:00.0	1781.0	8.96
2012/12/01 05:00:00.0	1781.0	8.96
2012/12/01 06:00:00.0	1781.0	8.96
2012/12/01 06:00:00.0	1781.0	8.96
2012/12/01 07:00:00.0	1781.0	8.96
2012/12/01 08:00:00.0	1781.0	8.96
2012/12/01 09:00:00.0	1781.0	8.96
2012/12/01 09:00:00.0	1781.0	8.96
2012/12/01 10:00:00.0	1781.0	8.96
2012/12/01 10:00:00.0	1781.0	8.96
2012/12/01 11:00:00.0	1781.0	8.96
2012/12/01 12:00:00.0	1781.0	8.96
2012/12/01 13:00:00.0	1781.0	8.96
2012/12/01 13:00:00.0	1781.0	8.96
2012/12/01 14:00:00.0	1781.0	8.96
2012/12/01 15:00:00.0	1781.0	8.96

Chart



Level(cm)

Temperature(C)



Groundwater level and temperature for government of Canada

Cell or Satellite Pump, Level, Flow Monitoring


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< All Lessos View Monitor Spreadsheet Phone List Monitor All Configure

Start Date End Date

Date	Pump 1 Starts	Pump 2 Starts	Runtime Hours Pump1	Runtime Hours Pump2
02-Jul-12	0	1	7.6	16.3
03-Jul-12	1	0	12.4	23.6
04-Jul-12	0	0	23.9	23.9
05-Jul-12	0	0	24	24
06-Jul-12	0	0	9.8	9.8
07-Jul-12	0	0	0	0
08-Jul-12	0	0	0	0

 .53
 Iso-9n9-162
 Lat: 32.85
 Lon: -96.7
 Date: 2012-07-09 10:56:30
 Address: Colgate Ave, Dallas, TX
 Status: Connected
 Alerts:
 • Continuous Reporting Information sent at regular intervals.
 Start Date: End Date:

Pump Run Times by Day. Start Stop Frequency.

Select Date

CELL CONNECTED BAD SATELLITE OK WATER LEVEL OK POWER BAD Test Unit .50

	Runtime Hours		Starts		Cumulative	
	Today	Previous Day	Today	Previous Day	Runtime Hours	Starts
Pump1	4.2	1.6	41	41	236	7
Pump2	5.7	3.8	171	12	232.9	5
Current Rate		Total Today		Total Previous Day		
Flow	2165 MGD		698 Gallons		784 Gallons	
Current Level						
Level	12.6 Feet					

CELL CONNECTED OK SATELLITE OK WATER LEVEL OK POWER OK Houston School Road LS .51

	Runtime Hours		Starts		Cumulative	
	Today	Previous Day	Today	Previous Day	Runtime Hours	Starts
Pump1	7.7	3.5	14	17	176.7	26
Pump2	1.7	0.1	21	45	90.5	4
Current Rate		Total Today		Total Previous Day		
Flow	2115 GPM		1254 Gallons		365 Gallons	
Current Level						
Level	6.7 FT					

CELL CONNECTED OK SATELLITE OK WATER LEVEL OK POWER OK Test Unit .52

	Runtime Hours		Starts		Cumulative	
	Today	Previous Day	Today	Previous Day	Runtime Hours	Starts
Pump1	7.7	3.6	74	2	176.9	4
Pump2	1.7	0.5	12	2	90.9	5
Current Rate		Total Today		Total Previous Day		
Flow	2146 GPM		7412 Gallons		8741 Gallons	
Current Level						
Level	41.2 Ft					

Overview of all Pumps, Flow Meters, Level Conditions

Cell or Satellite Based Pump or Generator Engine Run Time

LASSO Technologies, LLC **MADE IN USA**
Telemetry Solutions - Where Is It and What Is It Doing ?

Search

View Provisioning Lasso Console Geofence Report Hours of Service Send Text

Total Engine Hours 5621.3

iso-5pi-xod-
10.122.12.52
Lat: 32.8213
Lon: -97.4746
Date: 07/20/2012 | 06:11 PM
Address: 8992 Holt St, Fort Worth, TX 76135-4614

Alerts:

- Report is sent only 1 time.
- Continuous Reporting Information sent at regular intervals.

Map showing locations: Duncan, Burk, Wic, Graham, Mineral Wells, Weatherford, Fort Worth, North, Irving, Mesquite, DeSoto, Waxahachie.

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Telemetry Solutions - Where Is It and What Is It Doing ?

Welcome Peter McCormick (My Account) | (0)

Home Product

MAP BY HOUR BY DATE BY SENSOR ENGINE RUN TIME

PUMP 1036 Select Date for construction graph 03/28/2011 Show Graph

Ignition ON

3 am 6 am 9 am 12 pm 3 pm 6 pm 9 pm

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LASSO

Technologies, LLC

FLEET MANAGEMENT

MADE IN USA

Welcome Peter McCormick (My Account) | (0 Item(s)) | Logout

Home Product Support

It and What Is It Doing ?

16-Jan-12	Employee	Motion Time	Total Stop Time	Total Stop Idle Time	% Idle	Hard Brake	Excess Steering	Excess RPM	Distance	MPG	Fuel Used	Speeding
Driver Name	ID	hh:mm:ss	Lasting Less than 5 min	Lasting More than 5 min	More than 5 min	Occurrences Today	Occurrences Today	Occurrences Today	Traveled miles		Gallons	Duration Minutes Today
Max Klein	292	10:25:02	0:48:09	0:20:03	3.2%	1	3	1	781.3	7.52	103.9	0.8
6:36		9.4%			3	1	0	750.0	6.27	119.6	0.8	
1:57		1.2%			2	0	4	206.8	8.07	25.6	0.3	
9:02		3.2%			1	0	5	358.4	7.84	45.7	0.0	
0:48		3.8%			0	8	7	353.5	6.65	53.1	0.9	
7:45		8.4%			1	1	1	558.7	7.80	71.6	0.0	
6:35		1.8%			0	6	0	456.3	7.12	64.1	0.6	
9:39		8.9%			7	7	0	697.2	7.93	88.0	0.1	



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Search for this driver & log

Driver Name: John User ID: 765496 Driver: 34

Driver log: 26 Driver log date: 2011-09-30 Tractor/Trucks: 3241

Store this tractor & trailer #

Tractor: 497

HOS

Driving Status

off duty

sleeper berth

driving

on duty

Time

Remarks

11:17am: Tea time Edit Delete

09:19am: Halted at Gas station Edit Delete

06:29am: Coming back from Dallas Edit Delete

Date: 2011-08-30

Off Duty

Sleeper Berth

Driving

On Duty

GMT-4

GMT-5

GMT-6

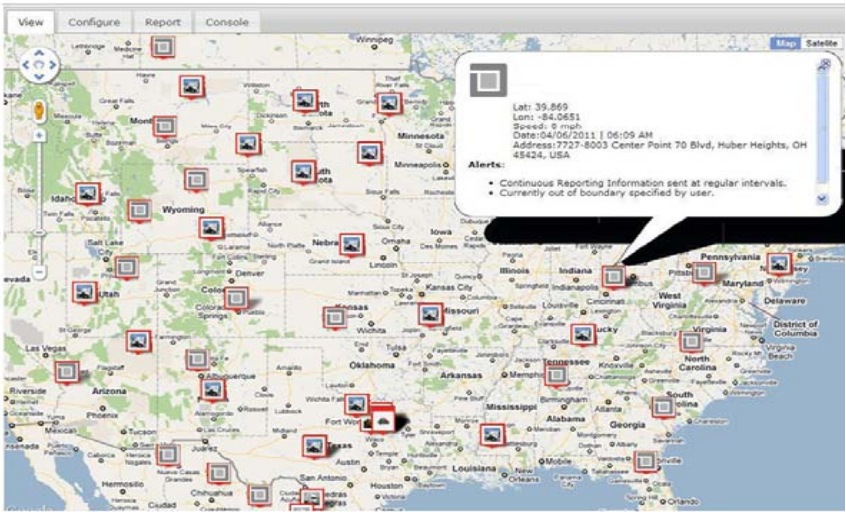
GMT-7

GMT-8

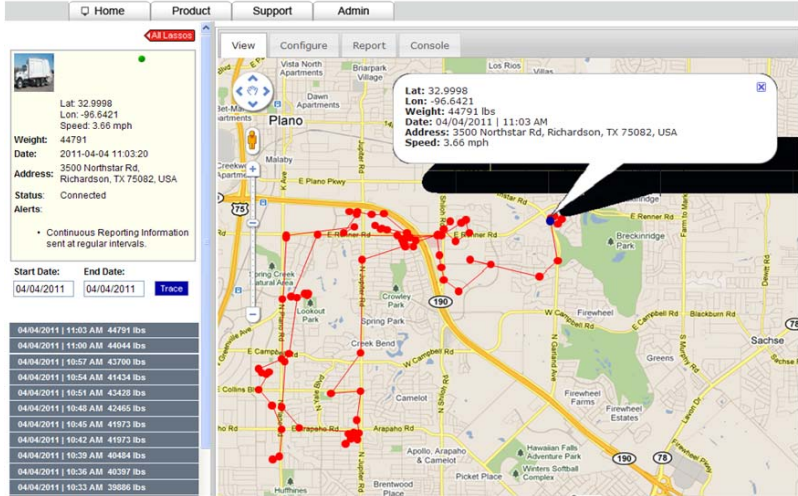
Submit Status

Where Is It and What Is It Doing?

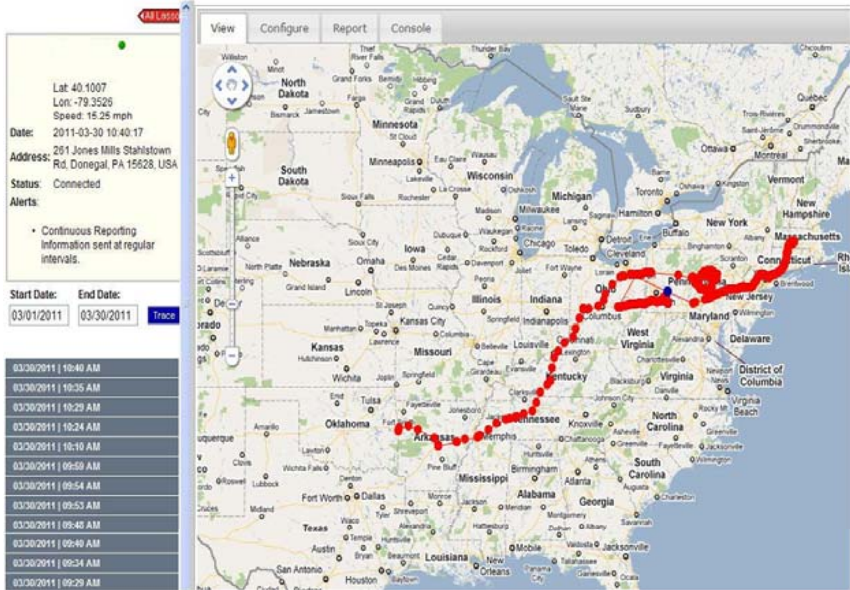
8111 LBJ Freeway, Suite 900 Dallas, TX 75251 www.lasso.com 866-392-0923 Patents Pending



Overview of all Assets

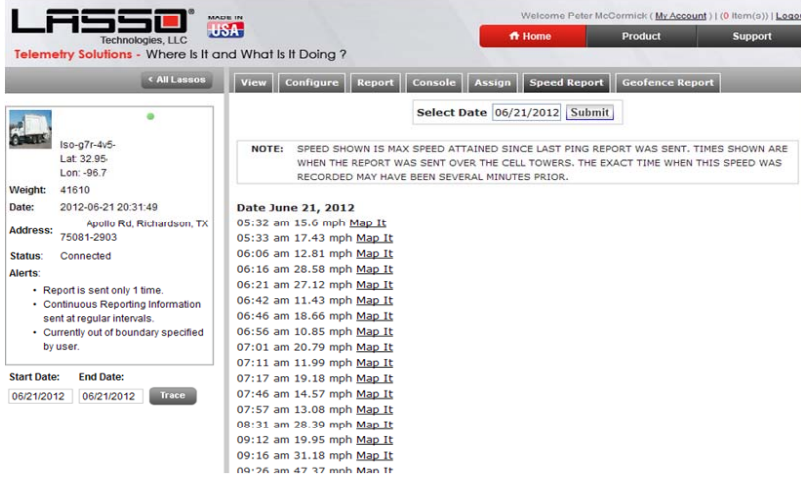


Mouse Over for Details



Tracking Across the Country

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Speed Report

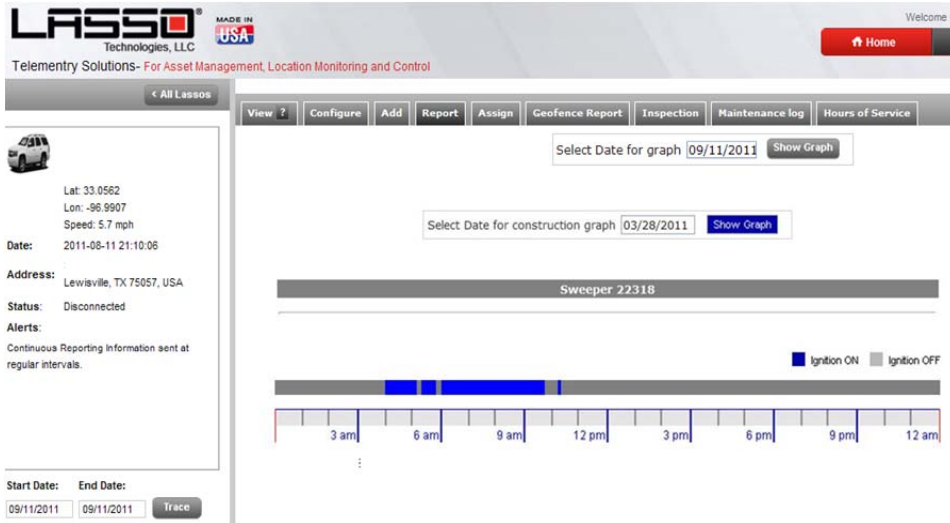
www.lasso.com 866-392-0923 Patents Pending

Precious Cargo - Send Alert if Vehicle Leaves Route

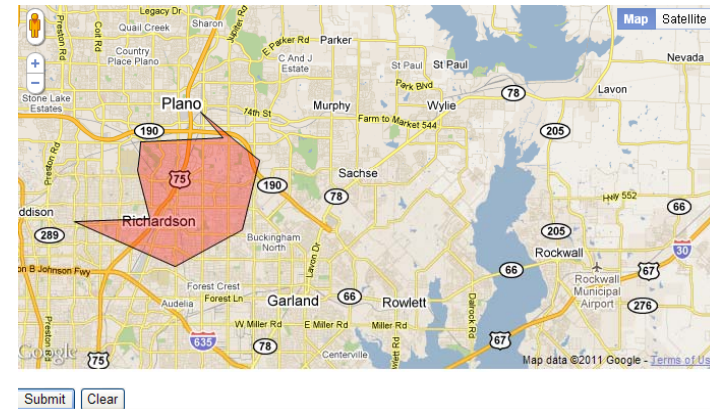
The screenshot displays the LASSO web interface. On the left, a map shows a route from Piedras Negras to Monclova. A blue box highlights a zoomed-in view of a route segment near Villa Unión, showing a red line and a text box that says "DRAG BOX TO ALTER UNDO MOVE". On the right, a sidebar contains the following information:

- Company:** Trucking Company
- Branch:** Houston
- Set Geofence (Route):**
 - caruthwork [Edit] [Delete]
 - piedras_monclova [Edit] [Delete]
 - nuevomonterrey [Edit] [Delete]

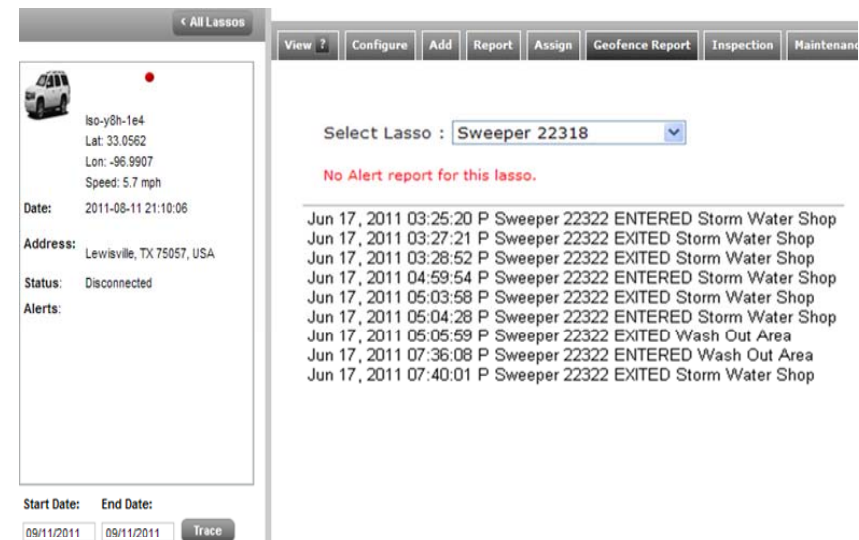
At the bottom of the interface, there is a form with the text "Route Name : piedras_monclova" and two buttons: "Submit" and "Cancel".



Ignition On-Off Record




Truck Weight and Plotting



10 Geofences

Inspection Report with Thumbnails of Inspection Photos


Welcome Demo 2 [Logout](#)

Demo 2

Driver John Smith June, 14, 2012 3:15pm CST

HOS
Remarks
Reports
Inspection
Message

Inspection

PRE-TRIP INSPECTION

<input checked="" type="checkbox"/> Tires	<input type="checkbox"/> Fifth Wheel	<input type="checkbox"/> Windshield	<input type="checkbox"/> Mirrors	<input checked="" type="checkbox"/> Brakes	<input type="checkbox"/> Drive Line
<input type="checkbox"/> Coupling Device	<input type="checkbox"/> License Plates & Receipts	<input type="checkbox"/> RRC Cards & Plates	<input type="checkbox"/> State Inspection Sticker	<input checked="" type="checkbox"/> Horn	<input type="checkbox"/> Rear Vision Mirrors
<input type="checkbox"/> Speedometer	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Fuses & Reflectors	<input type="checkbox"/> Fuses Removed	<input checked="" type="checkbox"/> Body & Doors	<input checked="" type="checkbox"/> Light & Reflectors

POST-TRIP INSPECTION

Engine

<input checked="" type="checkbox"/> Oil Leakage	<input type="checkbox"/> Low Oil Pressure	<input type="checkbox"/> No Power	<input type="checkbox"/> Shocks	<input checked="" type="checkbox"/> Noisy
-------------------------------------------------	-------------------------------------------	-----------------------------------	---------------------------------	-------------------------------------------

Clutch

<input checked="" type="checkbox"/> Leaks	<input checked="" type="checkbox"/> Chatter
-------------------------------------------	---------------------------------------------

Steering

<input checked="" type="checkbox"/> Hard Steering	<input checked="" type="checkbox"/> Free Play
---------------------------------------------------	-----------------------------------------------

Muffler

<input checked="" type="checkbox"/> Exhaust Pipe	<input checked="" type="checkbox"/> Tail Pipe
--------------------------------------------------	-----------------------------------------------

VEHICLE CONDITION

Brakes

<input checked="" type="checkbox"/> Air Pressure	<input type="checkbox"/> Noisy	<input type="checkbox"/> Squeal	<input type="checkbox"/> Park No brake	<input checked="" type="checkbox"/> Adjust Brakes	<input type="checkbox"/> Break Lines
--------------------------------------------------	--------------------------------	---------------------------------	----------------------------------------	---------------------------------------------------	--------------------------------------

Frame

<input checked="" type="checkbox"/> Vehicle Body	<input checked="" type="checkbox"/> Tach not working	<input type="checkbox"/> Windshield Wipers
--------------------------------------------------	------------------------------------------------------	--------------------------------------------

Electrical

<input checked="" type="checkbox"/> Headlights	<input type="checkbox"/> Battery	<input type="checkbox"/> Generator	<input type="checkbox"/> Stop tail lights	<input checked="" type="checkbox"/> Clearance lights	<input type="checkbox"/> Electric Lines
------------------------------------------------	----------------------------------	------------------------------------	-------------------------------------------	------------------------------------------------------	-----------------------------------------






Cooling

<input checked="" type="checkbox"/> Coolant	<input type="checkbox"/> Overheat	<input checked="" type="checkbox"/> Water Pump
---------------------------------------------	-----------------------------------	------------------------------------------------

Fuel Lines

<input checked="" type="checkbox"/> Fuel Tanks	<input checked="" type="checkbox"/> Diesel Fuel
------------------------------------------------	-------------------------------------------------

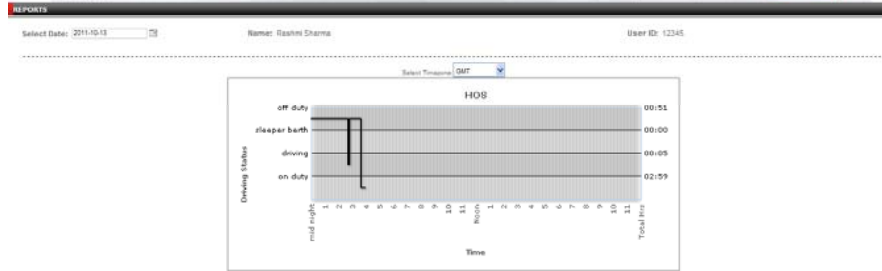
INSPECTION IMAGES

<





>

Tractor 6354
Trailer 53654
Submit
Start Date:

Note: 24 hour period starts at midnight.

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Violations Report

From: 2011-10-08 To: 2011-10-13

11 Hour Driving Limit Violated - (2 times)	14 Hour Limit Violated - (2 times)	8 Hour Sleep Violated - (2 times)																																													
<table border="1"> <thead> <tr> <th>Status</th> <th>Driving Start</th> <th>Driving End</th> <th>Driving Continuously</th> <th>Driving without 15hrs consecutive Off Duty</th> </tr> </thead> <tbody> <tr> <td>Driving</td> <td>10/10/2011 10:38 AM</td> <td>10/12/2011 05:36 AM</td> <td>20.98 hrs</td> <td>31.04 hrs</td> </tr> <tr> <td>Driving</td> <td>10/13/2011 02:41 AM</td> <td>10/13/2011 02:40 AM</td> <td>0.00 hrs</td> <td>0.00 hrs</td> </tr> </tbody> </table>	Status	Driving Start	Driving End	Driving Continuously	Driving without 15hrs consecutive Off Duty	Driving	10/10/2011 10:38 AM	10/12/2011 05:36 AM	20.98 hrs	31.04 hrs	Driving	10/13/2011 02:41 AM	10/13/2011 02:40 AM	0.00 hrs	0.00 hrs	<table border="1"> <thead> <tr> <th>Status</th> <th>Driving Start</th> <th>Driving End</th> <th>Driving Continuously</th> <th>Driving without 15hrs consecutive Off Duty</th> </tr> </thead> <tbody> <tr> <td>Driving</td> <td>10/10/2011 10:38 AM</td> <td>10/12/2011 05:36 PM</td> <td>20.98 hrs</td> <td>40.13 hrs</td> </tr> <tr> <td>Driving</td> <td>10/13/2011 02:41 AM</td> <td>10/13/2011 02:46 AM</td> <td>0.00 hrs</td> <td>0.00 hrs</td> </tr> </tbody> </table>	Status	Driving Start	Driving End	Driving Continuously	Driving without 15hrs consecutive Off Duty	Driving	10/10/2011 10:38 AM	10/12/2011 05:36 PM	20.98 hrs	40.13 hrs	Driving	10/13/2011 02:41 AM	10/13/2011 02:46 AM	0.00 hrs	0.00 hrs	<table border="1"> <thead> <tr> <th>Status</th> <th>Start</th> <th>End</th> <th>Sleep Continuously</th> <th>Total Sleep Hours</th> </tr> </thead> <tbody> <tr> <td>Driving</td> <td>2011-10-12 00:00:00</td> <td>2011-10-12 00:00:00</td> <td>0.00 hrs</td> <td>0.00 hrs</td> </tr> <tr> <td>Driving</td> <td>2011-10-11 00:00:00</td> <td>2011-10-11 00:00:00</td> <td>0.00 hrs</td> <td>0.00 hrs</td> </tr> </tbody> </table>	Status	Start	End	Sleep Continuously	Total Sleep Hours	Driving	2011-10-12 00:00:00	2011-10-12 00:00:00	0.00 hrs	0.00 hrs	Driving	2011-10-11 00:00:00	2011-10-11 00:00:00	0.00 hrs	0.00 hrs
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Status	Start	End	Sleep Continuously	Total Sleep Hours																																											
Driving	2011-10-12 00:00:00	2011-10-12 00:00:00	0.00 hrs	0.00 hrs																																											
Driving	2011-10-11 00:00:00	2011-10-11 00:00:00	0.00 hrs	0.00 hrs																																											

Hours of Service with Violation Reports

LASSO Technologies, LLC

Welcome Michael Harell Logout

Michael Harell

HOS Remarks Reports Message

Hours of Service

Note: You are driving truck (Central timezone). Current driver is Mic. Screens below apply to driver Mic.

Name: Mic Select Truck: 23657 Time Zone: Central Vehicle No: 3659 Pro / Shipping No: ZPG5 Change

Current status: Personal Start Time: 11-11-2011 01:47 pm Distance Traveled: 0 miles Current Location: 499 E

Drive time left: 00:03 On duty time left: 0:00 Consec. time off: 05:37

11-Hour Driving Limit: 10:57 14-Hour Limit: 18:31 60/70 Hour On Duty Limit: 15:32 / 15:17

Off Duty Sleeper Berth Driving On Duty Yard Time Personal

Start Time: 11-11-2011 01:47 pm

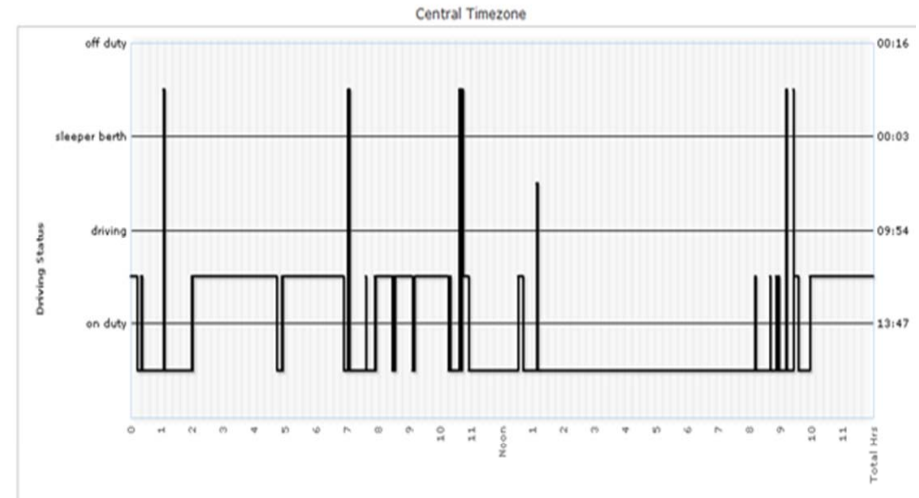
Note: 24 hour period starts at midnight.

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Typical Driver Screen

8111 LBJ Freeway, Suite 900 Dallas, TX 75251

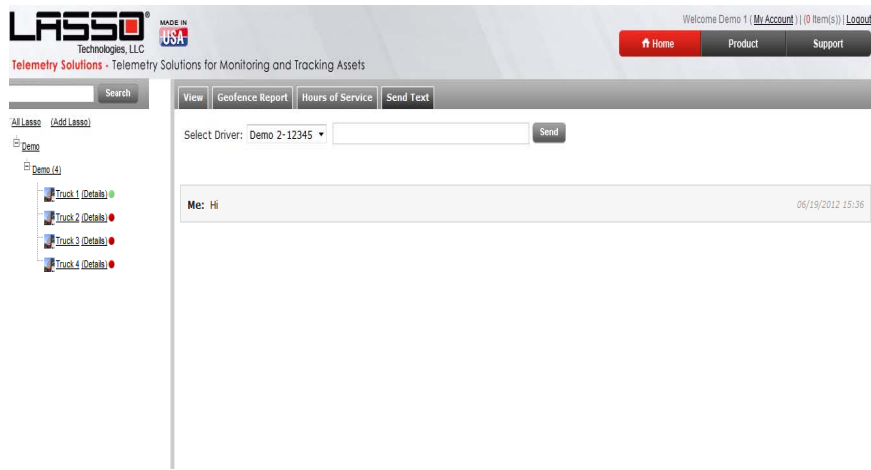
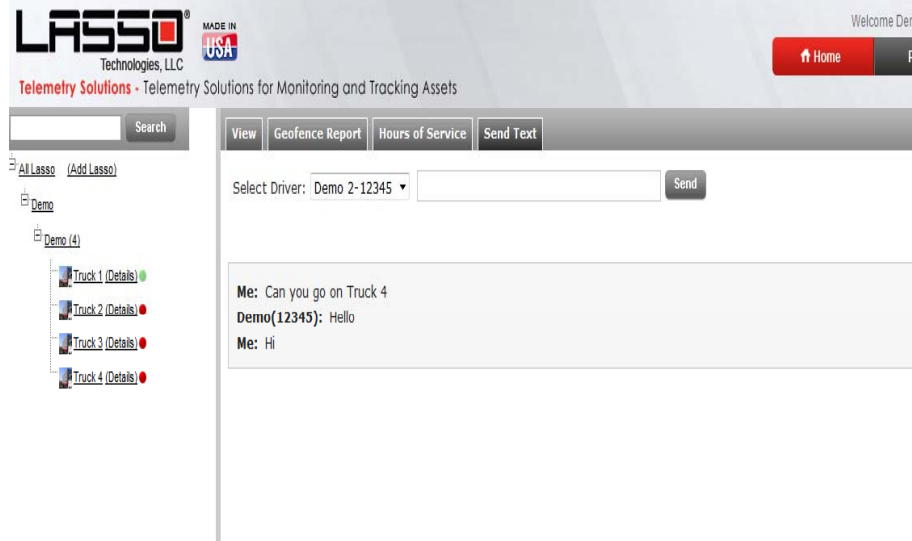
Select Date: 2011-11-02 Select Company: Freight Select driver: Michael I



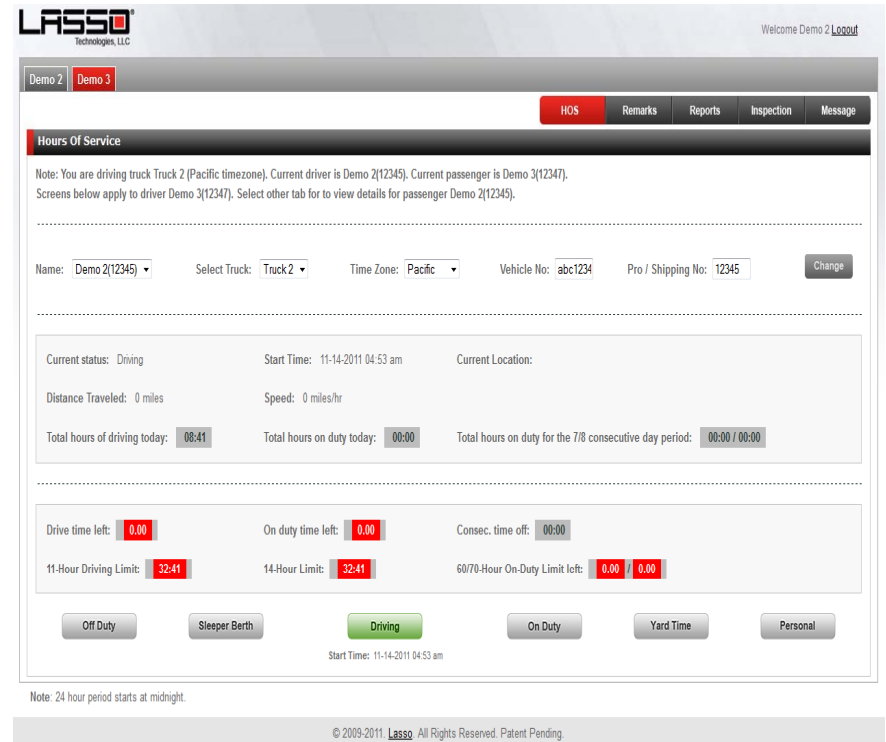
- 02:10 AM Address: I-35, Faribault, MN 55021
- 02:02 AM Address: I-35, Owatonna, MN 55060
- 07:04 AM Address: 800 Happy Trails Ln, Albert Lea, MN 56007-4000
- 12:02 PM Address: I-35, Sheffield, IA 50475
- 8:37 PM Address: I-35, Ellsworth, IA 50075
- 9:52 PM Address: I-35, Ames, IA 50010

Feedback Screen for Hours of Service

www.lasso.com 866-392-0923 Patents Pending



Driver – Dispatcher Messaging



Hours of Service Multiple Drivers

Electronic Control Module Data by Driver



- Idle Time, Hard Braking, Excess Steering, Excess RPM, Distance Traveled, MPG, Fuel Used, Speeding.
- The Accelerometer detects excess braking when deceleration exceeds 8 mph in 1 second.
- Excess Steering occurs when the accelerometer detects a lateral acceleration of greater than 1.5G for 1 second.
- Idle Time is recorded when a stop lasts more than 5 minutes.

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It and What Is It Doing ?

16-Jan-12	Employee ID	Motion Time hh:mm:ss	Total Stop Time Lasting Less than 5 min hh:mm:ss	Total Stop Idle Time Lasting More than 5 min hh:mm:ss	% Idle During Stop Lasting More than 5 min	Hard Brake Occurrences Today	Excess Steering Occurrences Today	Excess RPM Occurrences Today	Distance Traveled miles	MPG	Fuel Used Gallons	Speeding Duration Minutes Today
Max Klein	292	10:25:02	0:48:09	0:20:03	3.2%	1	3	1	781.3	7.52	103.9	0.8
Steve Piles	576	9:59:59	0:35:37	0:56:36	9.4%	3	1	0	750.0	6.27	119.6	0.8
Jose Rodriguez	517	2:45:29	0:07:00	0:01:57	1.2%	2	0	4	206.8	8.07	25.6	0.3
Kathe Smart	961	4:46:41	0:24:12	0:09:02	3.2%	1	0	5	358.4	7.84	45.7	0.0
Ralph Debiosi	723	4:42:46	0:25:47	0:10:48	3.8%	0	8	7	353.5	6.65	53.1	0.9
Steve Hutchings	860	7:26:56	0:02:08	0:37:45	8.4%	1	1	1	558.7	7.80	71.6	0.0
Gerald Gonzales	669	6:05:04	0:31:00	0:06:35	1.8%	0	6	0	456.3	7.12	64.1	0.6
Sam Swanson	110	9:17:47	0:28:28	0:49:39	8.9%	7	7	0	697.2	7.93	88.0	0.1

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Electronic Control Module Fault Error Codes

USA

Home Product Support

s It and What Is It Doing ?

ECM Provisioning Lasso Geofence Report Hours of Service Send Text Boundary Faults

Fault Codes

SPN FMI FLASH

TRACTOR 8936 Jan 19, 2012

84	20	2113	Wheel Based Vehicle Speed Signal erratic
91	4	2114	Accelerator Pedal Circuit Failed
111	18	2124	Coolant Level Circuit Failed High
171	9	2131	Ambient Air Temp Sensor Data Message Stopped Arriving

TRACTOR 2365 Jan 16, 2012

98	0	2112	Oil Level High
596	19	2135	Cruise Control Enable Switch Signal Fault
110	0	2123	Coolant Temperature High

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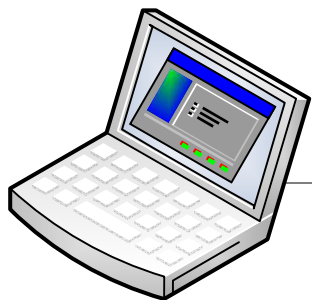
GlobalStar Smartone Translator reads vehicle or sensor data and sends it to Globalstar



VEHICLE ON BOARD DATA



VARIETY OF SENSOR DATA



PROGRAMMING INTERFACE TO CONFIGURE HOW LASSO WILL BE USED AND SLEEP TIMING. ALSO MONITOR DEBUG MESSAGES.



Patents Pending Proprietary and Confidential

Telemetry solutions for asset management, location monitoring, and control.

8111 LBJ Freeway, Suite 900 Dallas, Texas 75251 www.lasso.com 866-392-0923

SPECIFICATIONS	PN 904256 Not waterproof.	PN 904187 Waterproof
Dimensions	30x65x50MM 3.85 X 2.5 X 1.25"	98X64X32MM 3.6 X 1.95 X .95"
Housing	Polystyrene	Polystyrene
Weight	3.9 oz .110kg 110g	6.3 oz .177kg 177g
Operating Temperature	-30C to 80C (-22F to 176F)	-30C to 80C (-22F to 176F)
Communication	DUAL & QUAD-BAND 850/900/1800/1900 GPRS Multislot Class 10 TRANSMIT POWER Class 4 2W @G50/900MHz Class 1 1W @ 1800/1900Mhz GPRS Packet Data Class B, Multislot Class 10. GSM/GPRS Release 97 GSM Functionality AMR, EFR, FR & HR Asynchronous; 14.4kb Cell communication typically through T-Mobile, O2, or Telefonica.	
GPS Characteristics	Channels 48 parallel tracking. SiRFstarIV, Correlators 200,000 plus. Frequency 1575 Mhz. Tracking Sensitivity -163dBm. Position Accuracy <2.5m. TTFF /.15 Hot start <1s Warm <32s Cold <35s. Tracks up to 8 CW jammers. Advanced power management, high performance GPS engine, fast location fixes, active jammer removal, single-SAW design. Stores 40,000 most recent positions, time, date, and sensor data for remote upload.	
Motion	Tilt and motion, Event recorder, anti theft +/-1.5G in 3 axis. Detection of engine rpm done using 3 axis motion sensors and FFT analysis of real time dynamic vibrations. Vibration 0-1.5G in 3 axis. Uses 3 analog channels so Motion sensor cannot be used with user A/D channels.	
Vibration Sensor Theft Detection	Mechanical ball in cup movement sends interrupt to wake Lasso and send alarms.	
Vehicle Computer J1939, ODBII*	ECM update of VIN, faults codes, rpm, engine hours, speed, odometer, fuel GPM or MPG, RPM, Oil Pressure, Coolant Temperature, Fuel Level, Battery	
Humidity Sensing *	0-100% Humidity if equipped with environmental option.	
Barometric Pressure *	40kPa to 110kPa (.4-1.1atm) if equipped with environmental option.	
Temperature Sensing	On board sensors -40C to 125C on all Lasso devices. External temperature sensor.	
J Temp Thermocouples *	Two 0-750C (32-1382F). Accepts Termocouples from many suppliers..	
Analog Inputs (3 Inputs) *	0-3.3V	
4-20 mA inputs (3 inputs) *	External board option uses 3 analog ports.	
Discrete Inputs (4 Inputs) *	5, 12, 24VDC or 120VAC inputs.	
Serial *	2 ports RS-232 or SCI. Custom software will be written to communicate and handshake with external devices at any baud rate needed.	
2 Discrete Outputs	24VDC or 120VAC .2A each. Latching relay.	
Strain Gauge (2 Inputs) *	3mV/V or 1mV/V Excitation 5V. Accepts strain gauges from many suppliers .	
Human, Animal Detection *	Pyroelectric 5m (16.4 ft)	
Battery	Li-Ion 2000mAh, Charge 3 hours, Operating Temp 0-45C.	
120V USB adapter	INPUT 11-254VAC, 47-63Hz. FCC Part 15, Subpart B Class B & EN55022.	
12-24V charging cable	12-24 VDC input. 500mA. 30mA typical. Optional cable provides external ability.	

* Optional Piggyback board provides feature.

Management



Peter McCormick - peter@lasso.com Peter has extensive experience in the development of mechanical devices, software, algorithms, patents and industrial automation products and controls. He was President and co-founder of an Industrial Robotics company. Peter lead a team of product innovators, engineers, manufacturing resources and marketing teams to develop revolutionary new products for the automation industry. The company was acquired by the Dover Corporation. After the sale, the division became the Advanced Development group and developed new Computer controlled Sensors, motion & automation products for sister companies. Peter is a member of: Tau Beta Pi, Eta Kappa Nu, IEEE, SME, ASME, and is a licensed Professional Engineer in Texas. Peter holds 22 patents and 3 pending patents dealing with mechanical automation components, control systems, control algorithms, GPS devices, Wireless Telemetry, and electro-mechanical products used in a variety of industries. Prior experience at Lockheed and Schlumberger Paris. Experience with many robotic systems, software languages, circuit design, microcontrollers, low power sensors, Wireless GSM/GPRS/Satellite modems, GPS modules, and electro-mechanical devices used in a variety of industries. Peter holds a BS and MS in electrical engineering from Rensselaer.

Richard S. Kumpf - [rick@lasso.com](mailto:ricker@lasso.com) Rick has many years of experience in software development and business services. After a career practicing securities law, Rick purchased a small travel agency in 1986 and built it into a large corporate travel management company that ranks in the top 50 in the nation. The company has grown to several international cities through acquisitions, software products & licensing and has achieved several industry awards. Rick has founded several software companies which became a catalyst to several brand-named internet sites today. Rick was instrumental in creating the strategy, raising substantial equity through venture capital and investment banks, recruiting a world-class management team, operating the company, creating widely used products, and structuring key relationships with strategic software, content and content partners. Rick's entrepreneurial experience with direct marketing, technology and e-commerce has led to positions as a consultant, advisory board member and board member. Rick holds a Bachelor of Science degree in Engineering from Texas A&M University and a JD in Law from Texas Tech University.

Joel M. Buys - joel@lasso.com Joel has extensive management and acquisition experience in the high-tech and financial industry. Joel worked for Verizon Wireless and was responsible for M2M Business Development and the Alliance partnership. Prior to Verizon Wireless, he was with Qualcomm as Director of Business Development focused on Mobile Commerce and M2M initiatives for six years. He was with Nokia from 1999- 2007 where he held various management positions in Sales and Business Development across Nokia Mobile phones and Nokia Ventures Organization. While working at Nokia, Joel was the Director of Sales, Americas Region for Nokia Mobile Phones, Inc. which was charged with introducing Nokia M2M Platform into the Americas Region. He worked to develop the ecosystem of partners including Hardware OEMs, System Integrators, Technology Vendors and Consulting Organizations focused on M2M (Machine-to-Machine) and Smart Services along with industry publications such as M2M Magazine (referred today as Connected World Magazine). His last role at Nokia was Head of Sales and Business Development, for the Americas Region responsible for Nokia's NFC and RFID group. Prior to Nokia he worked in the Financial Industry in various senior management positions. Joel received a BBA from Baylor University and is active in various community activities.

Bijal Modi - bijal@lasso.com Bijal has over 20 years of research and software architecture experience in the web, mobile and telecommunications industries. Dr. Modi received a B.S. in Mechanical Engineering from the Indian Institute of Technology, Mumbai and M.S. and Ph.D. degrees in Nuclear Engineering from the University of California, Berkeley.