THE IOT PLATFORM

BUSINESS MODEL, COST STRUCTURE AND ROI

IoT-Inc. Meetup 2nd Oct 2014

davra networks
managing the internet of things

BRIAN MCGLYNN

Who am I – Who is my Company?

Davra Networks Limited

Founded 2011, $2M Seed Funding,

Research and Development - Dublin, Ireland
Sales & Biz Dev – Sunnyvale, California
CRN Magazine – Top 10 Hottest Startups 2014

Paul Glynn – CEO, VP Sales - Crannog
Brian McGlynn – VP Americas – Cisco IOT Champion, Visionary
Tech - Joe Quinn, CTO & Colin Ryan, Head of Development Multiple Patents, wrote 1st Netflow Tool (now a $100M Industry),

Barry O'Sullivan – ex-Cisco SVP, grew Colllaboration from $0 to $3B

Partnerships:

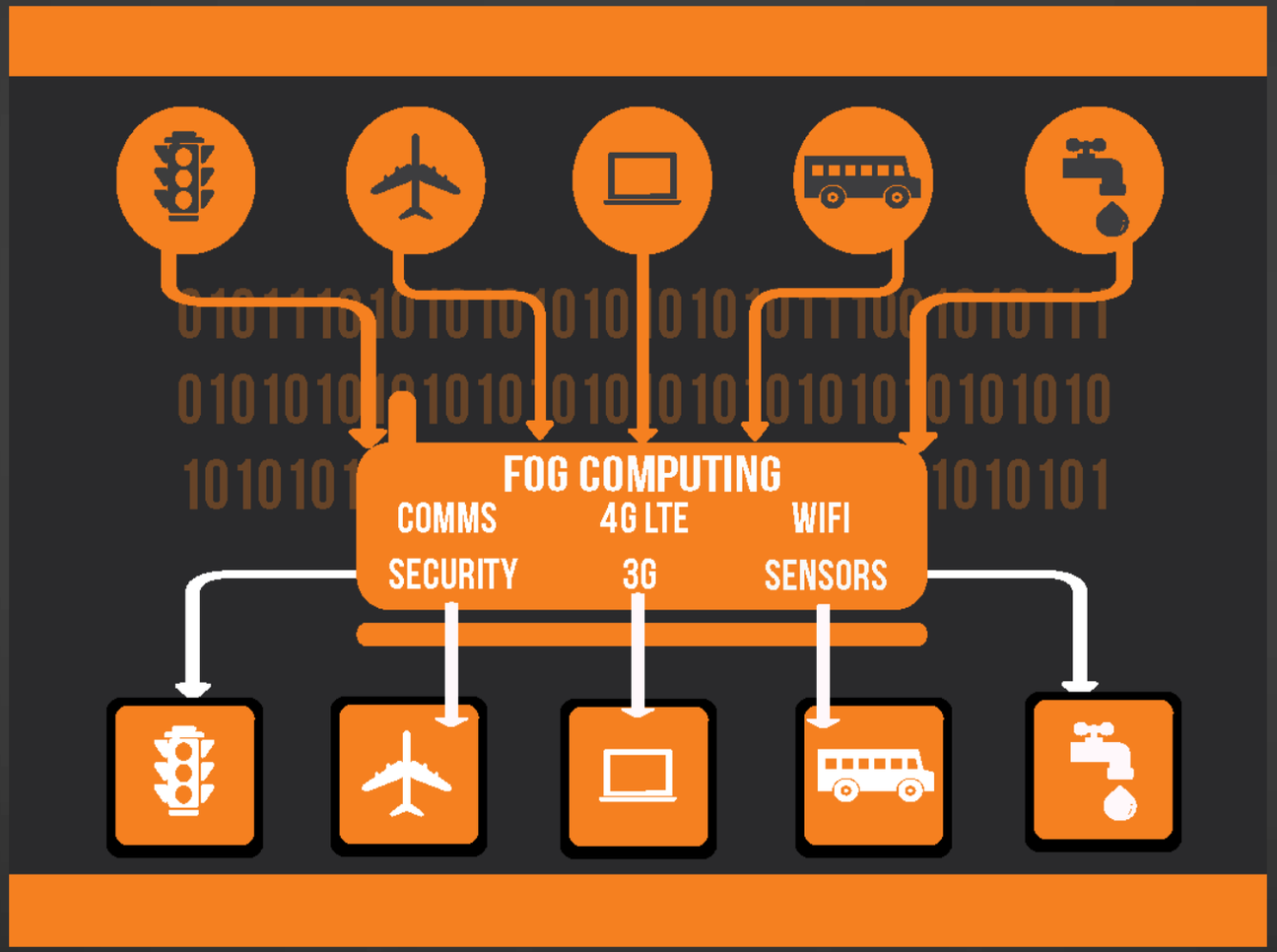
Cisco	Lilee Systems
IBM	Cohda Wireless
Intel	B&B Electronics

The Internet of Things is a Huge Opportunity

50 Billion+
Connections

1% of Worlds
Devices
Connected

Bigger than
Social Media



$19 Trillion
Value at Stake

Massive Market
Transition

Gold Rush
Now On

IOT will be Solutions Driven Economy

IoT Vertical Solutions

CONNECTED TRANSPORTATION

IoT Vertical Solutions

CONNECTED ENERGY

IoT Vertical Solutions

CONNECTED INDUSTRIES

IoT Vertical Solutions

CONNECTED PUBLIC SECTOR

IoT Vertical Solutions

CONNECTED RETAIL

The Internet Of Things

Real World Solutions

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CONNECTED TRANSPORTATION

CONNECTED ROADWAYS — DESTINATION : INTERSECTION EL CAMINO 2B

TRAFFIC SIGNAL PRIORITISATION

HIGH PRIORITY INTERRUPTS 6

MEDIUM PRIORITY INTERRUPTS 5

LOW PRIORITY INTERRUPTS 0

CONNECTED SCHOOL BUS — DESTINATION : PLEASANTON ELEMENTARY

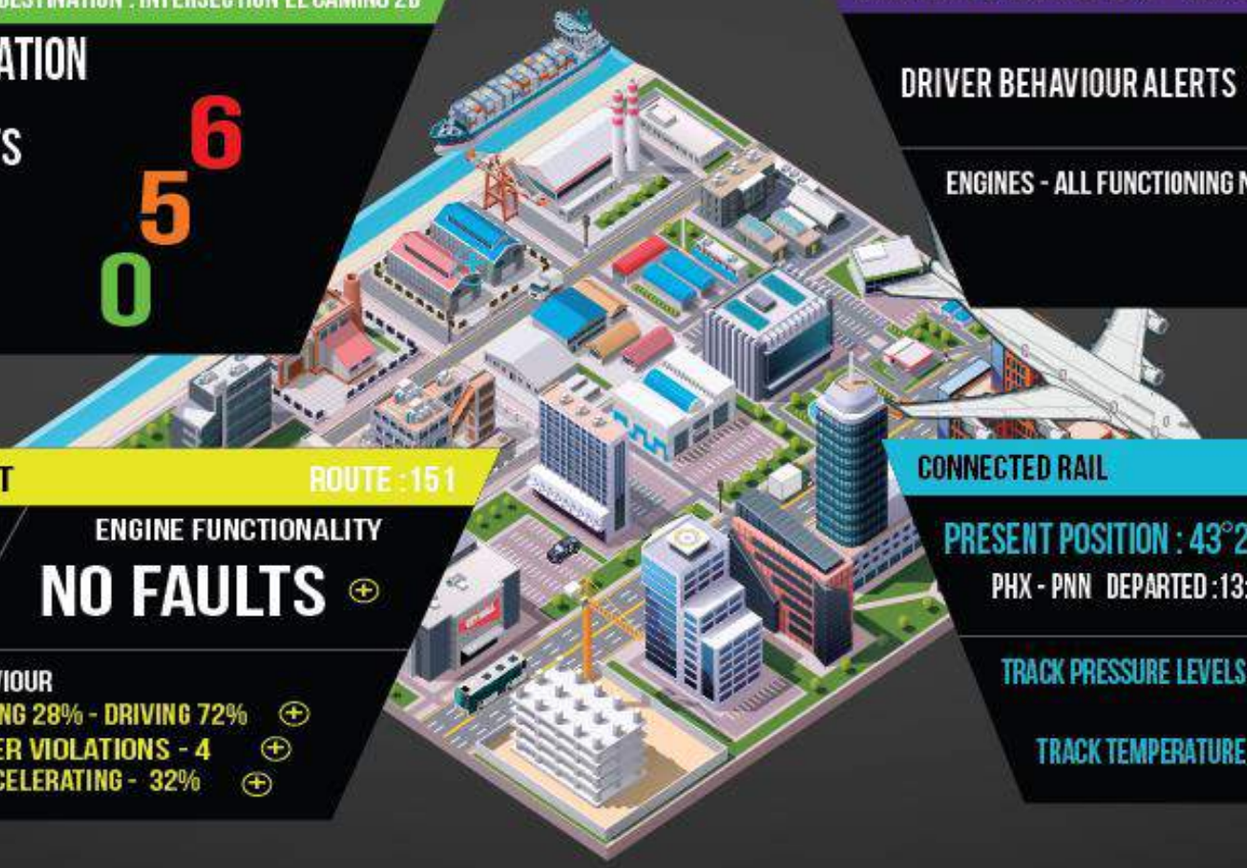
DRIVER BEHAVIOUR ALERTS ⊕

JOURNEY COMPLETION 42%

ENGINES - ALL FUNCTIONING NORMALLY ⊕

WI-FI STATUS ⊕

CHILDREN ON BOARD 27 ⊕



CONNECTED MASS TRANSIT — ROUTE : 151

PASSENGERS ON BOARD : 24 ⊕

ENGINE FUNCTIONALITY

NO FAULTS ⊕

WI-FI TRAFFIC - 20MB TOTAL ⊕

DRIVER BEHAVIOUR

IDLING 28% - DRIVING 72% ⊕

DRIVER VIOLATIONS - 4 ⊕

PERCENTAGE ACCELERATING - 32% ⊕

CONNECTED RAIL — DESTINATION : PENN STATION

PRESENT POSITION : 43°27'53.59"N

PHX - PNN DEPARTED : 13:40 GMT

JOURNEY COMPLETION 75%

TRACK PRESSURE LEVELS - ALL OK ⊕

TRACK TEMPERATURE - ALL OK ⊕

WI-FI ⊕

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CONNECTED ENERGY

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DISTRIBUTED AUTOMATION

GRID OUTPUT
122KV

HOMES ON GRID
42,876

SCADA CONTROLS SUBSYSTEM
55 +

CELLULAR CONNECTIVITY

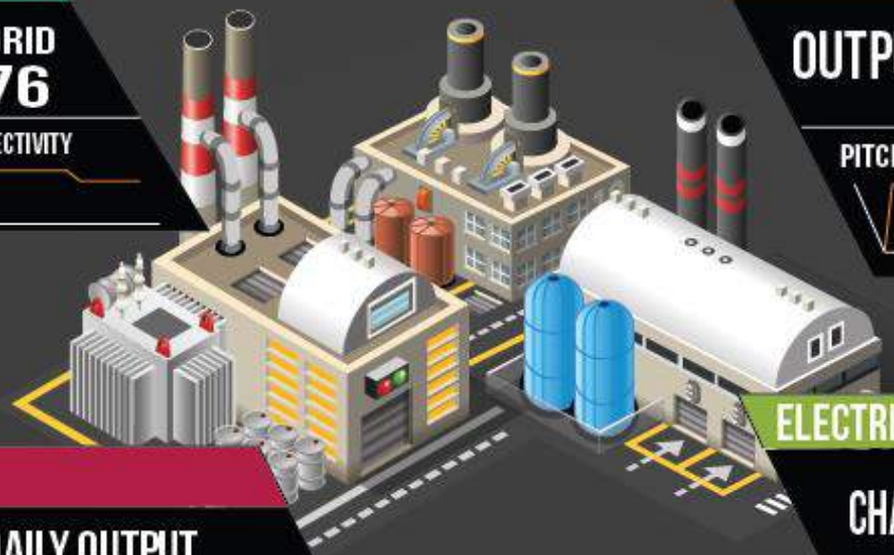
SMART WIND TURBINE — SANTA ROSA

OUTPUT 12,000 KV

CURRENT WIND SPEED
12MPH

PITCH CONTROL SYSTEM

PRESSURE AND TRANSDUCERS
NO FAULTS +



SMART OIL FIELD

GALLONS / SECOND 567

DAILY OUTPUT
8,000 BARRELS

ENVIROMENTAL SENSORS
METHANE (CH_4) 342
HYDROGEN (H_2) 74
AMMONIA (NH_3) 34

HYDRAULIC FAULTS
2 FAULTS +

ELECTRIC VEHICLE CHARGING

CHARGED VEHICLES 74

AVG CHARGETIME 8 MINS

NETWORK AVAILABILITY
90%

FAILED CHARGES
10 +

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CONNECTED INDUSTRIES

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SMART MANUFACTURING — CNC MILLING

MACHINE FAULTS - 0

PRODUCTION CYCLE TIME
BEST PRACTISE
AVERAGE ACHIEVED

ENERGY PRODUCTIVITY

QUALITY RUN

TANK MONITORING

CURRENT LEVEL
522L

LAST DRAINED
15 MARCH 2014

ENVIROMENTAL ANALYSIS
PH LEVEL - NORMAL

PERCENTAGE
76%

TELECOM INFASTRUCTURE — CELLULAR BASE STATION

BACKHAUL FIBRE
LATENCY
JITTER
PACKET LOSS
MOS

CELLULAR RADIO
LATENCY
JITTER
PACKET LOSS
MOS

DOWNLOAD SPEED
156MPS

RSSI SIGNAL STRENGTH

PRECISION FARMING — NEBRASKA CROSS FIELD

SOIL ANALYSIS
TEXTURE : 0.10-0.25
DEPTH : 5.1CM - 6.0CM
NITROGEN LEVELS 6-20MG/DL

WEATHER
43F

FERTILIZER USAGE
6.87799TN

NITROGEN LEACHING
25%

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CONNECTED PUBLIC SECTOR

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CONNECTED ROADWAYS

DESTINATION : INTERSECTION EL CAMINO 2B

TRAFFIC SIGNAL PRIORITISATION

HIGH PRIORITY INTERRUPTS 6

MEDIUM PRIORITY INTERRUPTS 5

LOW PRIORITY INTERRUPTS 0

PUBLIC SAFETY VEHICLES

OFFICERS KELLY/DOLD

CURRENT LOCATION - BASELINE BLVD

IP CALLS ANSWERED 6

VIDEO SURVEILLANCE

FRONT CAMERA +

BACK CAMERA +

WI-FI 26GB

PUBLIC SAFETY

CITIZEN EXPERIENCE OPTIMAL

CONVICTS IN VICINITY 0

CITY ENVIROMENT

NOISE POLLUTION

CO2 LEVELS

NO2 LEVELS

SMART PARKING

AVAILABLE SPACES : 56

SMART WATER

GALLONS / SECOND 433

PH LEVEL 4.0 ACIDIC

CURRENT WATER QUALITY

CHLOROPHYIL - TRACE

SALT - TRACE

ATRAZINE - TRACE

ISOPHORONE - TRACE

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RETAIL

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ATM AND KIOSK

SERVICE DUE
FEB 2016

PEAK USAGE TIME
1 - 2PM

STOCK LEVELS
COCA COLA
SPRITE
FANTA

WI-FI

GAMING AND LOTTERY

PAYOUT PERCENTAGE
12%

REPEAT PATRONAGE
43%

CELLULAR CONNECTIVITY

WI-FI

DIGITAL SIGNAGE

VENDORS USING 12

ADVERT ROTATION
3 MINS + -

RSSI

WI-FI

BRANCH OFFICE

CUSTOMERS TODAY
236

POWER USAGE
23KW

RSSI

WI-FI

The IoT Network Gateway Center of IoT World (Drives GTM and ROI)

FOG COMPUTING

COMMS	4G LTE	WIFI
SECURITY	3G	SENSORS

Go to Market

IOT Platform Requirements

System Integrator\Network Integrator Key to IoT (Driving GTM & ROI)

Owner + Integrator	Supplier	Components	Cost
PRESIDIO	Presidio	Service Layer	$4,240
PRESIDIO	Davra	IoT Platform	$ 500
PRESIDIO	Presidio	Cloud Infrastructure	$ 600
PRESIDIO	AT&T	Cellular Provider	$ 360
PRESIDIO	Cisco	IoT Gateway Vendor	$1,000
PRESIDIO	TCM	Electrical Fitter	$ 350
PRESIDIO	B&B	Sensors and Telematics	$ 150
		$200 PER BUS PER MONTH	$7,200

RuBAN^{tm} is Designed for a Gateway/ SI Driven World

Deploy | Manage | Analyse | Present

RuBAN^{tm} is Designed for a Gateway/ SI Driven World

Deploy | Manage | Analyse | Present

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RuBAN™ is Designed for a Gateway/ SI Driven World

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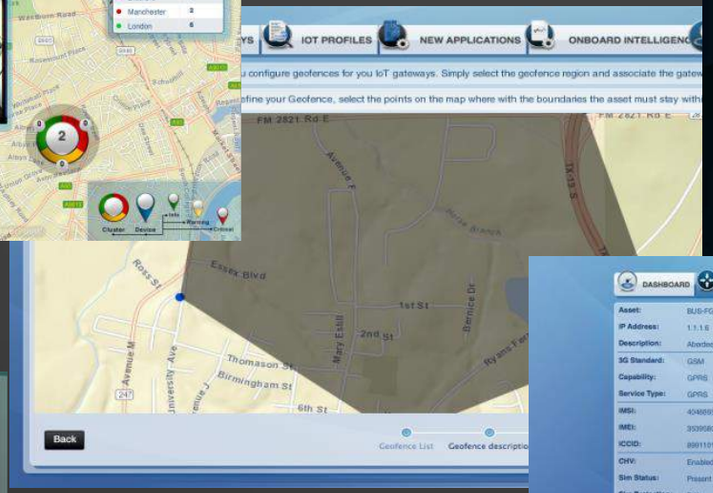
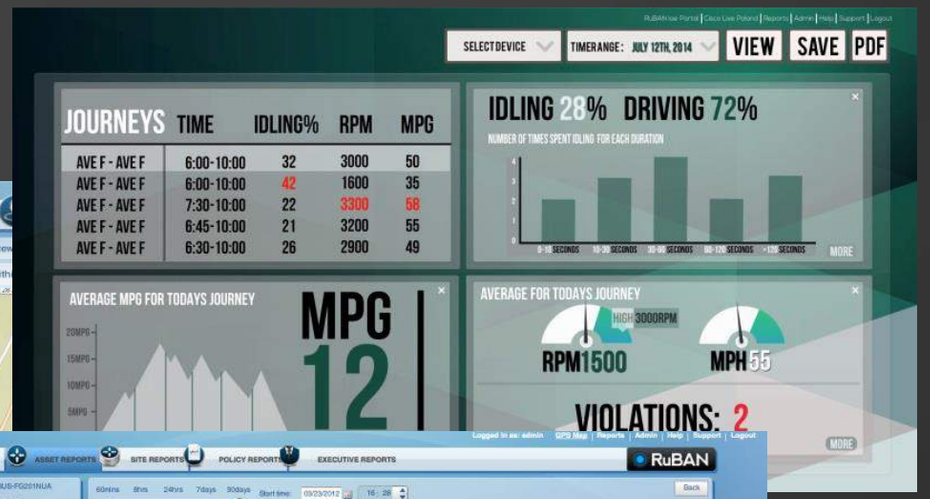
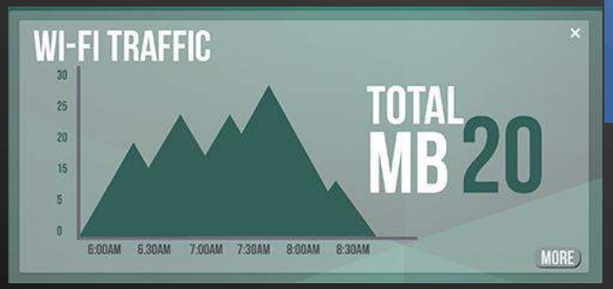






ROI Worked Example 1

Connected School Bus Example

Smart & Connected School Bus K-12

Yes, learning can happen in a Bus!

Smart Bus V Dumb Classroom

Location services to Parents \ Students

Rebalancing the K-12 asset portfolio to maximize student success & experience

BYOD for Continuous learning on the bus before and after school

Learning anywhere, Anytime!

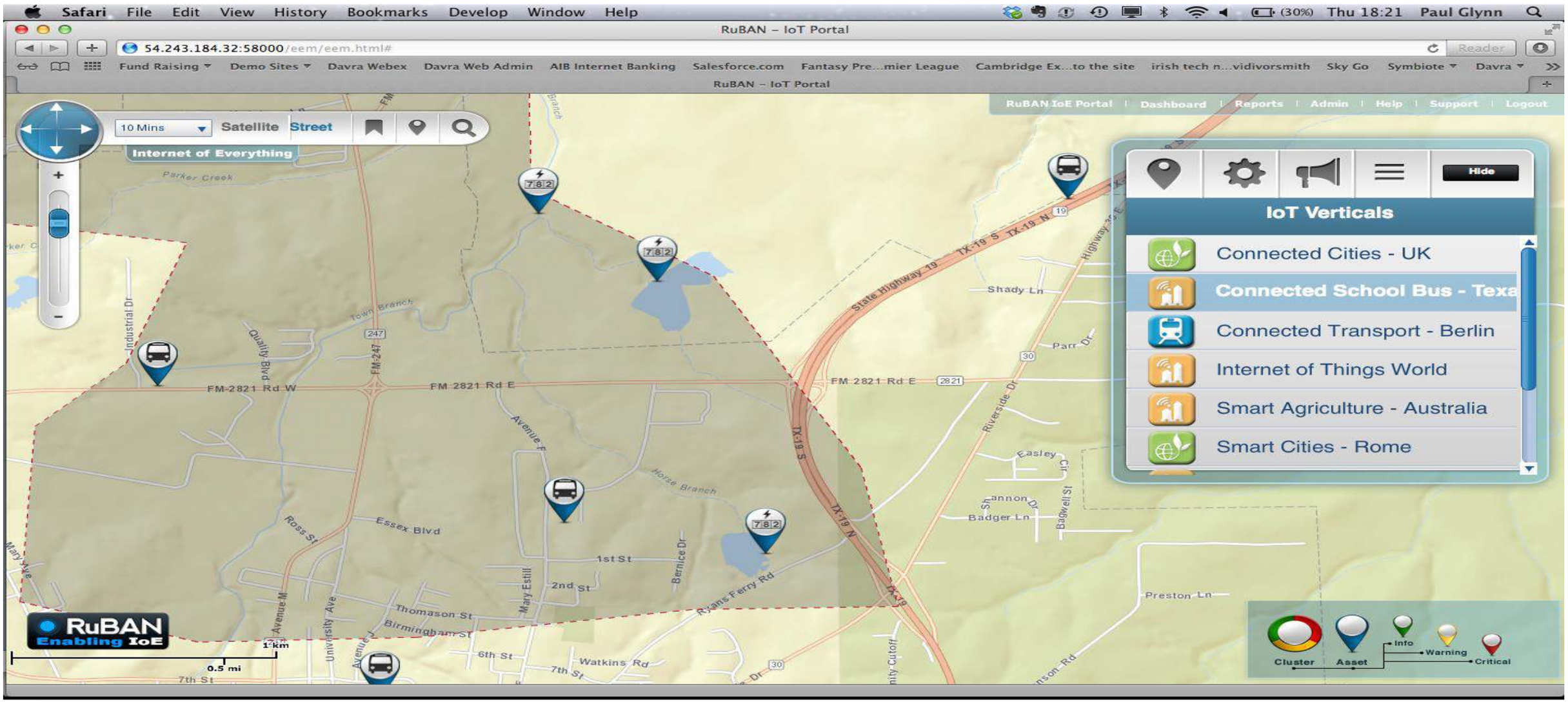
More learning, cheaper & delightful

Smart video surveillance And Safety

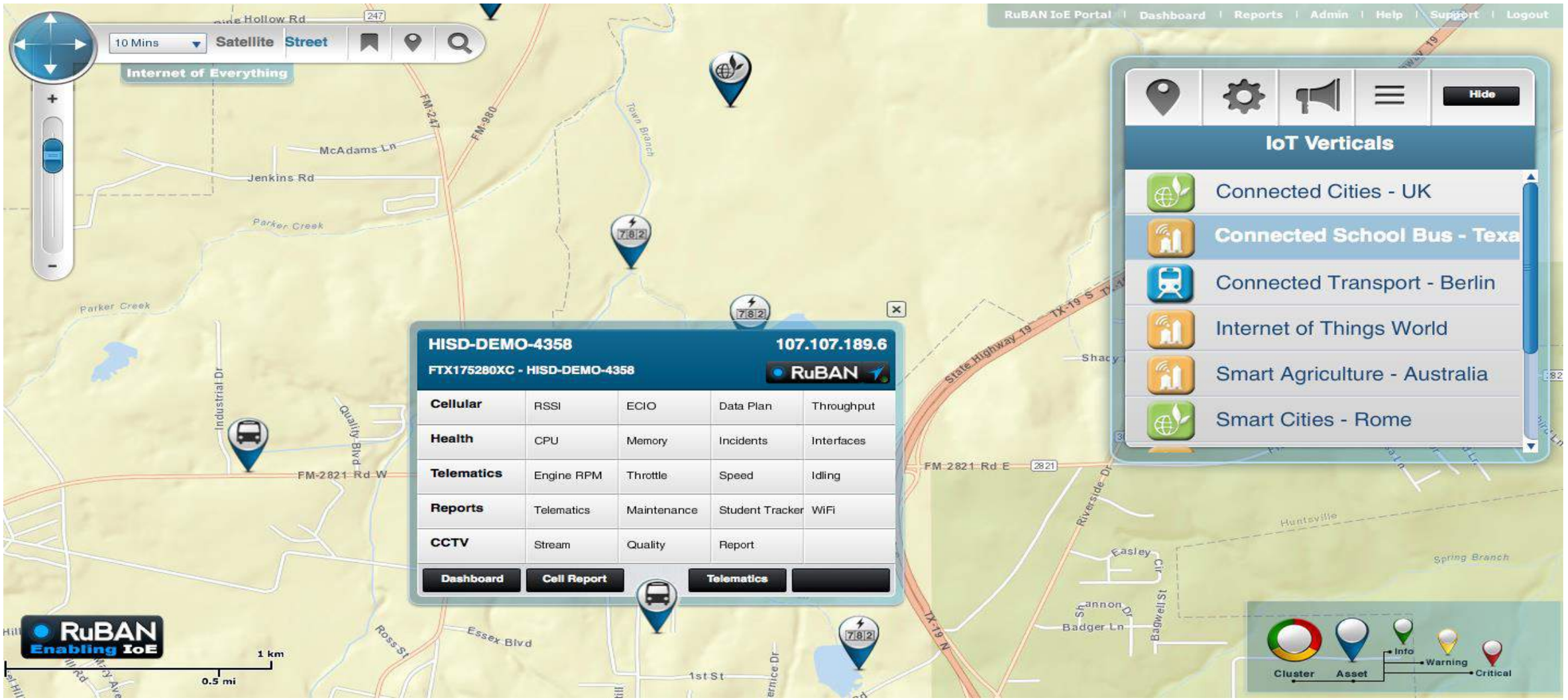
Allow parents to communicate with drivers

K-12 Bus Location Services

K-12 Bus Geofence Routes - Safety



K-12 Bus Incident Management - Safety



K-12 Bus School Journey Replay- Safety

RuBAN Enabling IoE GPS REPLAY

Thursday, 04 September 2014 close

From	Towards	Time
AVE F	AVE F	15:01
AVE F	AVE F	08:01

at 3 Sep 15:01
at 3 Sep 16:11 1 hour 9 mins

CPU 100% 50% 0%
Ec/Io Poor Avg Good
Memory 100% 50% 0%
RSSI Crit Poor Good Best

Bus Geo Fence 107.107.189.6
The bus cannot break the geo fence 3 Sep 15:53

Bus Geo Fence 107.107.189.6
The bus cannot break the geo fence 3 Sep 15:53

Bus Geo Fence 107.107.189.6

RuBAN IoE Portal | Dashboard | Reports | Admin | Help | Support | Logout

10 Mins

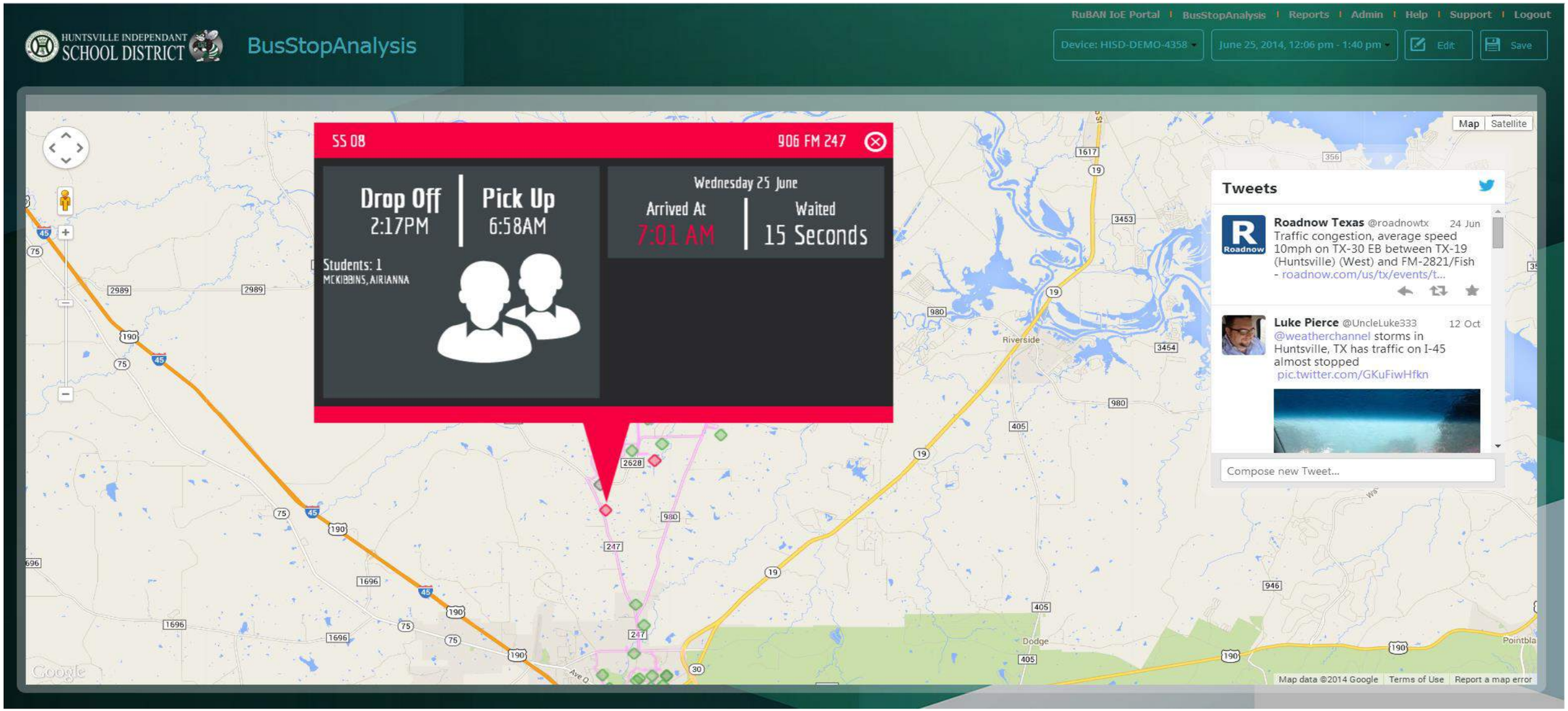
Internet of Everything

10

Cluster Asset Info Warning Critical

RuBAN Enabling IoE km 4 mi

K-12 Bus Student pickup - Safety



K-12 Bus Health Analysis - Safety

springfield sisd

Maintenance Report

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Device: [Select Device] | July 22, 2014, 12:32 pm - 1:32 pm | Edit | Save

ELECTRONIC CONTROL SYSTEM

SCM Suspension Control Unit 0/100	**CTM** Central Timing Module 0/50	**ACU** Airbag Control Unit 0/50
PSCU Power Steering Control Unit 0/50	**BMS** Battery Managment Sys… 1/50	**SCU** …ed Control Unit 0/50
BCM Body Control Module 0/50	**GEM** General Electronic Module 0/4500	**ECU** Engine Control Until 0/13500
TCU Transmission Control Unit 0/50	**BCM** Brake Control Module 0/50	**CCU** Convenience Control Unit 0/500
DCU Door Control Unit 0/100	**HMI** Human Machine Interface 0/2200	**BCM** Brake Control Module 0/100

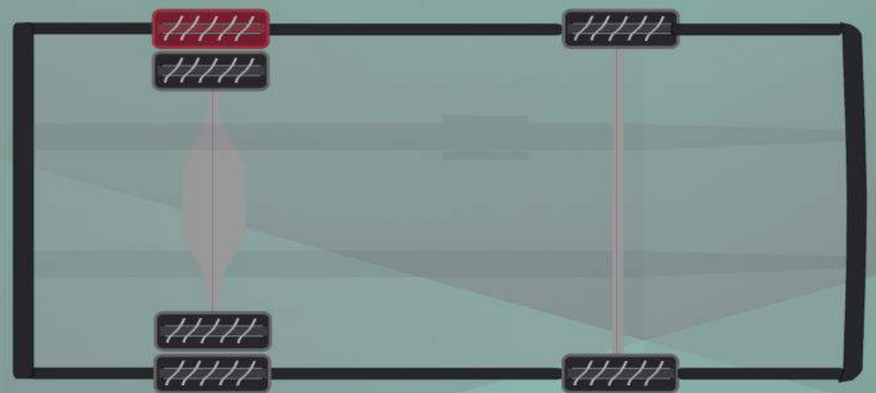
FAULT: GA4026

OVERHEAD LIGHT DEAD

LOST CONNECTION TO MAIN BATTERY

TYRE PRESSURE

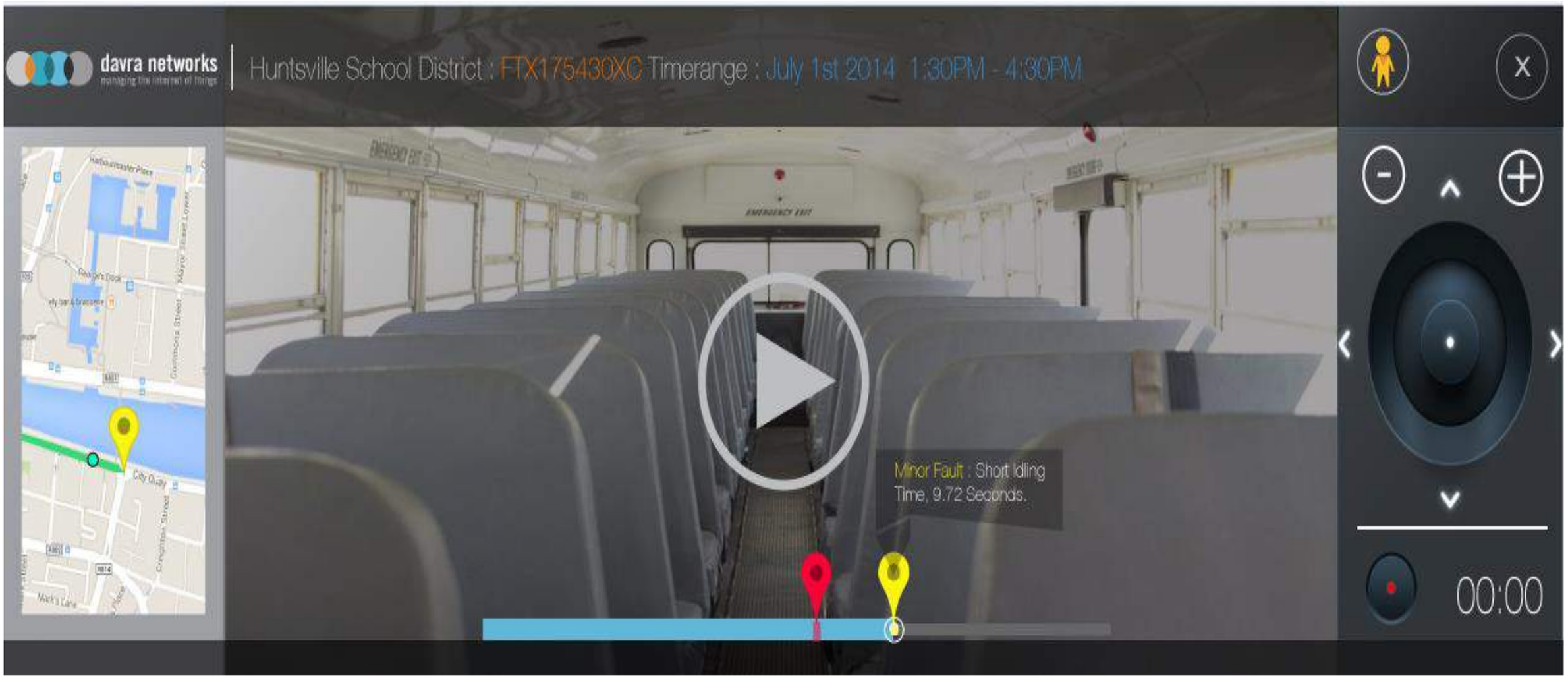
WARNING



MORE

Coolant Temperature +2°C MORE	Oil Pressure -15 PSI MORE	Battery Voltage -2v MORE
Transmission Temperature +3°C	Oil Pressure -15 PSI	Oil Pressure -15 PSI

K-12 Bus Video Surveillance- Safety



K-12 Bus Journey Analysis

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HUNTSVILLE INDEPENDANT SCHOOL DISTRICT — Telematics

Device: HISD-DEMO-4358 | June 23, 2014, 12:03 pm - 1:44 pm | Edit | Save

JOURNEYS

	TIME	SPEED	RPM	MPG
96-98 SMITH ... - EZBET QA...	25 JUN 7:22 - 8:18 PM	26	1479	14
101 MARTIN L... - EZBET Q...	25 JUN 12:06 - 1:40 PM	24	1455	18
	PM	22	1375	17
	PM	23	1433	16
	PM	23	1412	17

JUNE 23, 2014, 12:03 PM - 1:44 PM

RPM - MPH - THROTTLE

23-Jun-14 13:31
Engine Speed: 1616RPM

US-190, HUNTSVILLE, TEXAS
ADDRESS IS APPROXIMATE

US-190

US-190

AVERAGE MPG FOR SELECTED JOURNEY

90 80 70 60 50 40 30 20 10 0

12:00 12:10 12:20 12:30 12:40 12:50 13:00 13:10 13:20 13:30 13:40 13:50

MPG 16.7

MPH 23

ONS: 1

MORE

IDLING 10.0% DRIVING 90.0%

NUMBER OF TIMES SPENT IDLING IN EACH DURATION

12 10 8 6 4 2 0

0-10 Seconds | 10-30 Seconds | 30-60 Seconds | 60-120 Seconds | >120 Seconds

MORE

ROI Worked Example 2

Precision Farming

The IoT ROI

QUESTIONS AND ANSWERS

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BACKUP SLIDES