Findlay Irvine
Environmental Monitoring

Keith Hutchin
Senior Software Engineer

Company History

- Established in 1960
- Still family owned and run
- Engineering consultancy and manufacturing
  - Engineering Development
  - Manufacturing
  - Sales & Service

James Findlay and John Irvine

First Product

autoheat

FOR **ACCURATE** GREENHOUSE HEATING

FINDLAY IRVINE

Penicuik, Near Edinburgh
Telephone Penicuik 01968-672111
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Markets

Rail | Road | Air | Defence

- Remote condition monitoring & control
- Control systems
- Weather monitoring
- Skid resistance testing

Defence

Design and Manufacture of Electronic Control Panels

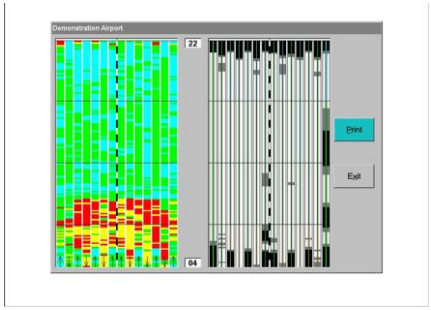
- **Type 23 Frigate**
  - Helicopter handling system
  - Sonar towed array handling system

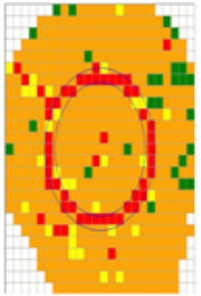
- **Astute submarine**
  - Mast control systems
  - Hydraulic power-pack control systems
  - Secondary propulsion system

Skid Resistance Testing

GripTester

- **Airports**
- **Roads**
- **Portable version to test surface resistance on Helidecks**





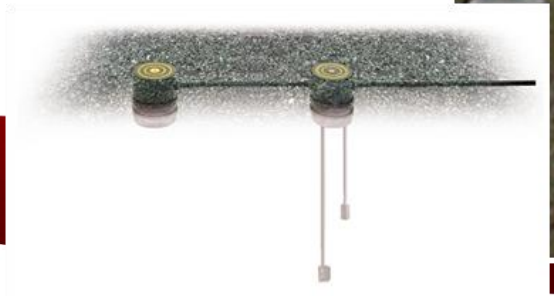
Road/Airport Weather Monitoring

Network of sensors measuring:

- Road/Runway temperatures
- Road condition (wet/dry/ice/snow/salt)
- Air temperature & dew point
- Precipitation type, rate, accumulation
- Wind speed & direction
- Visibility

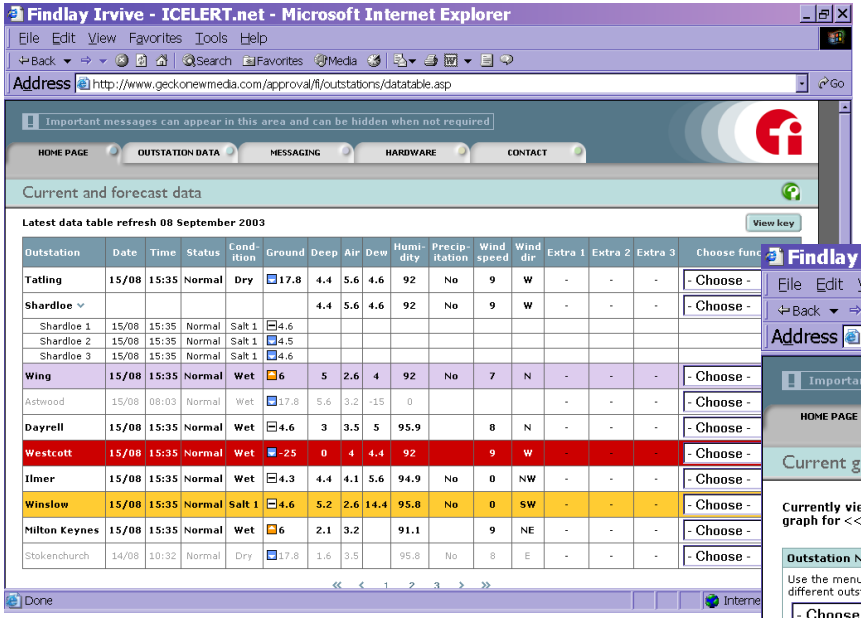
- Links to road weather forecasters

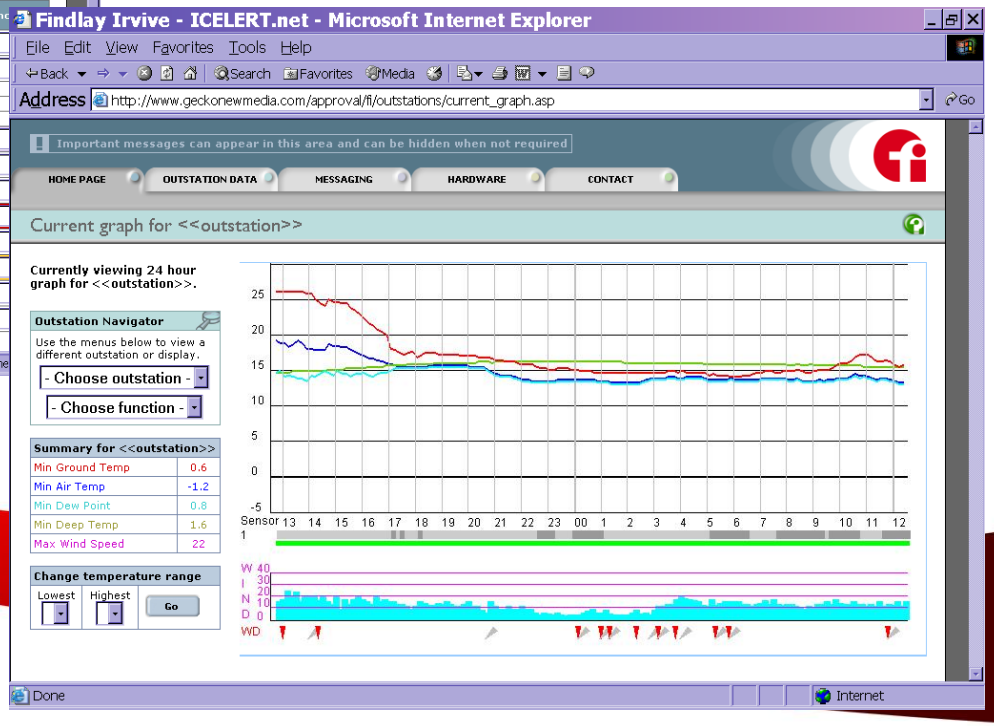
- Displayed on website with management and audit information



Road/Airport Weather Monitoring

Information from sensors is displayed on website with management and audit information





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Rail Condition Monitoring & Control

- 30 Years experience in Rail industry
- Switch point heating
- Remote Condition Monitoring Equipment & systems

Rail Condition Monitoring & Control

Switch Points heating and monitoring

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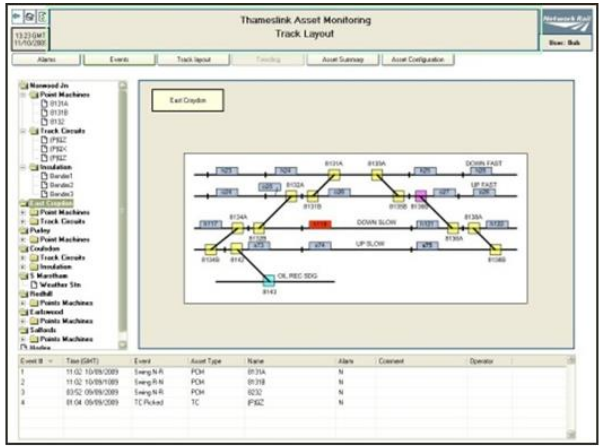
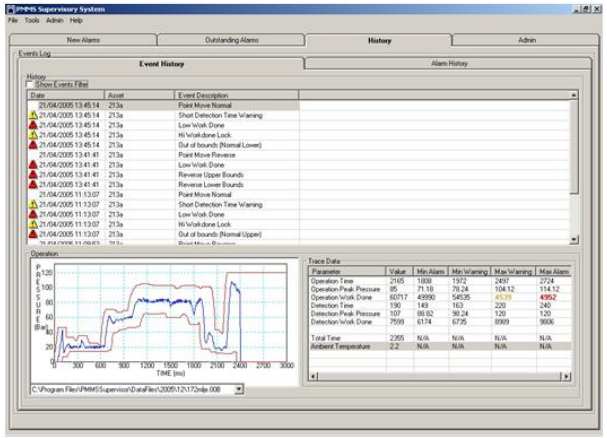
Rail Condition Monitoring & Control





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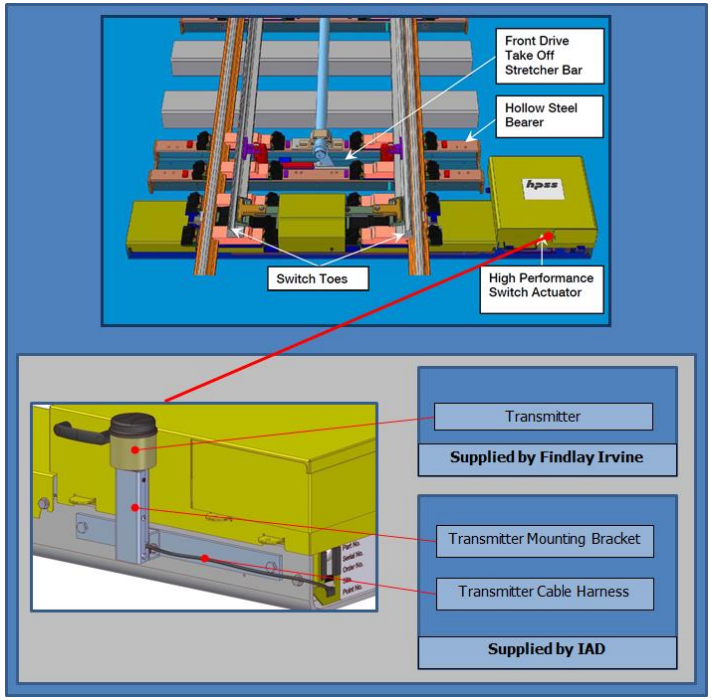
Range of Track Condition Sensors

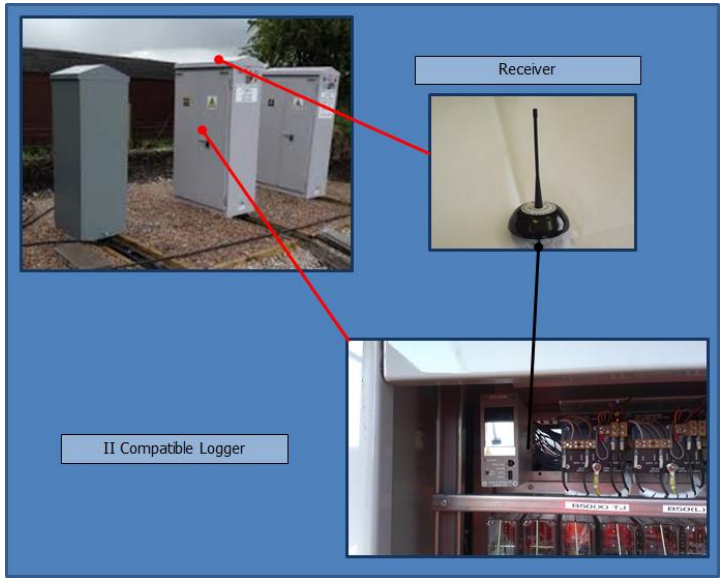
- Wireless Rail Temperature Sensor to manage rail buckling

- Flood Sensor (trial)

Rail Condition Monitoring & Control

Monitoring of Points Control system





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Rail Condition Monitoring & Control

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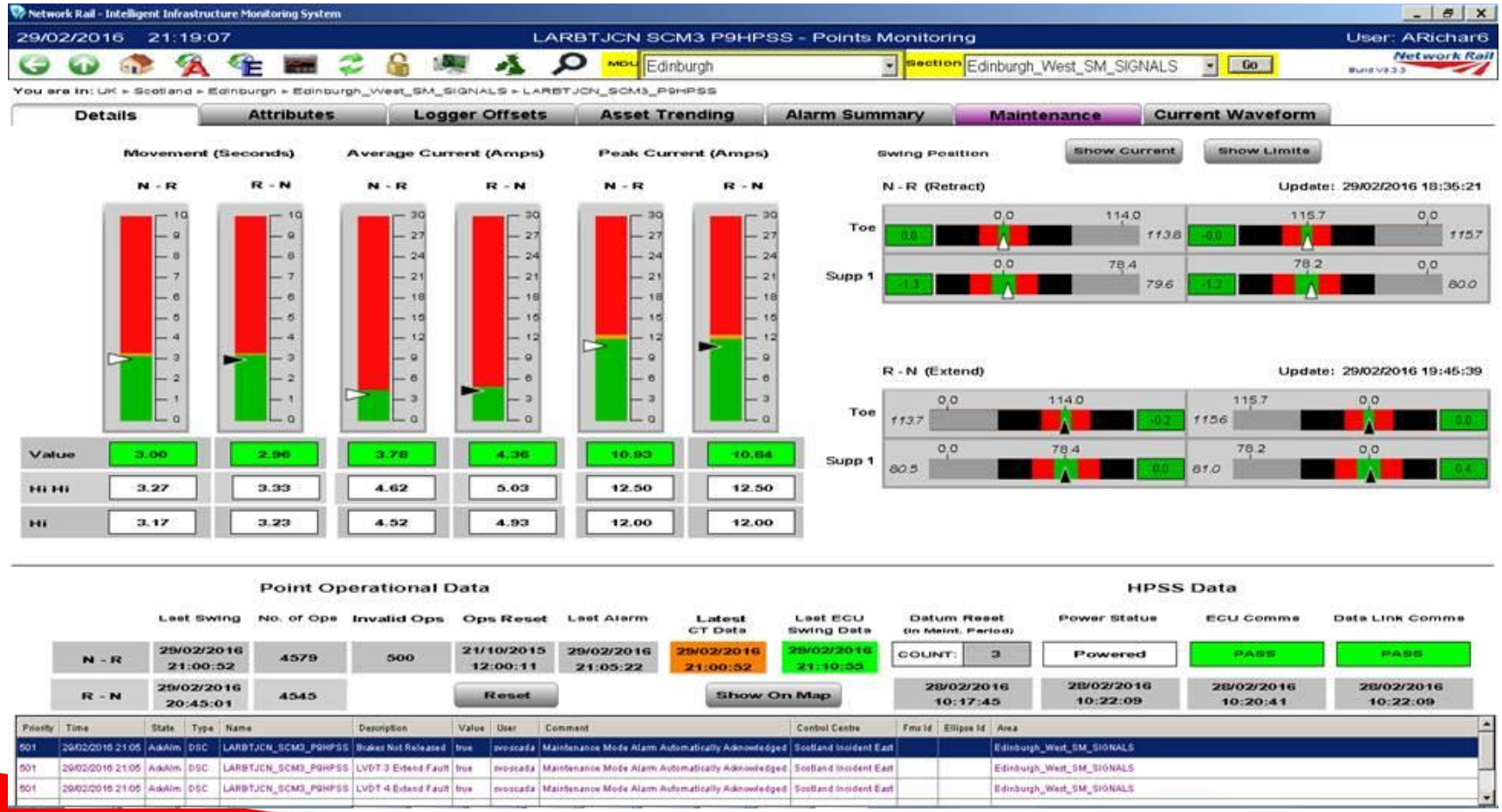

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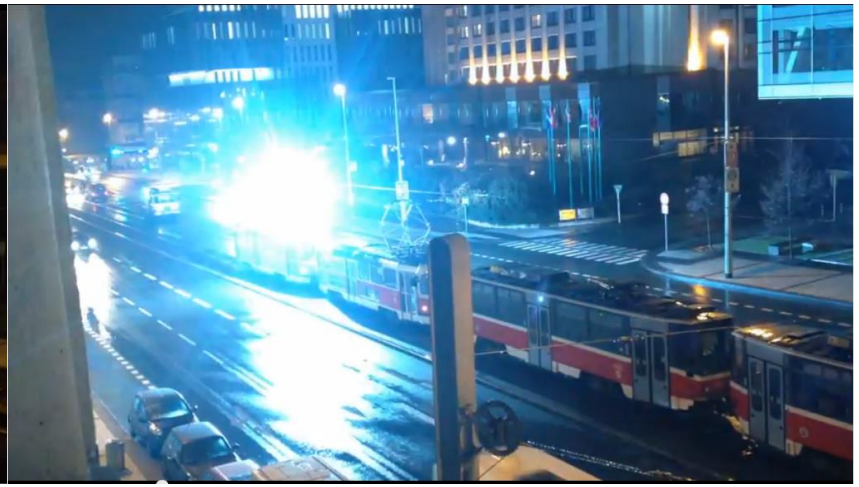
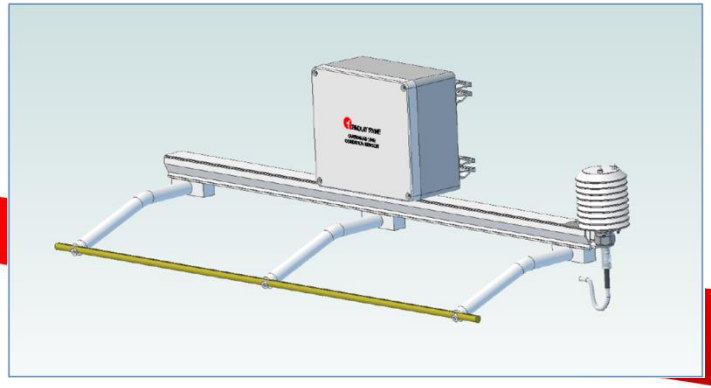
Rail Condition Monitoring & Control

Contact Wire Frost Management





System measures potential for Frost on Overhead Catenary wires and on Rails for Wheel Slip Conditions

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Earth Works Monitoring System

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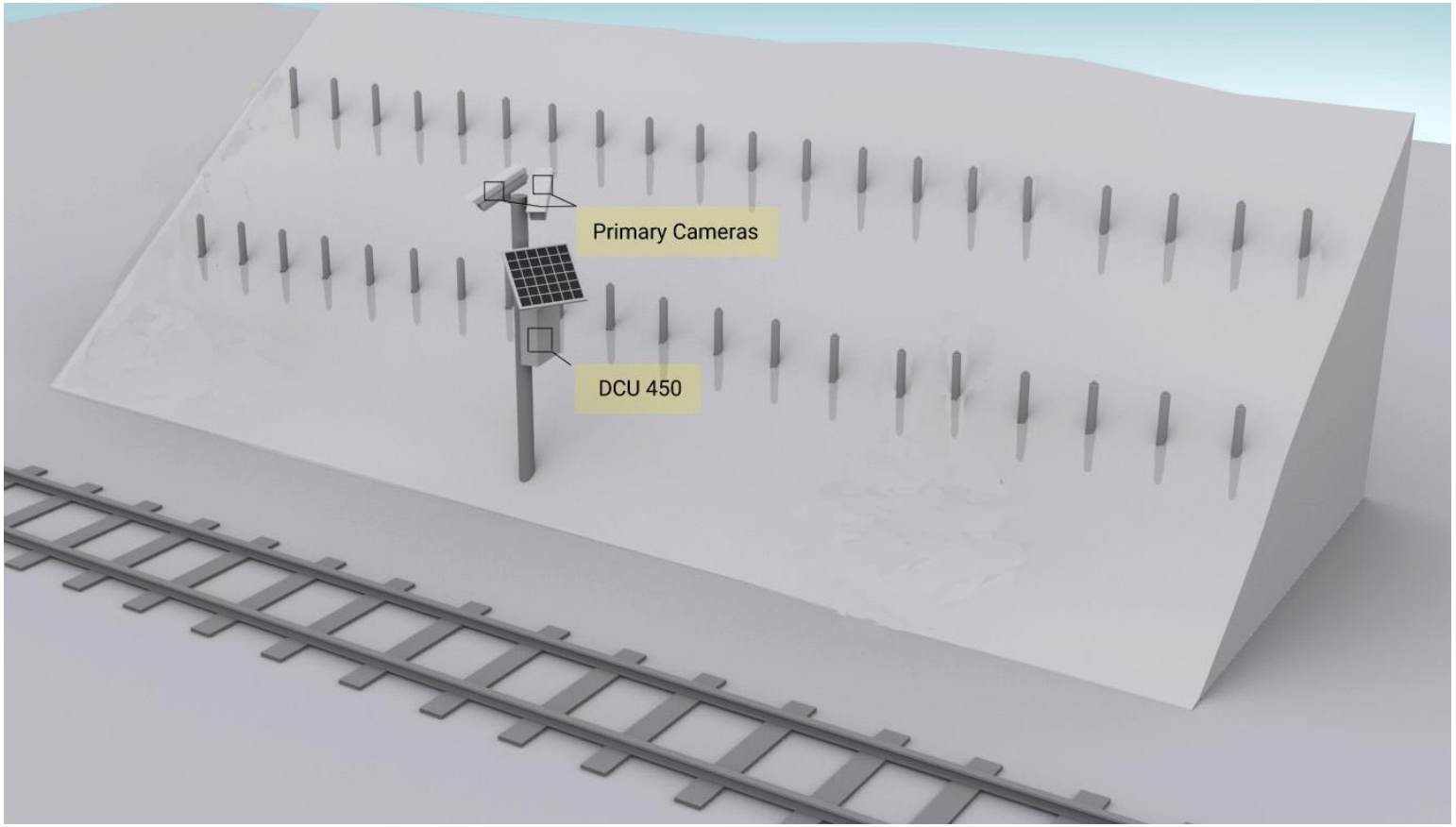

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Earth Works Monitoring System

Tilt sensor originally based on iQRF DCTR-56DA module.

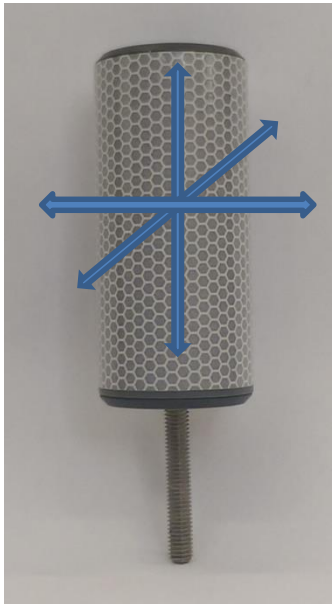
MicroRisc provided training on modules at Jicin HQ.

Uses Accelerometer to measure tilt angle in 3 axis.

Battery powered for 5 years.

Sealed to IP68.

Latest version uses new iQRF DCTR-76DA module with PIC to provide averaging and sensor control



Rail Condition Monitoring & Control

Earth Works Monitoring System

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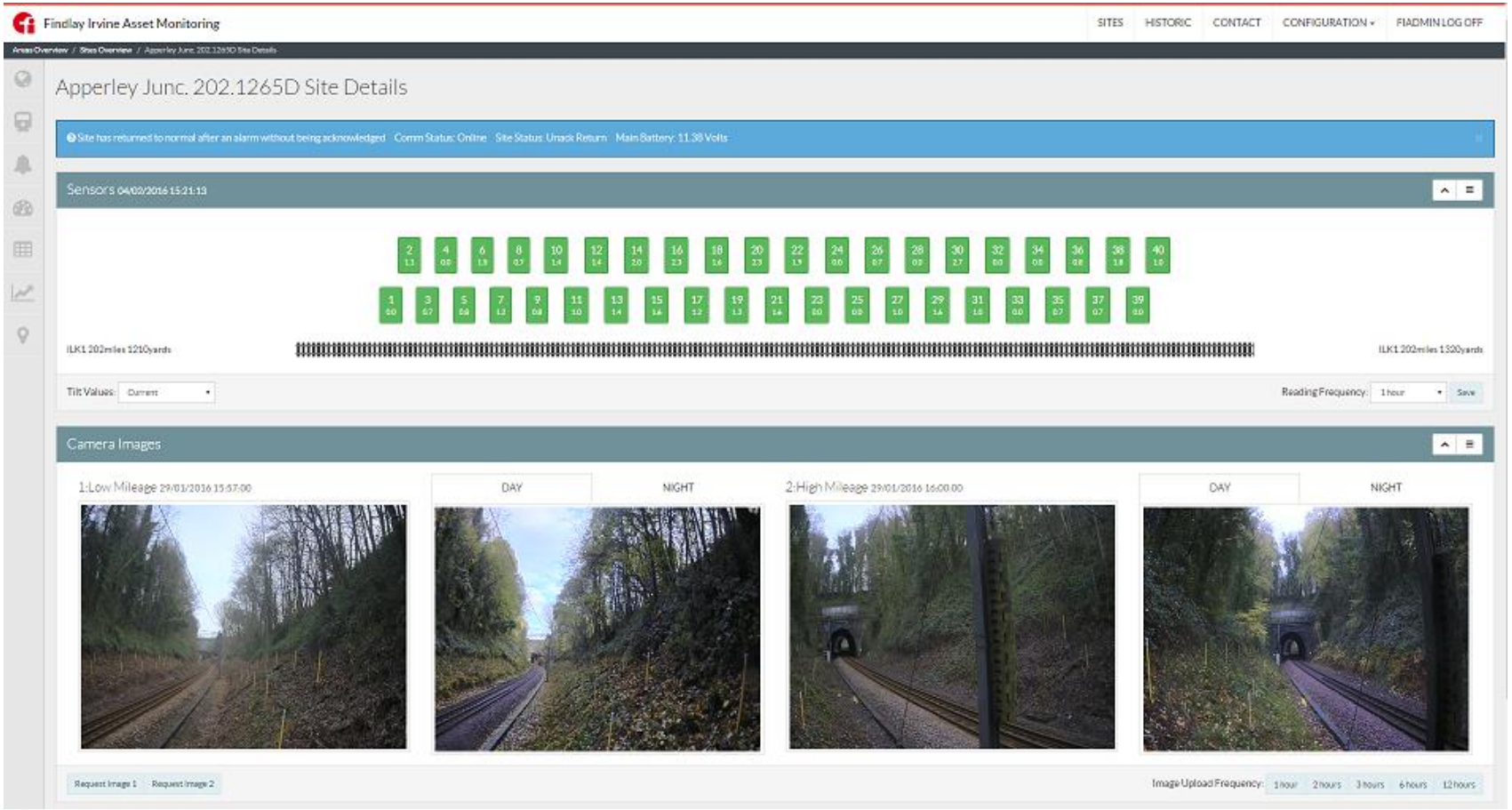
Rail Condition Monitoring & Control

Earth Works Monitoring System



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Rail Condition Monitoring & Control

The Future

New ranges of Environmental sensors based on the iQRF DCTR-76DA modules.

More Rail Condition Monitoring systems using iQRF modules to replace existing hard-wired connections.

Several new Rail Monitoring systems already in prototype stages.

Thanks For Listening