TECHNOLOGY & DATA SOLUTIONS

Safety Critical Metallic Infrastructure Inspection and Reporting

◭ Acuity Robotics

A Unique Robot Driven Infrastructure Inspection and Reporting Solution

Acuity Robotics is a spin out of the University of Leeds Real Robotics laboratory at the National Facility for Innovative Robotic Systems, one of the world's leading robotics universities. We have world-class expertise in the delivery of remote data capture and analysis on metallic structures using the world's smallest untethered robots.

Lightweight, untethered and small robots that can access hard to reach places on live infrastructure

Multifunctional camera and sensing options for internal and external inspection

Live image feed, analysis and smart reporting on infrastructure alongside an inspection management system Advanced data analytics through Machine

Learning and Artificial Intelligence to create predicative maintenance schedules

Our Robots

Internal inspection

Stoat is our smallest robot. With four wheels, Stoat, is operated remotely (untethered) transmitting low latency video at 28ms at 720P resolution to head mounted goggles for real time analysis and navigation along with a LED lights for inspecting internal pipework.

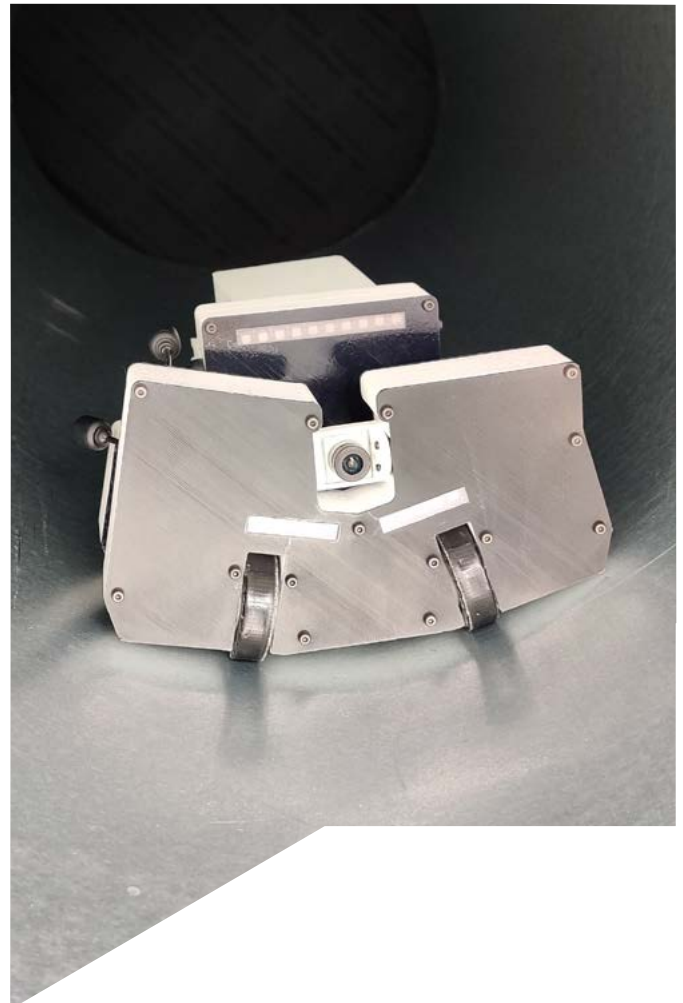| STOAT SPECIFICATION |
| --- |
| Weight – 1.6kg |
| Size (LxWxH) – 185x130x175mm |
| Camera – 1080p HD, thermal |
| Sensor – IMU |
| Operational distance – up to 500M |
| Untethered |
| Real time data link to operator |
| Structure types – internal/external monopoles, pipes and ducting |
| All weather operation |
| Battery life (rechargeable) – 2600mAh Li-Ion (30 mins) |
| Tele operated (heads up display) |

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External Inspection

Squirrel, our largest robot, is highly manoeuvrable with six-wheel drive and a coupled super dexterous camera turret. It provides a remote operator an unparalleled vantage point to inspect the surface of structures and surroundings. Squirrel has payload options such as metal thickness sensors, thermal and depth cameras.

SQUIRREL SPECIFICATION
Weight – 4.1kg
Size (LxWxH) – 400x180x170mm
Camera – 1080p HD, thermal
Interchangeable sensors – EMAT, IMU
Operational distance – up to 500M
Untethered
Real time data link to operator
Structure types Monopoles, telescopic poles, wind turbine tower, ducting, pipes
All weather operation
Battery life (rechargeable) - 4200mAh Li-Ion (70 mins)
Teleoperated (heads up display)

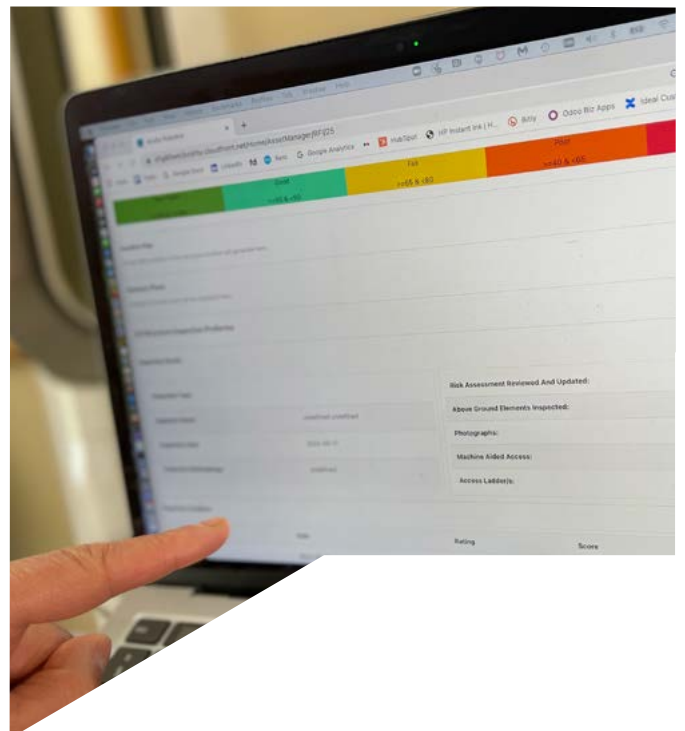# Our Infrastructure Data Reporting and Analytics Solution

ARIID (Acuity Robotics Infrastructure Insights Dashboard) is a is a Cloud based asset management tool for robotic data capture that provides smart reporting to manage inspections and enable predictive maintenance schedules.

ARIID is the online portal where our robotic inspection data is ingested, stored and processed to produce detailed inspection reports.

Asset managers can also instantly see and monitor the health of their infrastructure for improved decision making.

ARIID SPECIFICATION
Structured relational database and inspection/asset management tool
Concise and intuitive report generation and sign off
Single or multiple structures analysis
Machine learning capability for insights on micro and macro data
Improved decision making for maintenance through digital twin creation
Exportable data. API enabled for direct feeds or cloud applications
Secure data management

Why work with Acuity Robotics

We address the challenges of infrastructure management through its life cycle by working with our partners to;

- Keep people safe by reducing the need for human climbing
- Increase infrastructure uptime through data collection on live infrastructure
- Enabling robust asset management and analysis of asset data to enable preventative and predicative maintenance,
- Optimise infrastructure lifespan with the ability to predict future maintenance needs thereby optimising expenditure

Perhaps because our roots lie in the innovation of robotics technology and smart data through our connections with the University of Leeds and access to world class talent in the fields of robotics and data science. We bring academic rigour to helping our partners.

Maybe it is because our solutions genuinely create an opportunity for transformation in how you monitor and manage your growing asset portfolio whilst at the same time reducing the risks and costs associated with human inspection.

It could be that you wish to support a British company that is at the cutting edge of technology and provides an end-to-end solution where you get a robust asset register with the ability to predict future maintenance needs thereby revolutionising your business exposures.

In reality it will be all of the above but most importantly that you are working with a genuinely innovative company backed by the best thought leaders in academia that delivers you a new and revolutionary way to manage your growing asset base.

BENEFITS

Reduce survey costs and improve the quantity and quality of asset inspections

Reduce health and safety risks and remove infrastructure downtime

Create structured data and reports that enable predictive analytics on future maintenance costs

Inspect and manage inaccessible infrastructure more efficiently and effectively

USE CASES

Telecoms. Internal and external inspection of monopoles and masts

Renewable energy. Internal and external structure reporting and analysis

Rail. Inspection of gantries, bridges, and overhead lines

Maritime. Internal and external inspection of ship structures and cargo

GET IN TOUCH

+44 (0) 113 418 0219
info@acuityrobotics.co.uk

Acuity Robotics

OUR DEVELOPMENT PARTNERS

BT UNIPART RAIL