sedgwick

Dean Hawley

AI & Robotics
The Journey Begins

IATA RIM26 FORUM

5 MARCH 2026

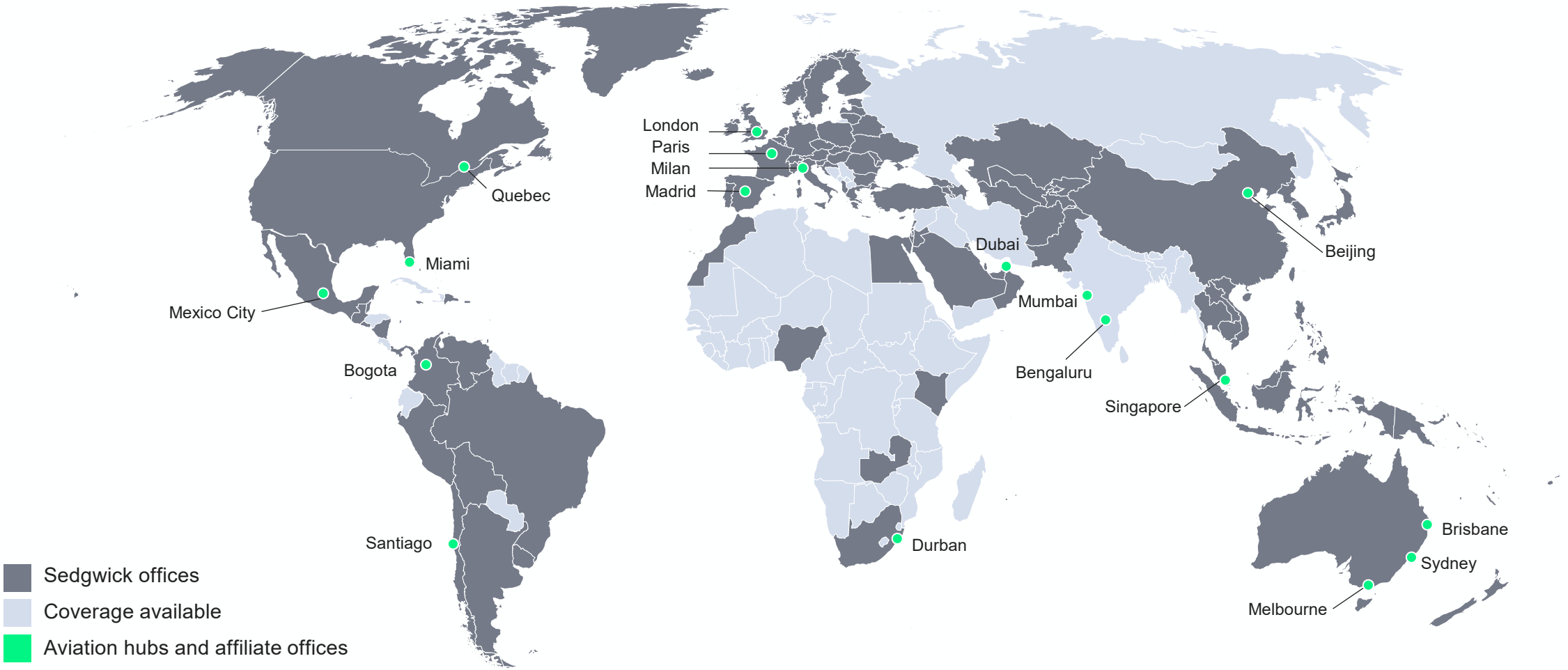
Introduction

Dean Hawley

- Aviation surveyor at Sedgwick
- Licensed aircraft engineer on multiple Boeing aircraft types with Airbus experience
- Recent completion of BSc (Hons) degree
- Completed two AI papers within studies
- Airline digital transformation project manager and stakeholder experience

Aviation hubs and affiliate offices

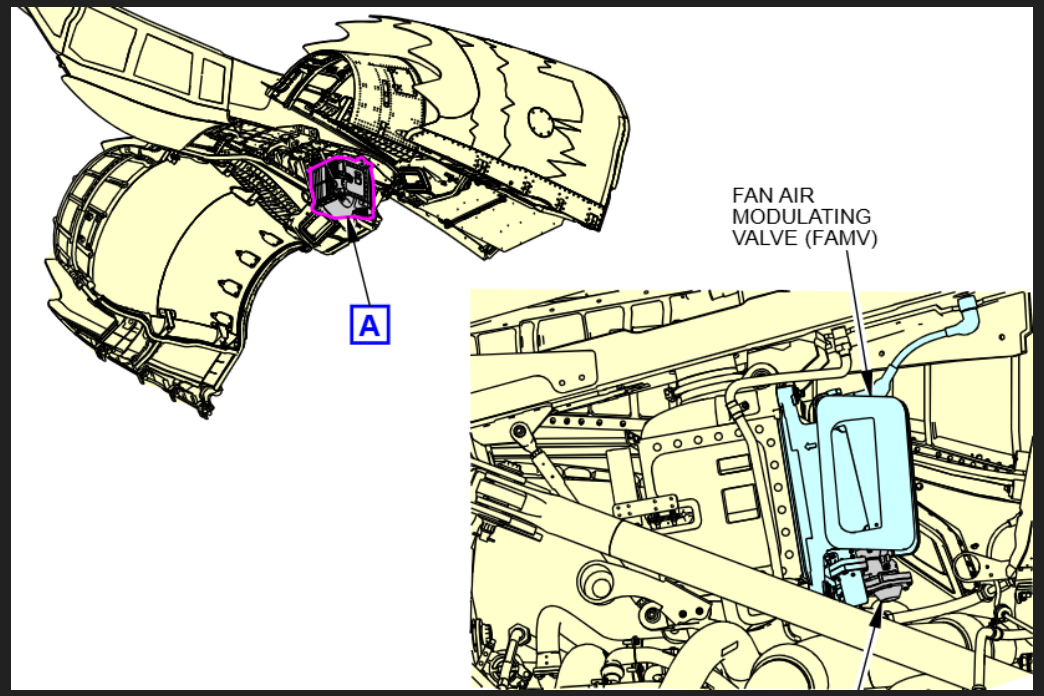
Supported by Sedgwick colleagues throughout the world



Predictive Solutions

Estimated $3B per year in maintenance cost savings to airlines

- System fault detection
- Live system health monitoring
- Performance degradation (EGT, EPR, VIB)
- Repeat defect detection
- Fuel and oil consumption trends
- Smart composite structural analysis
- Predict component failure timeframes



FAMV - Case Study

- B737MAX Fan Air Modulating Valve (FAMV) high failure rate
- AI models used to detect trends in data taken from sensors within engine architecture to predict when a FAMV is approaching failure
- Alerts raised to replace FAMV and timescale of probable failure based on dataset
- AI technology able to autonomously create work cards, order spares and create shipping documents to enable component replacement

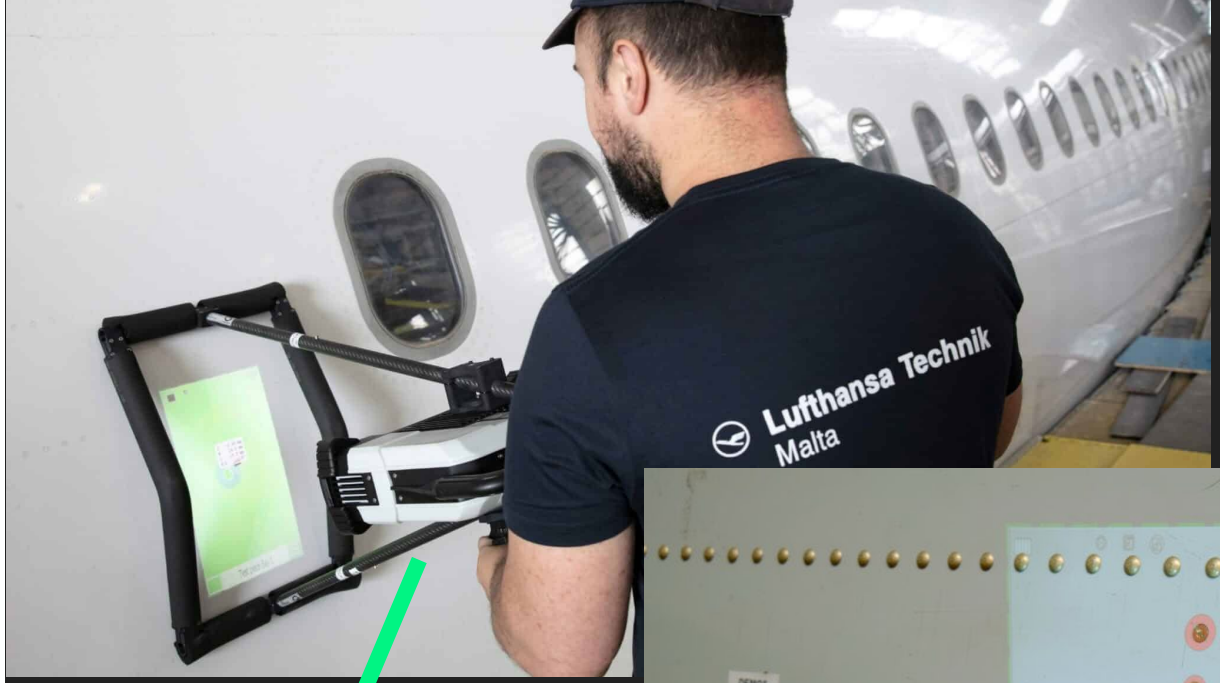
AI Powered Visual Inspections

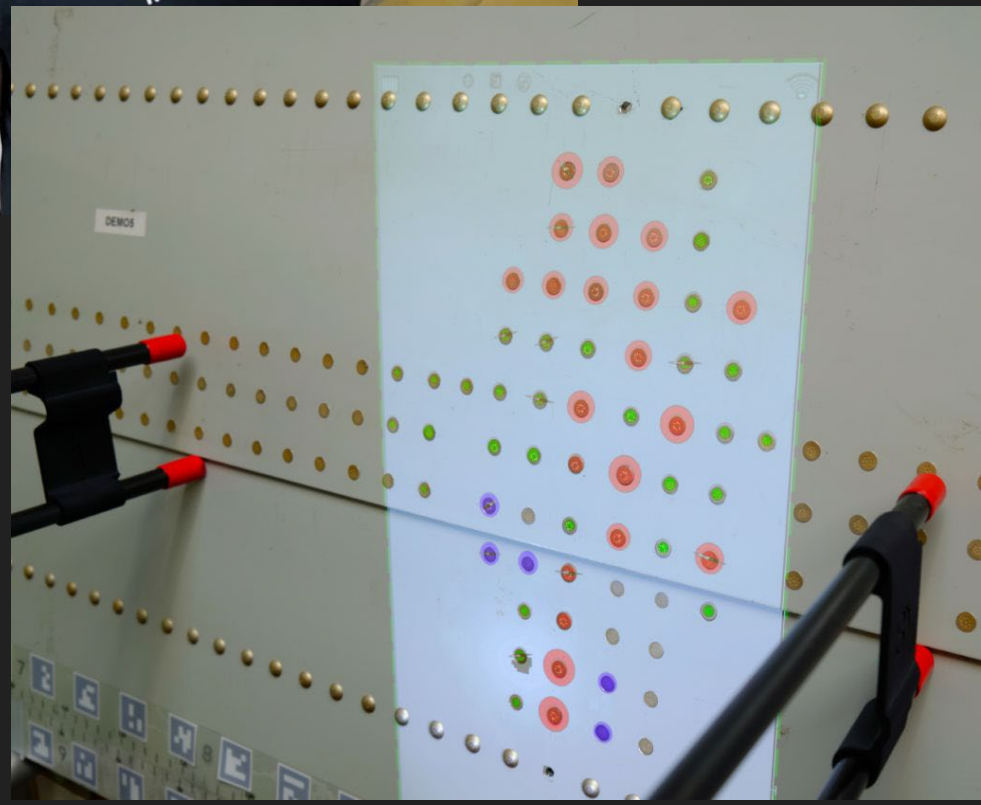
3D Dent Inspections & Mapping

- Dent mapping
- Instantaneous digital reports

3D Fastener inspections

- Rivet measurements & defects
- Instant results displayed



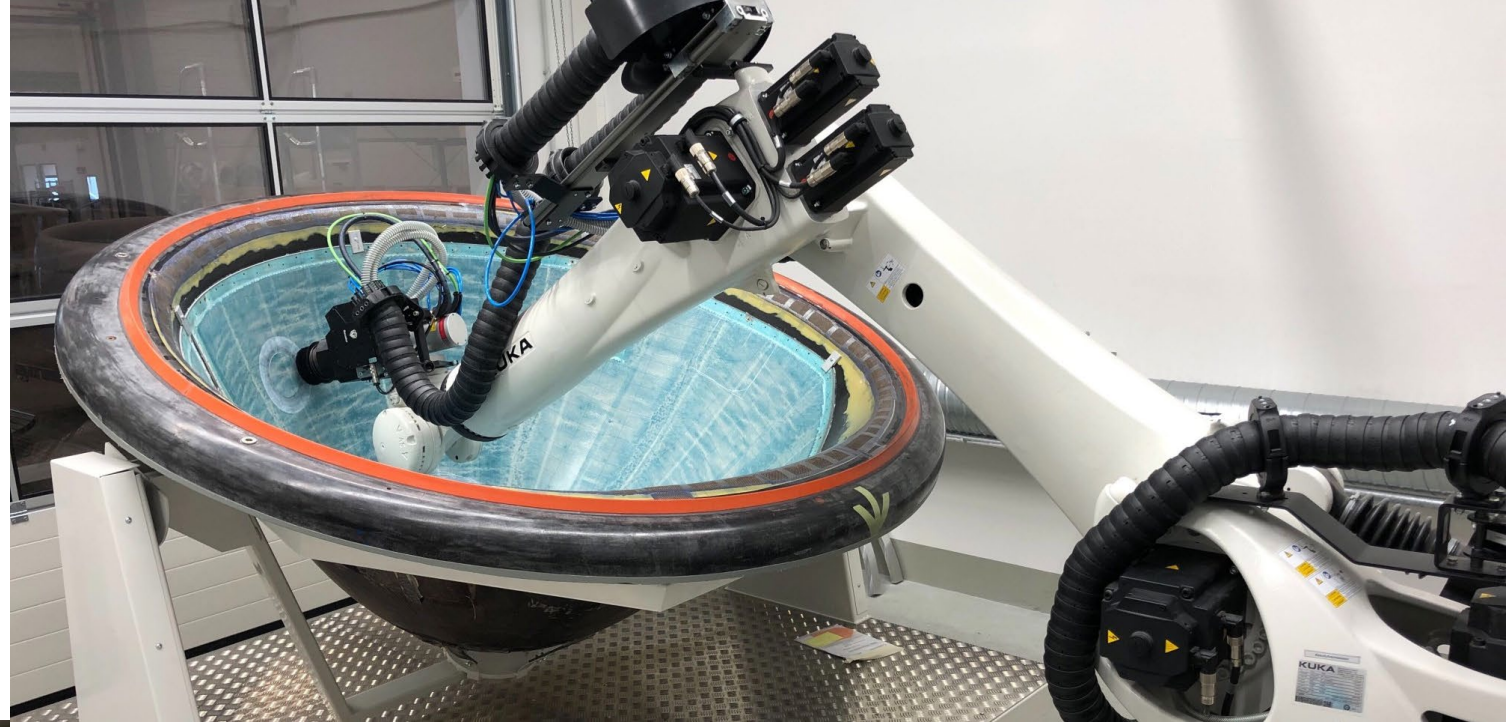


AI Powered Visual Inspections

Drone technology inspections

- Paint condition
- Lightning strikes
- Hail damage
- End of Lease Inspections
- Damage mapping

Mobile Robotic Repair Solutions



Mobile Robotic Repair Solutions (LHT CAIRE Robot)

- Automatic surface mapping and damage detection
- Composite wing skin repair capabilities
- 3D Milling of scarf joints
- Automated composite layer preparation and insertion

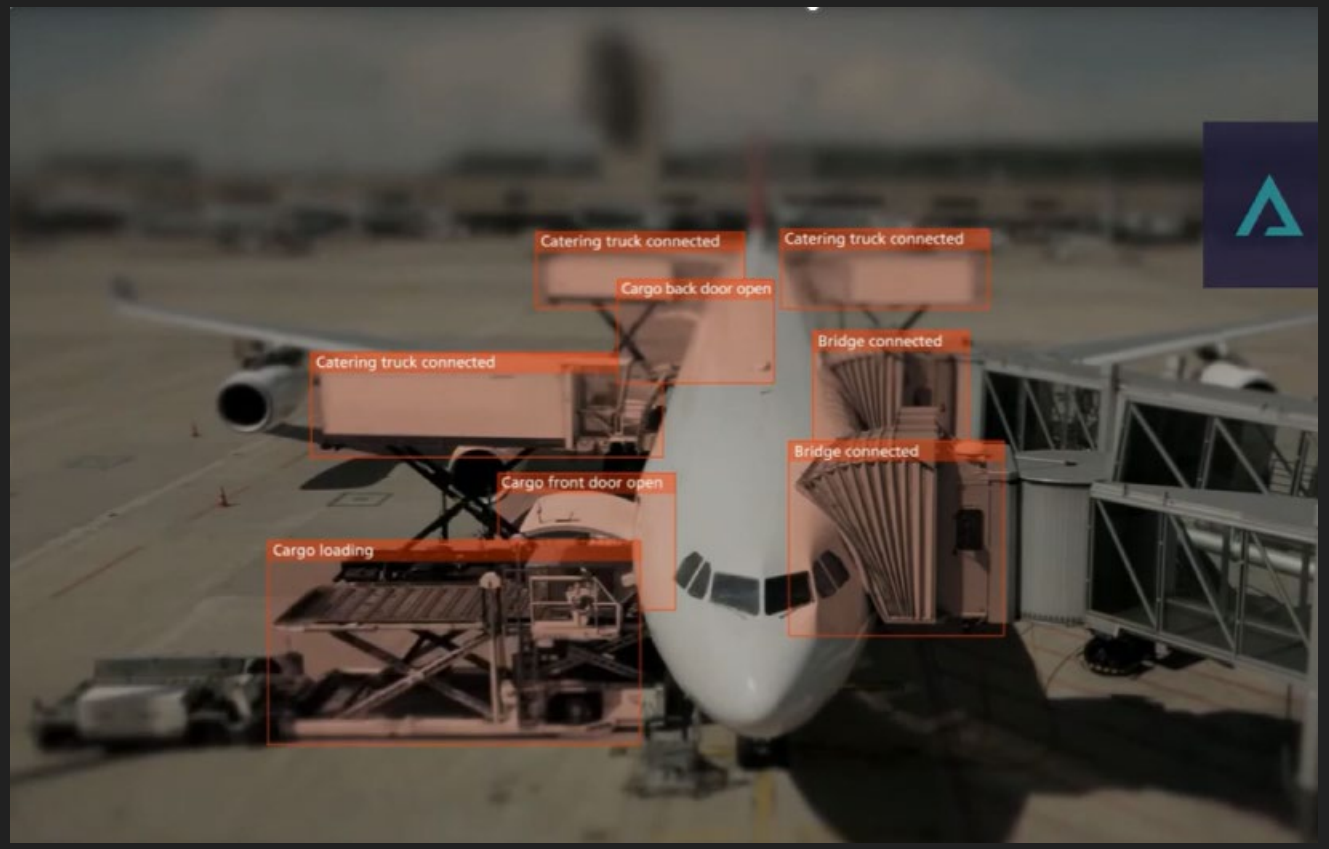
Robotic Towbarless Tugs

- Smaller footprint
- No requirement for multiple tow bars
- Greener alternative to diesel tugs
- More efficient use of hangar space
- Automated aircraft movements using cameras & painted guide line
- Potential development for remote or fully autonomous operation

Airside Robotics

Auto-DollyTug®

- Navigates using LIDAR and 360 cameras
- Greater manoeuvrability with 4 independent electrically powered motors
- Greener more economical solution
- On trial at many major international airports
- Larger ULD capable platform in development
- Improved reliability over human alternative
- Opens doors to develop other robotic GSE

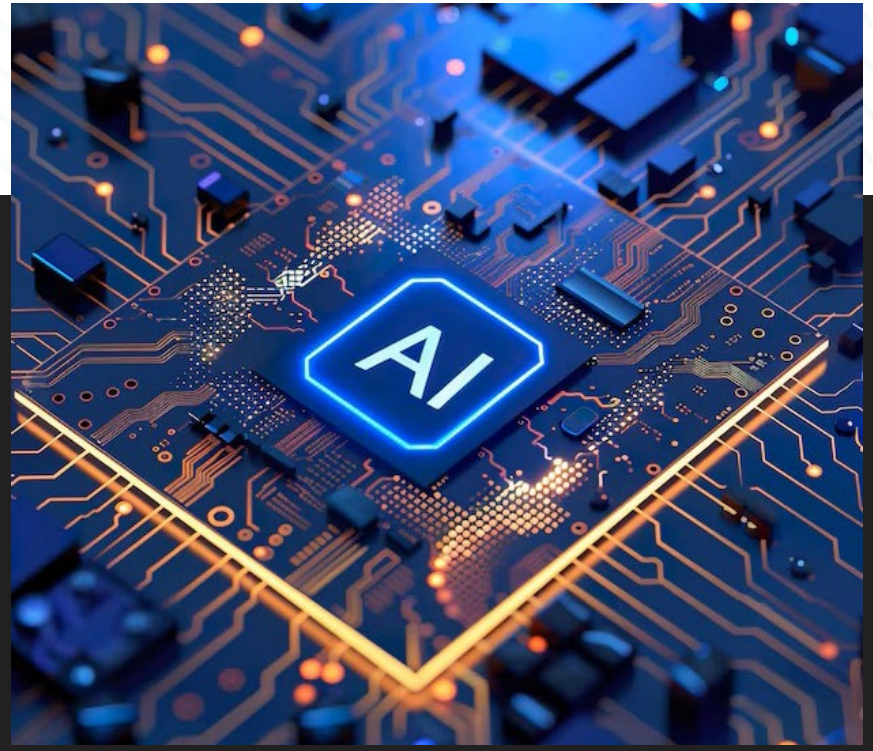


Smart Stands and AI powered FOD detection

- Tracks and logs every ramp movement
- Recording of handling arrival/departure
- Automatic notification of late tug/catering arrival
- Reduction in turnaround times & delays
- Automatic notification of fire or fuel spill
- Capability to detect and report FOD presence

Airside Telematics

- Increased airside driving standards around aircraft footprint
- Reduce airside driving offences
- Reduce vehicle idling times
- Track locations of all vehicles and GSE
- Prevent unwanted use of allocated parking spaces (geofencing)
- Reduce delays in GSE arrival times on stand
- Detailed reports and trend data



AI Advancement & Incorporation of Robotics in Aviation

This technology is a natural development of existing engineering expertise and provides many benefits:

- Costs savings
- Improved reliability
- Increased safety & accuracy
- No human limitations (e.g. sickness)

Embrace change and innovation in Aviation!

Questions

Thank you

SEDGWICK.COM