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Acumen IoT management solution

Acumen is an IoT monitoring application to enable predictive maintenance and proactive fault reporting of IT and OT infrastructure, to deliver maintenance cost reduction and improved system uptime. The solution aggregates performance data from multiple devices and sensors. Data is stored, analysed and visualised via an intuitive user interface to provide real-time device and asset condition monitoring of lifts, UPS, heating and ventilation equipment plus environmental sensors.

The solution provides multiple customer benefits, including improved infrastructure performance through automatic fault notification, real-time monitoring of performance to identify trends and predict potential failures before they occur. This results in reduced downtime, an increase in first-time fix rates and the ability to adopt predictive and proactive approach to maintenance to save cost and increase efficiency.

Technology Features

Total Flexibility – Agnostic interface with no limitations on sensor types, supporting both legacy sensors and new protocols. This flexibility allows all systems, devices and sensors across an infrastructure estate to connected and monitored by a single Acumen solution.

Data Visualisation – The intuitive interface allows users to easily access and analyse performance data from monitored devices and connected sensors. Customisable views make it easy to focus on the most relevant data points and trends. Real-time alerts and notifications ensure that users are always aware of any potential issues. Historical data analysis helps to understand long-term performance and identifying patterns that enable predictive maintenance schedules.

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Multiple Sensor Types – Multiple sensor types and metrics can be monitored

- Environmental – temperature, humidity, air quality, lux
- Equipment performance – power consumption, temperature, vibration, gas flow
- Security – motion detection, door access
- CCTV Camara – alignment, image quality, AI analytics
- Health & Safety – noise level, flood detection, pollution

Edge Processing – Data is captured and processed at the edge so the solution requires low bandwidth across networks and the monitoring of devices does not impact the performance of networks.

Key Benefits

Proactive maintenance – Analysis of real-time data and asset performance trends to transition from reactive maintenance to predictive maintenance, reducing truck rolls, costs and carbon emissions.

Single Pane of Glass – Simplified operations with multiple monitoring systems and all IoT sensors integrated into one solution using a single intuitive user interface, often providing enhanced monitoring and actionable insights across all assets.

Reduced System Failures – Remotely monitor asset and device status, temperature, voltage and other critical parameters. Enables pre-emptive maintenance to resolve an issue before it becomes a failure and minimise operational impact.

Automatic notification of faults – The real-time monitoring and automatic notification of faults improves efficiency and response times, helping to reduce the impact of failures.

Case Study: Transport for London

Acumen was created to support Transport for London (TfL) to identify potential lift and escalator failures in the build-up to the 2012 London Olympics. Vibration sensors were deployed on lift motors and temperature sensors were deployed on escalator oil sumps. The Acumen application established steady state data from sensors under normal operation, alerting if vibration or temperature increased so that proactive maintenance activity could be undertaken before failures occurred.

Today Acumen is monitoring lifts, escalators, UPS performance, equipment room temperature and air conditioning performance across London Underground. Remotely monitoring the performance of these assets has resulted in a significant reduction in faults and a dramatic increase remotes fixes of issues providing maintenance cost savings and reduced carbon emission through avoided visits to site.

Information on the performance of over 300 lifts across the London Underground network is supplied via Acumen to the TfL Go application, providing passengers with real-time information to plan their journeys.