Tech Mahindra

Enabling advanced analytics with

AIRCRAFT HEALTH MONITORING SYSTEM (AHMS)

CASE STUDY.

Connected World.
Connected Experiences.

OVERVIEW

Aircraft Health Monitoring System (AHMS) is a collection of strategies, tools, solutions, and approaches that are closely connected to a hardware and software system that performs remote monitoring of airplane data in order to understand its present or future serviceability and performance. To improve aircraft safety and dependability, AHMS employs real-time data from many sensors installed into aircraft components/parts.
A leading European aerospace corporation partnered with Tech Mahindra to work on data extraction, data analytics, cloud-to-ground solutions, graphical display and presentation of complex data in order to provide solutions for real-time monitoring of aircraft health and performance, report analysis, predictive analytics, and interactive maintenance instructions using cutting-edge technologies.

THE CLIENT REQUIREMENT WAS AS FOLLOWS

- Identifying defects on an aircraft that cause flight delays or cancellations
- Provide ground workers with real-time aircraft health information to aid in the preparation of repairs before the plane lands
- Shorter the turnaround time for the next flight
- Operators can use aircraft health monitoring infra-as- a -service

CLIENT BACKGROUND AND CHALLENGES

The client is a global aerospace firm based in Europe that designs, manufactures, and distributes civil and military aerospace equipment across the world, as well as aircraft in Europe and other countries. With around 180 facilities and 12,000 direct suppliers worldwide, the customer is also well-versed in the manufacturing of commercial and defence aircraft, helicopters, and space equipment. The major challenges faced while implementing the project are

- Data gathering and storage for the Internet of Things
- Satellite and GSM networks are used to transmit data from the air to the ground
- WiFi-enabled airport infrastructure to receive aircraft health data
- Infrastructural support for the transfer of aviation health data to airline operators and aircraft original equipment manufacturer (OEM)
- High availability infrastructure with powerful computation for big data analytics

OUR APPROACH AND SOLUTION

- Provided as a platform solution with modules to choose
- A real time health monitoring solution which enabled IoT information from the aircraft components to be collected onboard and transmitted to ground
- On the ground, the AHMS system performs the detailed analysis of the transmitted on-board data to support a wide variety of operational decisions
- Provide intuitive visualization relating to alerts, fleet overview, fault information, aircraft reports
- Predictive analytics around usage optimization
- Interactive maintenance instructions by next-gen technical publications
- New business model by monetization of the services

SOLUTION PROVIDED

❖ Real Time Monitoring

- Configurable alerts, notifications, dashboards and key performance indicators KPI
- Instant snapshot of aircraft health, performance and operational reporting

❖ Basic Analytics

- Preconfigured reports and analysis of a single aircraft with basic analytics

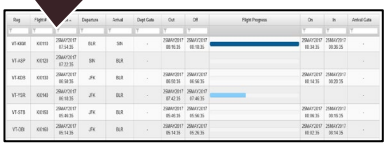
❖ Advanced Analytics

- Ensure design and usage optimization with predictive analytics
- Analysis and co-relation of fleet of aircraft

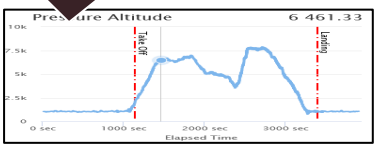
❖ Integrated Systems

- Interactive maintenance instructions that provide next-gen tech pubs
- Online guided diagnostics (troubleshooting) tools

Fleet Overview



Advanced Analytics



Guided Troubleshooting

BUSINESS & COMMUNITY IMPACT

Real Time Monitoring

25-30%
Improvement in aircraft dispatch reliability rate

10%
Reduction in person-hours to maintain & analyze flight data

Basic & Advanced Analytics

25%
Operating cost savings with effective troubleshooting

20-25%
Improvement in aircraft availability with less flight disruptions

Integrated Systems

10%
Reduction in maintenance time with integrated next-gen tech pubs

Ease of operation through integrated systems like part logistics and crew planning

Tech Mahindra

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