

A Case Study on How Early Detection and Diagnosis of Air Ingress in ID Fan System by 'UptimeAI Expert' Saves \$150,000 Annually



Operational Challenges

The prevailing maintenance practices relied heavily on periodic manual inspections. These inspections were time-consuming, resource-intensive, and often failed to identify impending issues in a timely manner. This inefficiency led to extended periods of suboptimal fan operation while straining the company's budget and reducing overall profitability.

Solution with UptimeAI Expert:

- UptimeAI's 'AI Expert' uses deep learning models and built-in failure modes to detect operational issues early before causing any losses. UptimeAI also seamlessly integrates with your current Operational Technology (OT) stack including maintenance systems such as SAP PM to assess the issues holistically and identify root cause.
 - Many times, changes in operating parameters are not too significant to be picked by a DCS. It is also challenging to manually determine the correlations between many process parameters. In this case, the flue gas exit temperature at the air preheater outlet had increased. Delving into an extensive array of parameters encompassing over 156 tags – such as oxygen content in flue gas, ID fan current, flue gas temperature – the system expeditiously pinpointed a critical issue. It deftly identified air ingress in the air preheater, causing an increase in the oxygen content which in turn increased the ID fan motor current consumption from 160 A to over 200 A.
 - Left unchecked, inefficient operating conditions of air preheater and higher ID fan current consumption would significantly impact the profit margins. With AI Expert's early warning and diagnosis, the customer was able to mitigate the losses at an early stage and fixed the issue during scheduled downtime, saving over \$150,000 in current consumption, and improved air preheater efficiency.
 - UptimeAI's unique combination of AI and subject matter knowledge mimics experts by continuously learning without manual rules and explaining complex problems to help mitigate issues. The deep learning techniques learn good vs. bad behavior considering all the operating parameters, while built-in fingerprints with failure modes, recommendations, and fault-tree analysis enable the solution to diagnose and explain the issues.
- Furthermore, 'AI Expert' seamlessly integrates with your current Operational Technology (OT) stack, including maintenance systems

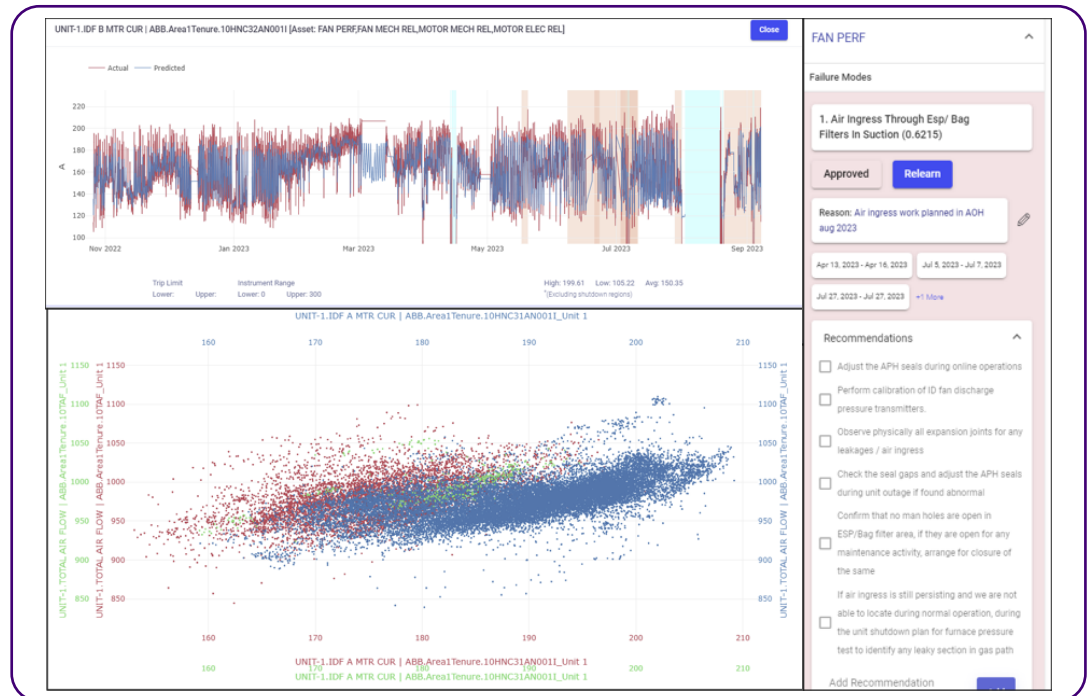
Summary

Estimated Savings
\$180,000 / year

Systems Models
1

Deployment Time
2 Hours

Number of Tags
53



About UptimeAI:

UptimeAI uniquely combines Artificial Intelligence with Subject Matter Knowledge from 200+ years of cumulative experience to explain interrelations across upstream/downstream equipment, adapt to changes, identify problems, and give prescriptive diagnosis like a human expert would.

UptimeAI Expert OEx Platform works as a trusted AI advisor for plant engineers looking to achieve operational excellence.

For more information visit: www.uptimeai.com or email us: info@uptimeai.com