MICHIGAN STATE UNIVERSITY

Alpha Presentation

Machine Performance Prediction

The Capstone Experience

Team AkzoNobel

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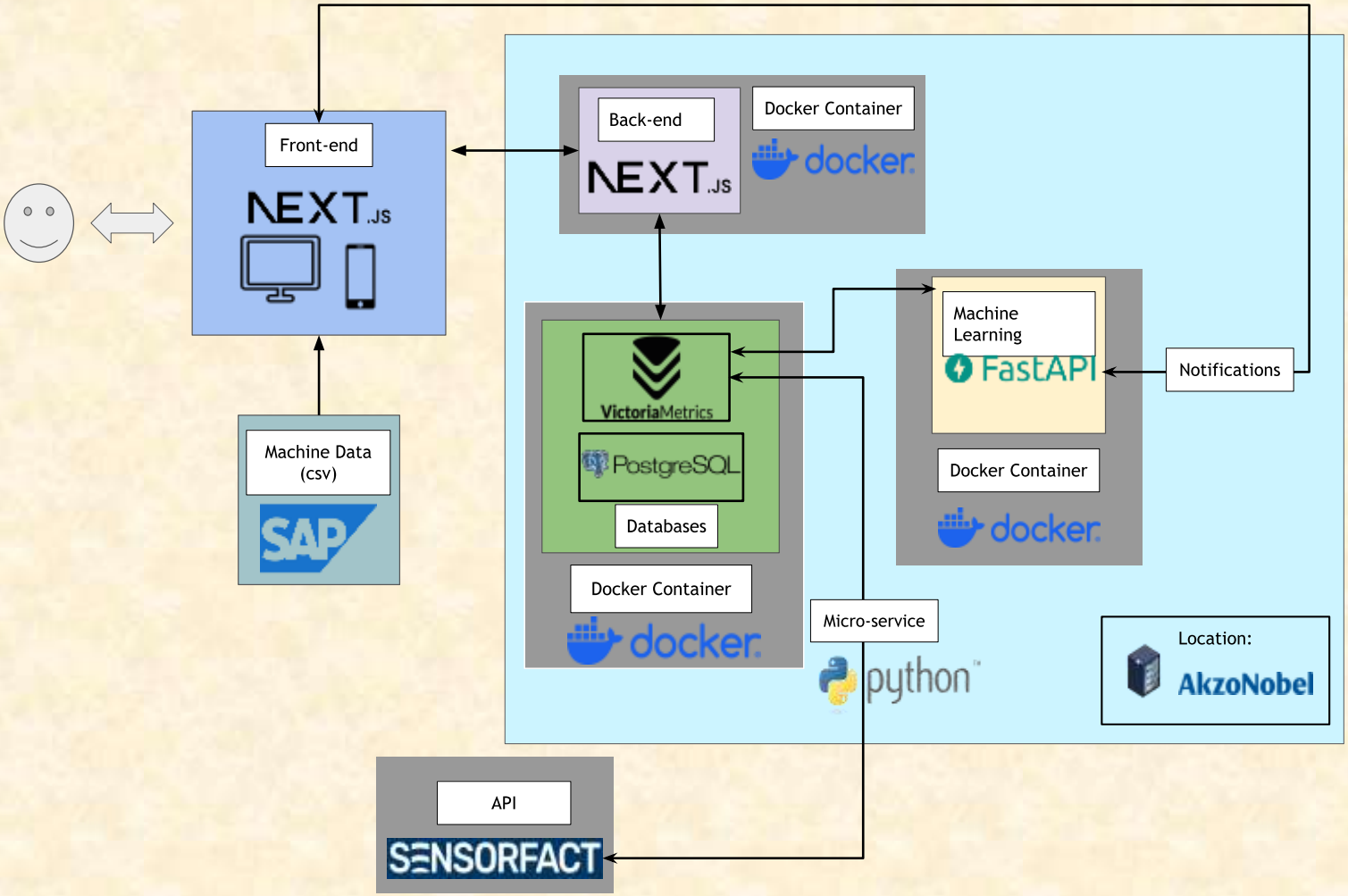


From Students…
…to Professionals

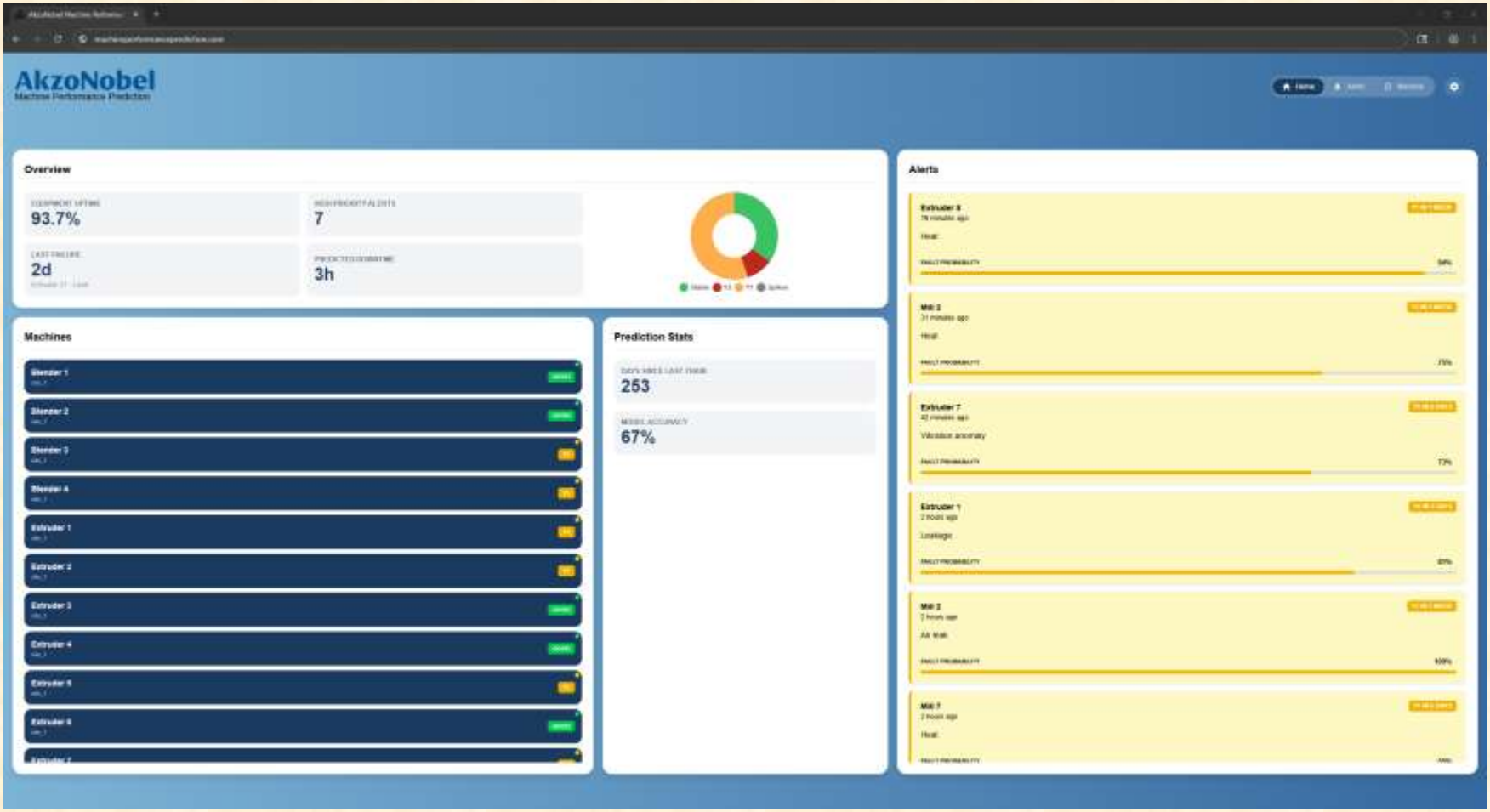
Project Overview

- Predict machine breakdowns using machine learning
- Notify engineers
- Display machine status and alerts in a progressive web app
- Location: powder coating paint factory in Warsaw, IN

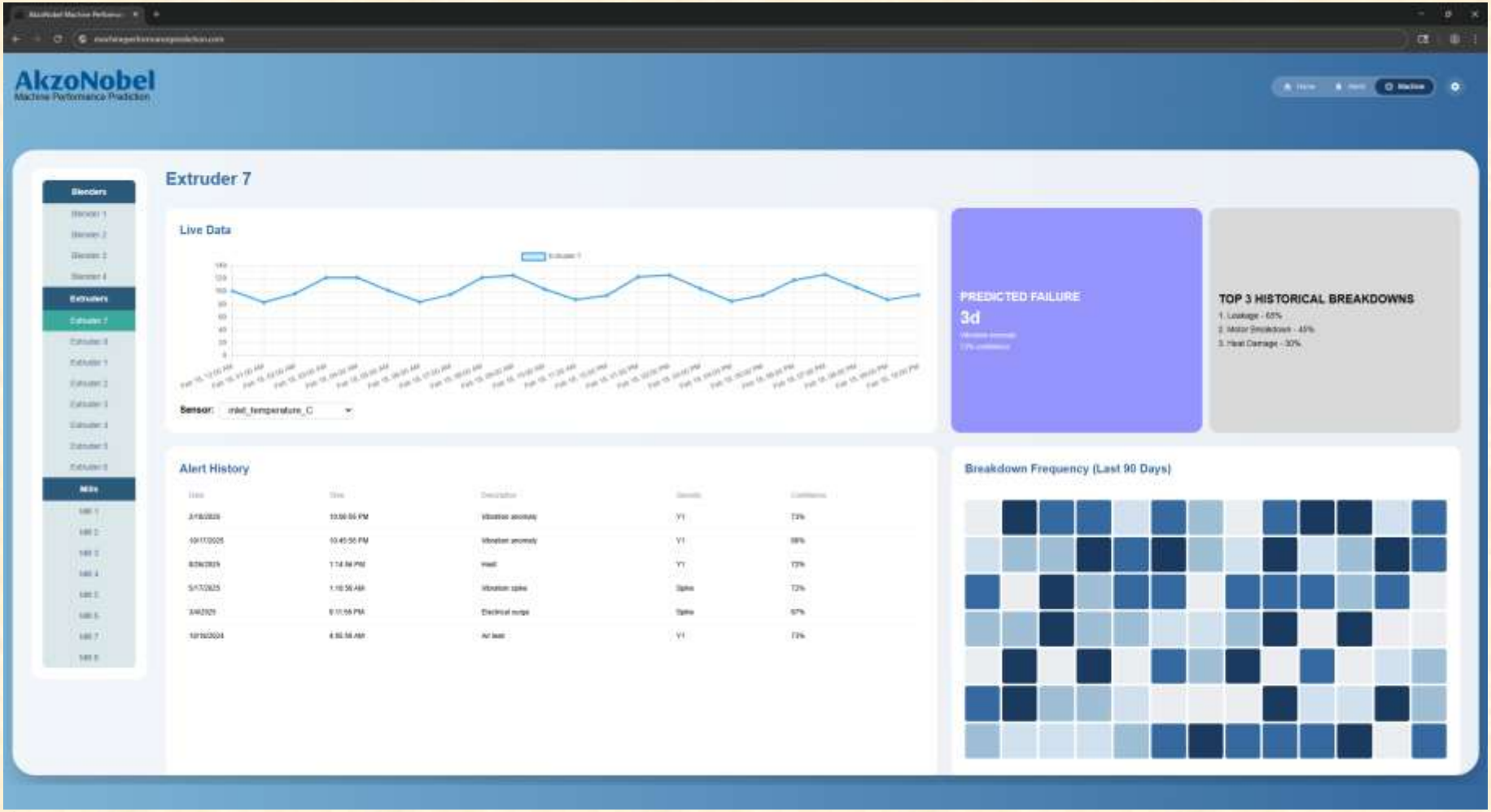
System Architecture



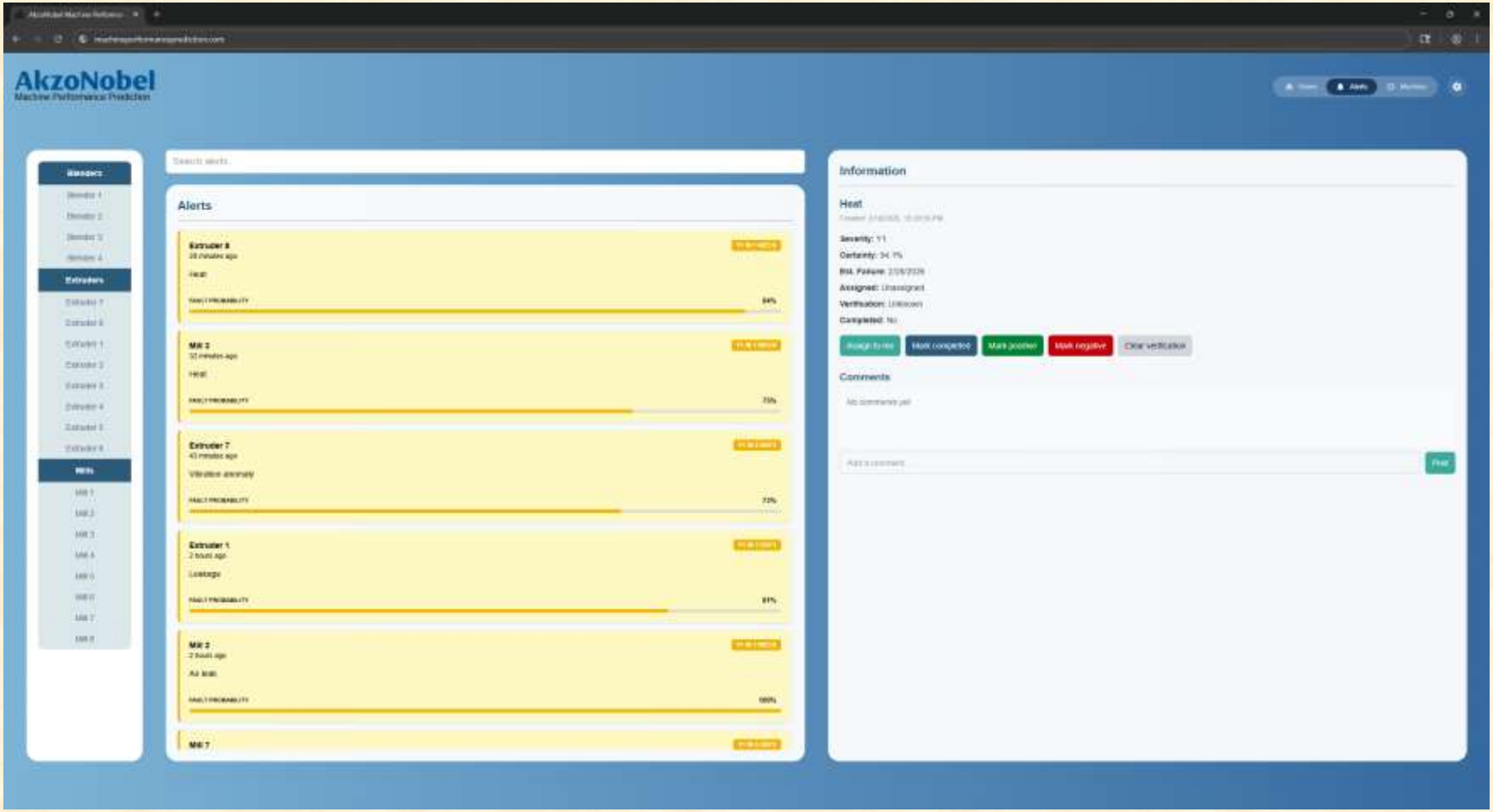
Dashboard


AkzoNobel
Machine Performance Prediction
Overview
93.7%
7
2d
3h
Machines
Prediction Stats
253
67%
Alerts

Machine View



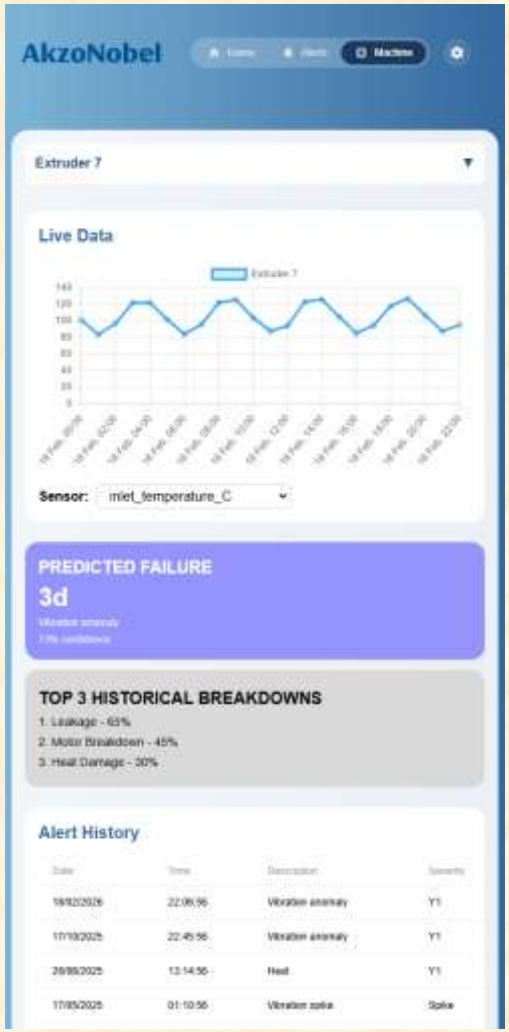
Alerts Page


AkzoNobel
Machine Performance Prediction
Alerts
Information
Heat
Comments

Mobile


AkzoNobel
Overview
3
Alerts
Extruder 8
12 minutes ago
Heat
94%
Mill 3
24 minutes ago
Heat
75%
Extruder 7
35 minutes ago
Vibration anomaly
73%
Extruder 1
2 hours ago
Leakage
87%
Mill 2


AkzoNobel
Select machines
Search alerts...
Alerts
Extruder 8
12 minutes ago
Heat
94%
Information
Heat
Severity: Y1
Certainty: 94.1%
Est. Failure: 28/02/2026
Assigned: Unassigned
Verification: Unknown
Completed: No
Assign to me
Mark completed
Mark positive
Mark negative
Clear verification
Comments
No comments yet
Add a comment...
Post


AkzoNobel
Extruder 7
Live Data
Extruder 7
Sensor:
inlet_temperature_C
PREDICTED FAILURE
3d
TOP 3 HISTORICAL BREAKDOWNS
1. Leakage - 65%
2. Motor Breakdown - 45%
3. Heat Damage - 30%
Alert History
Date
Time
Description
Severity
18/02/2026
22:08:56
Vibration anomaly
Y1
17/10/2025
22:45:56
Vibration anomaly
Y1
28/08/2025
13:14:56
Heat
Y1
17/05/2025
01:10:56
Vibration spike
Spike

What's left to do?

- Make all components of web app functional with live data
- Live machine learning predictions
- Deploy and test on AkzoNobel servers
- Comprehensive bug testing and continuously self-training machine learning functionality

Questions?

