

Machine Data Visualization and Projection

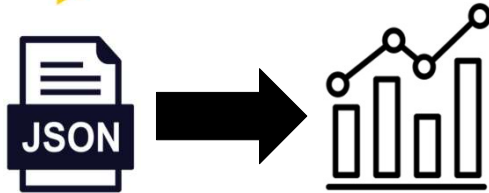
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Sponsor: Aldevron

Capstone 2025

Business Need

Aldevron is a biomedical manufacturing company who relies heavily on laboratory equipment to complete their processes. The equipment currently collects live data and stores the data in json files in Azure Data Bricks. In the current state, Aldevron is unable to use or visualize this data. Our team was tasked to extract and transform this data to enable visualization and projections. This enables Aldevron to predict machine failures to lower downtime and increase on time deliver to client.



Implemented Solution

Product is a three part solution:

1. JSONs read recursively into Sqlite database
2. ML reads from database and predicts output to CSV
3. Sqlite database and CSV predictions connected to Power BI for front-end display

Challenges

1. Tech stack planning
2. Data organization and engineering
3. Project management and workflow



Development Phase 1

Formatted JSONs | Sorted Database | Initial Wireframing | Database Visualization

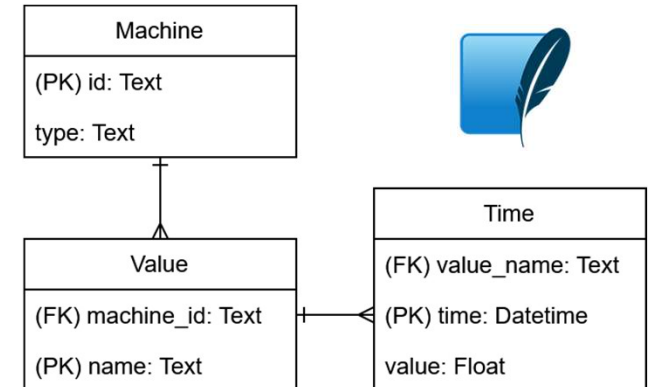


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```

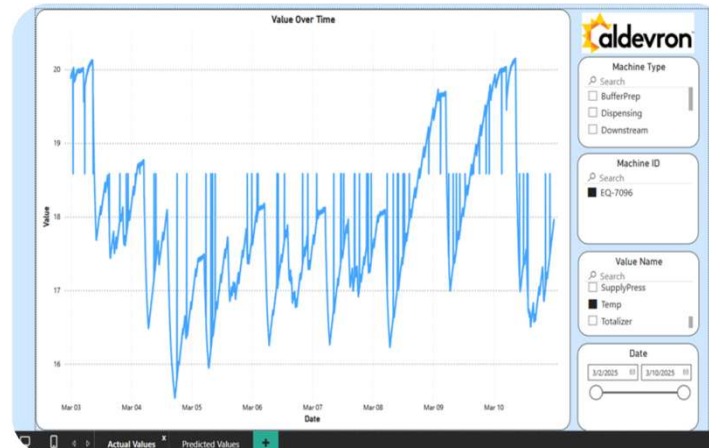
Sample of JSON data



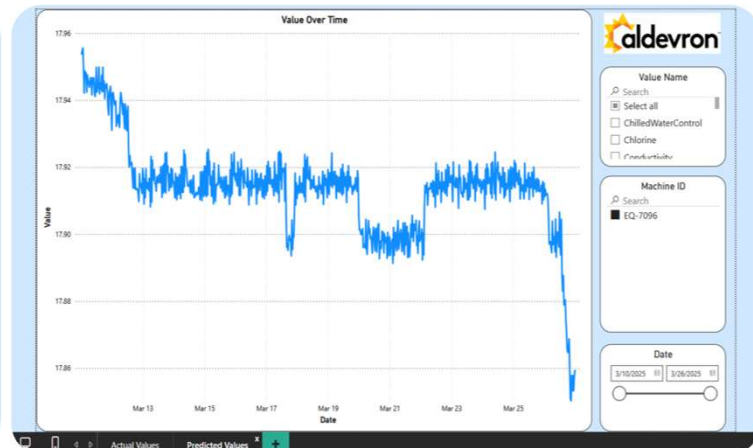
UML of Sqlite Database

Development Phase 2

ML Design | Prediction Output | Documentation | Code Organization | Power BI Visualization



Power BI Display of Actual Values



Power BI Display of Predicted Values

