

# BEARING LIFE PREDICTION MODEL FOR SURGE FEED CONVEYOR BELT

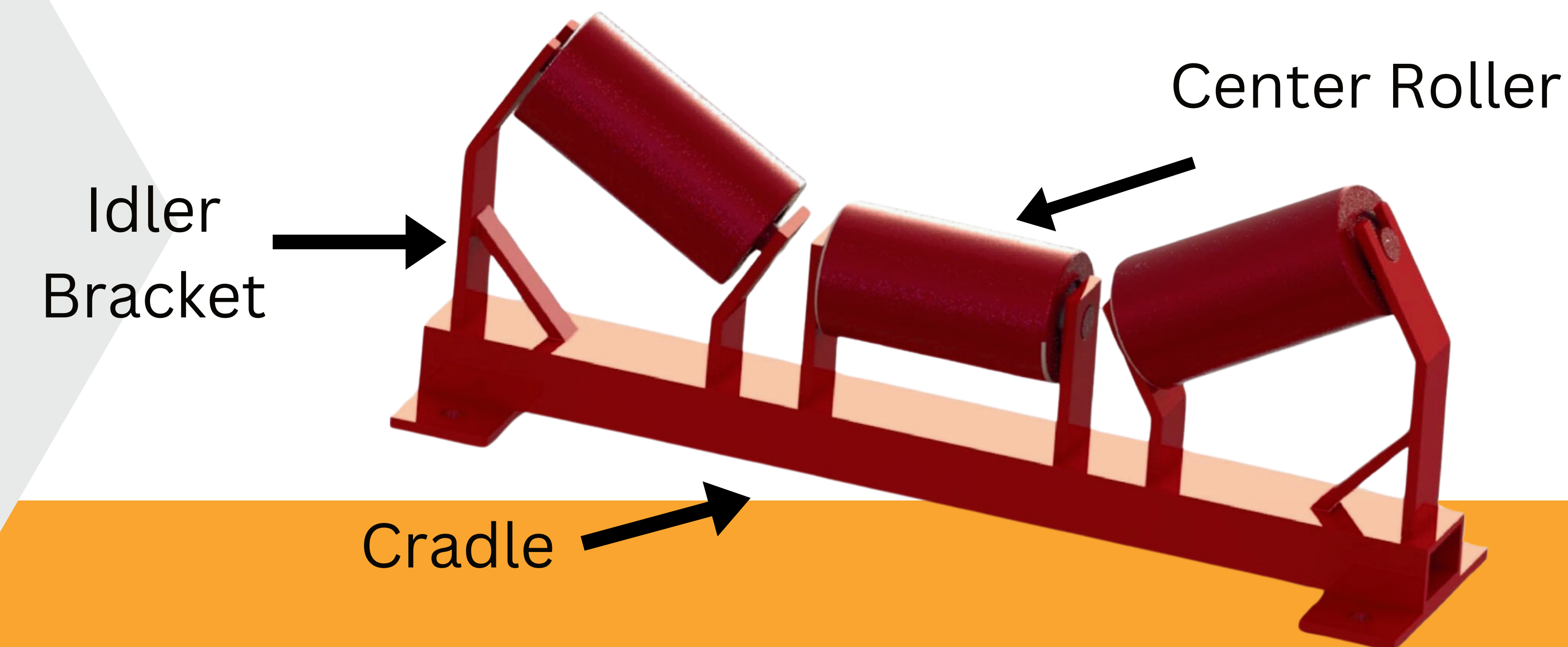


**SCHULICH**  
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## Problem Statement:

Incorporating a predictive maintenance solution for CNRL JPM OrePrep Albion Sands Surge Feed Conveyor Belt, which is responsible for moving ore two kilometers.

Utilizing current data for improved reliability analysis, a custom tracking application is recommended in order to anticipate roller failures. With an emphasis on cost-effective and pragmatic methods, Canadian Natural Resources Limited can enhance its equipment management by incorporating asset tracking, data collection and preventative maintenance principles.



## Product Core Functions

## User-End Interface

01

### Track System State

With regular user input the application is able to track the current service life of each roller in the conveyor belt system. This information can be easily navigated by the section and idler number of the asset and easily updated via the start new button

02

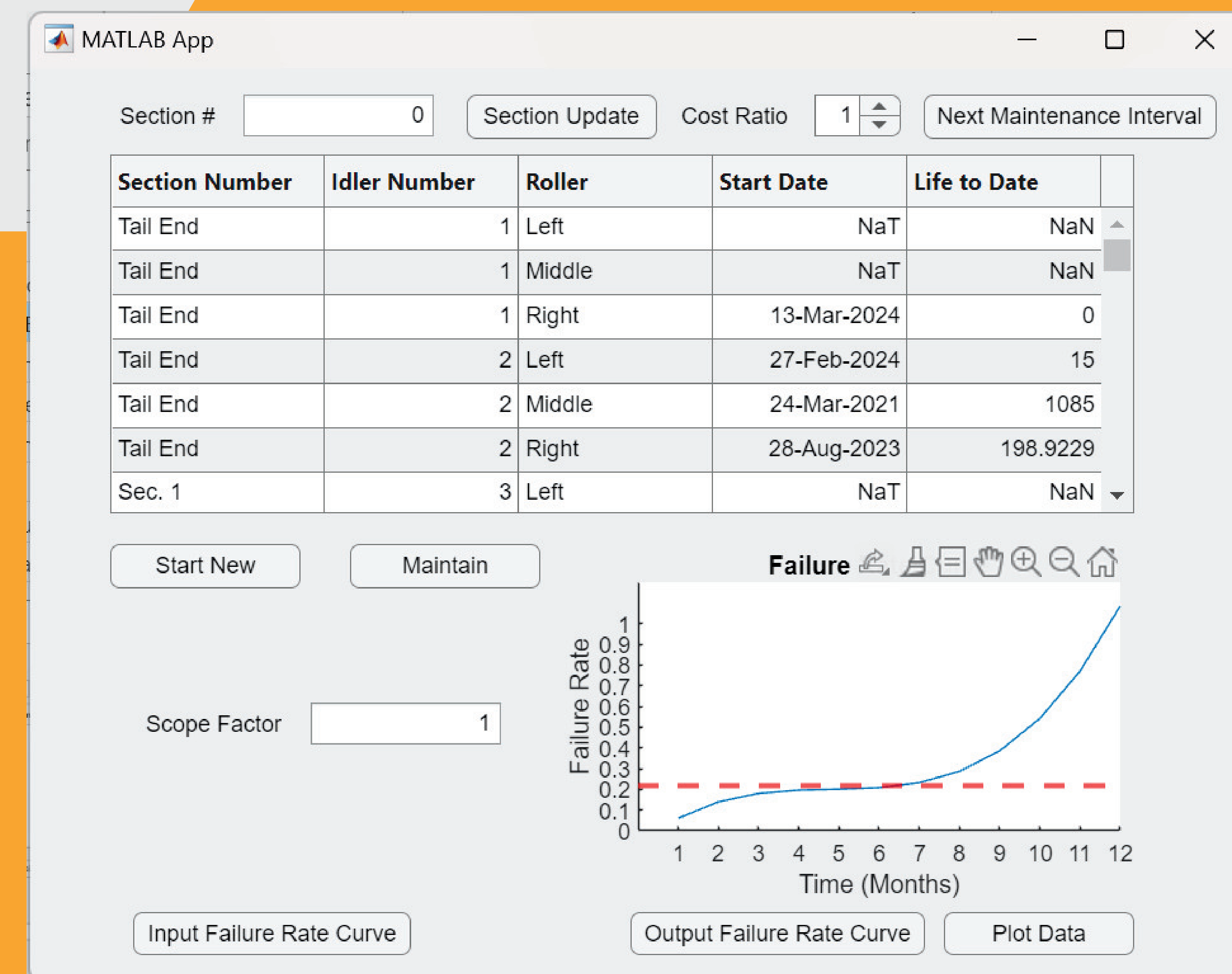
### Failure Data Collection

The program prompts the user to log the failure mode of an asset when they report a failure. This information is saved along with the service life and can be used to output the most up to date failure rate curve for the system

03

### Maintenance Recommendations

By selecting the "Next Maintenance interval Button" the user can view the assets that should be maintained for the next 2 weeks. As the maintenance is completed the user can log the old assets as being "Preventatively Maintained"



## Team Members

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## Project Sponsors

- FAHAD AMJED
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## Faculty Mentors

- DR. SUN

## Design Verification and Results:

Our team was able to test the application using historical failure data from 2018-2019 and inputting it into the application, the maintenance recommendations were then followed on a bi-weekly basis and the failures were logged. This resulted in a flat failure reduction of 3.75% and a failure reduction after app implementation of 12.77%. The app had an accuracy rating of 7.73%, adjusting for the available data this increased to 11.18%.

**Projected Failure Reduction: 31%**  
**Projected Accuracy: 15%**