Tata Steels Machine Failure Prediction Report

Project Overview

This project aims to enhance predictive maintenance in steel manufacturing by analyzing machine operatio
such as temperature, pressure, and rotational speed. Using machine learning, we predict potential failures
maintenance schedules and reduce downtime.

Dataset

The dataset consists of various operational features and failure types. Key preprocessing steps include:

- Handling missing values

- Feature scaling

- Encoding categorical variables

Models Used

- RandomForest

- Support Vector Machine (SVM)

Performance Metrics

- Accuracy

Results

- The model successfully predicts machine failures, enabling proactive maintenance.

- Helps in reducing operational downtime and improving production efficiency.

Future Enhancements

- Fine-tuning models for improved accuracy.

- Deploying the model for real-time failure prediction.

- Exploring deep learning approaches for better insights.

Contribution

- **Sai Venkata Sri Harsha Donga**

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