Predictive Equipment Maintenance Application Using IoT Data

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Leveraging Machine Learning for Industrial Equipment Maintenance

Predictive Equipment Maintenance Application Using IoT Data

Introduction

- Predictive Maintenance leverages IoT sensor data to predict and prevent equipment failures, reducing downtime and maintenance costs.

Tools

- Streamline
- Pandas
- Numpy
- Matplotlib
- Seaborn
- Scikit-learn
- Google colab
- VsCode

Model Selection

- Algorithms: Random Forests, Gradient Boosting, Neural Networks

- Libraries: scikit-learn, TensorFlow, PyTorch

Model Training

- Splitting Data: Train-test split (e.g., 80-20)

- Cross-validation: k-fold cross-validation to ensure generalization

Model Evaluation

- Metrics: Precision, Recall, F1-Score,

- Error Analysis: Identify and address model limitations

Deployment

- - API Creation: Using streamlit.
- - Deploy on local host.

Future Scope

- -Containerization using Docker
- - Integration with IoT systems for real-time data processing
- - Implementation of maintenance alert systems

Conclusion

- Predictive Maintenance using IoT data can significantly reduce costs and improve operational efficiency. With further integration and analysis, it holds immense potential for the industrial sector.

THANK YOU