

**ANALYZING THE IMPACT OF PRICE FORECASTING ON INVENTORY
MANAGEMENT: A CASE STUDY IN ELECTRONIC MANUFACTURE**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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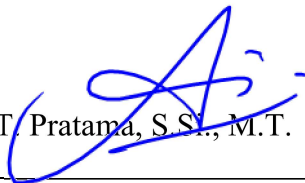
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ABSTRACT

ANALYZING THE IMPACT OF PRICE FORECASTING ON INVENTORY MANAGEMENT: A CASE STUDY IN ELECTRONIC MANUFACTURE

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Effective inventory management is crucial in industries dealing with volatile material prices, such as polypropylene. This study explores the challenges faced by electronic manufacturing companies, emphasizing the intricate balance required in Days of Inventory Outstanding (DIO) standards. Inaccurate price forecasting and fluctuating material costs pose operational risks, impacting financial stability. The study addresses these challenges by proposing a nuanced inventory management strategy, integrating an optimal price forecasting methodology tailored for polypropylene. The chosen method, random forest, demonstrates superior performance with a low Mean Squared Error (MSE) of 214.16 and Mean Absolute Error (MAE) of 9.26. This methodology ensures precise price predictions, enabling proactive decision-making. Implementation of the forecasting method successfully maintains DIO within the optimal range of 14 to 21 days, contributing to seamless material flow and efficient warehouse management. The study also highlights tangible financial benefits, with a 6.43% reduction in unit costs, showcasing the economic impact of accurate price predictions on cost-saving initiatives.

Keywords: Inventory Management, Price Forecasting, Random Forest, Artificial Neural Network (ANN), Supply Chain Efficiency.

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DEDICATION

I dedicate this work to my parents, my wife and my family.

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