

## **ABSTRACT**

### **DECISION SUPPORT SYSTEM DESIGN FOR FABRIC PRODUCTION RECOMMENDATIONS IN PT PUTERA MULYA TERANG INDAH USING MACHINE LEARNING WITH K-NEAREST NEIGHBOR ALGORITHM**

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*PT Putera Mulya Terang Indah is a company that produces textiles such as knitted fabrics and woven fabrics. The production planning process that does not pay attention to historical patterns of performance of each machine, makes the decision making process not optimal. Many fabric production results at PT Putera Mulya Terang Indah have poor quality and produce grade C fabrics. To help the decision making process be more optimal, a decision support system is made using machine learning with the K-Nearest Neighbor algorithm with predictive output machine number and also the type of fabric that must be produced for each specification determined by the head of production.*

*System development will be carried out using machine learning and data mining methods. The algorithm used in machine learning is K-Nearest Neighbor. The data used are production data and final product quality data.*

*The results of the final prediction accuracy of machine learning with the K-Nearest Neighbor algorithm are 79.3%. The prediction output is a combination of machine number and fabric id for production planning recommendations at PT Putera Mulya Terang Indah. Prediction results are expected to facilitate the head of production in the decision making process*

*Keywords— Decision Support System, Machine Learning, K-Nearest Neighbor, Prediction*