



SCHOOL OF COMPUTING SCIENCE AND DIGITAL MEDIA



INFORMATICS
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I agree

I do not agree

That the University shall be entitled to use any results, materials or other outcomes arising from my project work for the purposes of non-commercial teaching and research, including collaboration.

DECLARATION

I confirm:

- That the work contained in this document has been composed solely by myself and that I have not made use of any unauthorized assistance.
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Student Signature: Sachith	Date Signed: 6 th January 2022
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Abstract

Apparel industry is the largest exporter in Sri Lanka so as the Majority of the Dollar income is based on such. Inner ware manufacturing is just second to China. There are many competitors among other countries such as Bangladesh, India, Philippine etc. In which many mechanism and processes have been implemented to give better products with lowest prices. In order to achieve those goals, product efficiency is one of the most important aspect. Efficiency is also a factor which is used to measure the performance as well. There are many concepts and many understandings on efficiency. What are the fundamental aspects which effect the efficiency? Out of those aspects what aspect has the most impact. Very Few researches have conducted their findings on efficiency. Out of them, most are regarding the qualitative researches which have only qualitative outputs. In order to fill this empirical gap, this research is designed to identify the significancy of the factors(variables) which are effecting the efficiency, quantify those impacts and then develop a predictive model to predict the efficiency based on the selected parameters. Step by step data visualization using R studio is conducted to understand the selected variables which depict a story of independent dependent variable connections and how each variable behave. Many assumptions and conclusions were made based on those findings.

Supervised machine learning methods such as Linear Regression, Support vector Regression and Random Forest has been used based on R studio to quantify the significancy of the selected variables and to develop the model based on those variables. During the model creation, hyperparameter tuning was done to gain the best model within itself. Finally a formula is determined to predict the efficiency based on the variable values which is presented via Excel because of its reachability since every office is using Excel.