Contribution ID: **127** Type: **not specified**

A Predictive Maintenance Model Proposal for a Manufacturing Company

Tuesday, 14 September 2021 12:40 (20 minutes)

Maintenance planning is one of the most important problems for manufacturing enterprises. Maintenance strategies applied in an industry are corrective and preventive maintenance strategies. The development of sensor technologies has led to a widespread use of preventive maintenance methods. However, it can be costly for small and medium-sized enterprises to install such sensor systems. This study aims to propose a predictive maintenance model based on the loss data of production lines without such recorded data for production equipment.
In the study, data belonging to a company that produces PVC profiles, such as amount of loss based on shift and line, production speed differences and number of shifts passed over the last maintenance, were used. At first, a threshold value was determined considering planned maintenances. Then, models that estimate the amount of loss for the production line for the following shift, were trained. Statistical learning algorithms such as linear regression, neural networks, random forest, and gradient boosting were used to train the models. When the performance of the trained models was compared, it was seen that the most successful model was the neural network.
At the end of the study, it is explained how to decide whether to perform maintenance or not for a production line. According to the proposed method, amount of loss in the related production line will be estimated and this is compared with the threshold value. If the estimated loss is greater than the threshold value, maintenance should be performed, otherwise, no maintenance will be performed.

Keywords

Predictive Maintenance, Statistical Learning

Special/invited session

Primary authors: Mr AYDIN, Cemal (TÜBİTAK); Prof. SONMEZ, Volkan (Hacettepe University)

Presenters: Mr AYDIN, Cemal (TÜBİTAK); Prof. SONMEZ, Volkan (Hacettepe University)

Session Classification: Modelling 3

Track Classification: Modelling