

Use of AI to predict the damage to the rubber belt used at coal mine

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The conveyor belt systems are used to transport the heavy and bulk material at mining sites due to their features like continuous operation and proven reliability compared to other means of transport. The rubber belt segments and loops are the core of such systems and various factors contribute in the continuous damage done to it during the material carrying-loading-unloading process. The downtimes are costly at such production sites where mining is carried out.

Timely maintenance and repairs can reduce the emergency breakdowns and extend the service life. The study of governing factors for the wear of the rubber belt can help in better control and implementation of the operating conditions. Ishikawa diagram can be used to identify the parameters which contributes in the damage to the belt during production at mining site. Subsequently, enlisted cause and effect parameters in the Ishikawa diagram can be divide into quantifiable and non-quantifiable categories which can be used into the dataset records which are recorded at mining site. The stored database can be used in the statistical analysis and then in developing the machine learning model which can identify the correlation between the cause and effect variables within the dataset and then predict the damage to the rubber belt.