Case Study: Predictive Maintenance of AC Compressor for an Indian Defence Organization

About the Client

The Client was an Indian Government Defence Organization A global automation company partnered with us for the implementation of the predictive maintenance solution.

Business Problem

The Client wanted to do a pilot to check the utility of the predictive maintenance for the AC compressors. They wanted to understand if it is worth investing in the predictive maintenance solution

Solution

For any predictive maintenance model development, historical data about the normal run as well as breakdown condition data of the asset is required. The client provided data the AC Compressor data only for 100 hours with details like Voltage, Current, Vibration, Compressor Temperature, Room Temperature and date time component. The data did not have a clearly defined breakdown condition. It was clearly a case of un-supervised learning.

We also checked for relationships between the variables and found that only Current, Vibration and Compressor temperature are good enough to represent the data set. As it was an un-supervised learning approach, we applied K-Means Clustering algorithm to the data to create segments with data points which have more or less similar characteristics. With a K-Value of 15, we could distinctly identify on cluster which more or less, had data points, which were defining probable Air Conditioner breakdown condition.

A report on the findings was created with 3D visualizations of the Clusters along with our findings and submitted to the customer. We requested to verify the clusters and label them so that it can be used to train the model to identify the failure conditions.

Outcome

The Client understood the complexity involved in building the Predictive maintenance solution. They understood the difference between the supervised and un-supervised solution approach. They also realized a need to gather historical asset data and also assign a team to label the normal and faulty asset operating conditions. The object of the pilot was meet.


SHYENA
TECH YARNS