

Improved Accuracy for Anomaly & Grid Failure Forecasting with Predictive Analytics



Business Objective

- High dust deposition on insulators/transformers leads to a rise in insulator temperature.
- The grid failure in-turn results in revenue losses for the organization
- The client currently uses state-of-the-art automation systems to capture the images of insulators/transformers at the substations to monitor the dust deposition on them.
- The client wanted to fetch and manage video feed data from 0.3 million towers
- The client also required an analytics ecosystem to trigger preventive cleaning alerts on time to avoid grid failure

Client

World's leading embedded technology service provider

Industry

Telecommunications & Utilities

Function

Manufacturing/Production

Technology

Hadoop, Spark, TensorFlow



The Solution

The TekLink Team provided a holistic solution considering the complexity of the factors involved in the grid functioning and other business needs

- Pre-processing (image scaling, background noise removal, and others) the real-time data and images, offline data (manual, image feed, video streams).
- Migration of the pre-processed data to the Data Warehouse.
- Using predictive models for data training.
- Building deep learning algorithms like convolution learning (CNN), using TensorFlow to categorize the clean and dirty images of the insulators.
- Implementing a smart predictive system to provide regular updates and critical warnings for preventive maintenance.



Outcomes and Benefits

- Efficient processing and categorizing the insulator image data feed.
- Minimizing the consequential losses due to power supply downtime.
- Improve preventive maintenance with the clearing alerts generated from analytical models.
- Leverage AI in data processing to reduce error probabilities, eliminating human intervention