

Defect Detection in fabrics spun manufacturing using Computer Vision

Client Overview

A global manufacturing organization which makes high-performance materials for everyday essentials focusing on premium branded fiber.

Business Requirements

- Analyze videos captured through CCTV feeds to extract unique images used to detect badly spun fabric
- Improve the quality of the fabrics by analyzing the various factors involved in the manufacturing process

Indium Solution

- Leverage Python to split video feeds at 1 FPS to get distinct images
- Image annotation to train the model on various defects like Breakage, color variation, poor formation, etc.
- Python-based Object Detection Neural Networks for Computer vision to analyze the images of the end-product
- Classify good & bad spun fabrics based on the above parameters
- Perform Root Cause Analysis of the bad spun fabric to optimize the manufacturing process and improve the quality
- Built a minimal UI app using Streamlit

Business Impact

~20%

Improved quality of fabrics

>90%

Accuracy of Anomaly detection model

~60%

Production efficiency optimized

