



CPG

# Deploying AI To Automate Defect Detection In Fem Care Manufacturing

*Streamlined product defect detection processes using AI and achieved success rate of 98.89%*



## Industry

CPG, Manufacturing



## Function

Operations



## Data Used

Image data of fem care products



## Tech Stack

1. Python
2. TensorFlow

## Who Is The Client?

As a front-runner in the CPG manufacturing space in the USA, the client is at the helm of manufacturing unique feminine-care products. They prioritize a scientific approach in their quality function, thus achieving a stellar reputation for their innovative manufacturing practices.



## How Did We Solve The Problem?

Our data scientists and engineers trained an AI model using Computer Vision and Deep Learning to identify, locate, and color-code defects in sanitary pads. We augmented the training set with tilted/mirrored/distorted and annotated images containing six defects.

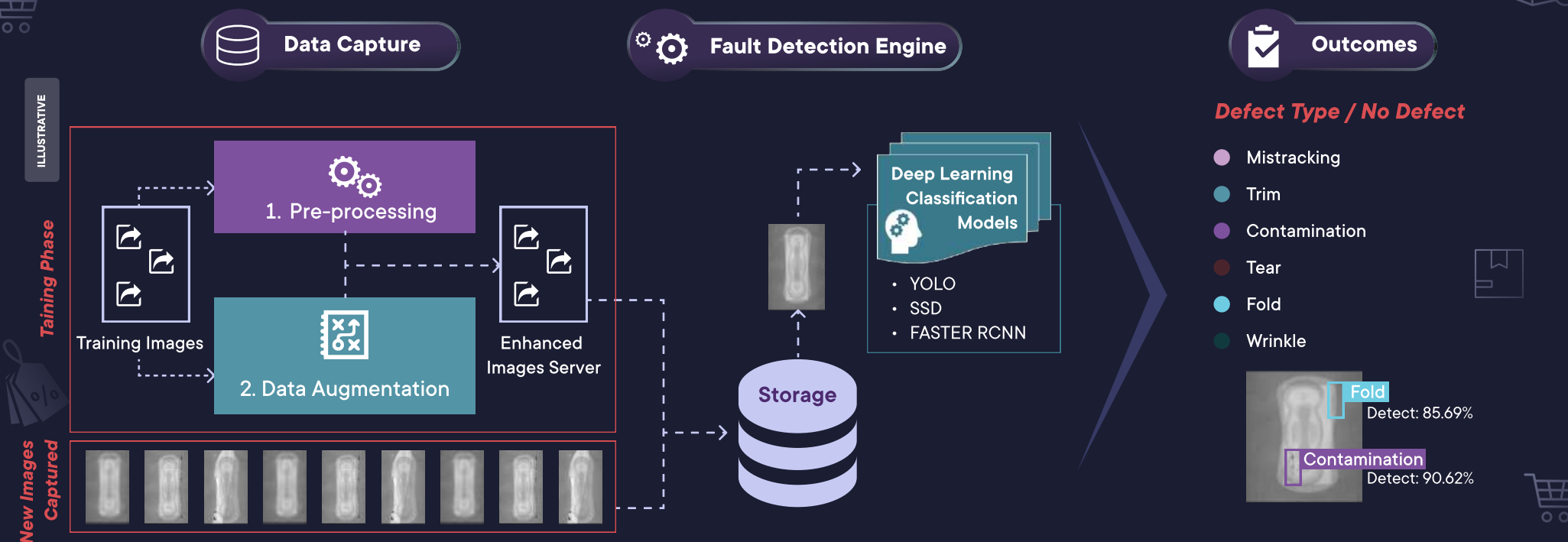
## Business Quandary

Performing quality control for big batches of products using manual processes is not efficient. A fem-care product can exhibit a plethora of defects that go undetected due to human oversight.

The client wanted Affine to formulate an automated system of fault detection at the production stage. The objective was that defect detection rates through AI should surpass the current manual detection threshold.

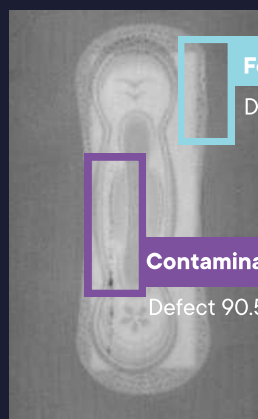


## Schematic Visualization Of Computer Vision Solution



## The Pay Off

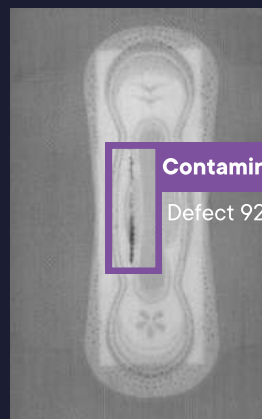
We built a customized web user interface application for the client to process the output of the model. With the assistance of Computer Vision and AI, the client was able to automate monitoring the quality of batches of fem-care products at the production stage. They could swiftly flag the type and location of defects in a particular product with ease. This led to significant ROI gains. Additionally, it surpassed the accuracy rate and speed of manual inspection by avoiding human errors.

**Fold**

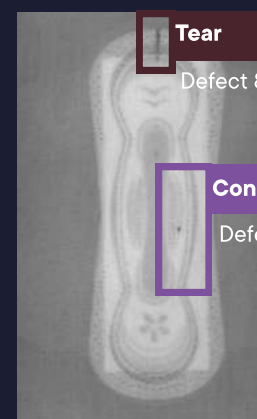
Defect 86.6%

**Contamination**

Defect 90.56%

**Contamination**

Defect 92.74%

**Tear**

Defect 81.03%

**Contamination**

Defect 76.71%

ILLUSTRATIVE

By automating the defect detection process, we created an upgraded and improved quality assurance system that is robust and has substantially reduced erroneous detection.



## Augmented Outcomes

The client achieved the following detection accuracy rates:

**86.6% ↑**

Fold Defects

**90.56% ↑**

Contamination Defect

**81.03% ↑**

Tear Defects

**95% ↑**

Overall Defect Detection



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