

PAIN AREA

Radiography (X-ray) is one of the most important, versatile and widely accepted of all the non-destructive examination methods. Whatever the standard of quality, all welds should be inspected. X-rays images (RT Films) are useful in detecting Interior macroscopic flaws - cracks, porosity, blow holes, non-metallic inclusions, incomplete root penetration, undercutting, icicles, and burn through.

Currently, the RT images are manually interpreted by highly skilled radiologists, either using an illuminator or digitized films viewed on a computer screen. The ability of an individual to detect discontinuities in radiography is greatly affected by the lighting condition in the place of viewing, and the experience level of the interpreter.

Recognizing various features in the image is a time consuming and repetitive task (considering the 1000s of images per job), which when compounded by limitations like, image quality and human fatigue, can cause errors in defect detection.

OUR SOLUTION - PREDACT NDT

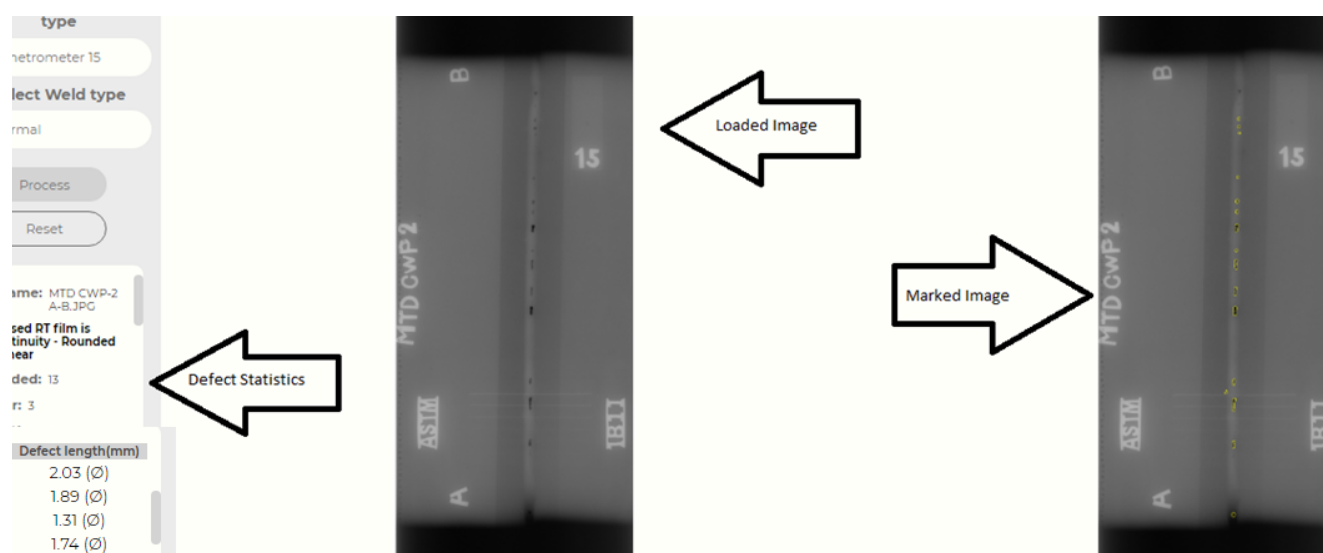
AUTOMATED DEFECT RECOGNITION AND CLASSIFICATION

PredAct NDT is a web-based tool for identification, marking and measuring of defects in welded joints, from digitized X-Ray images.

PredAct NDT uses Deep Learning and Artificial Intelligence to quickly process the image, identify the defects, classify the images as defective or not. In images with defects, PredAct NDT marks and measure each of the defects individually making it easier for the radiologist to draw acceptance conclusion.

PredAct NDT is capable of accepting images both from conventional X-Ray (digitized RT Films) and Digital X-Ray films.

PredAct NDT can also be trained to learn the acceptance criteria and classify welds with defect as acceptable or not. Acceptance criteria can be arrived based on type of defect and measurements.



VALUE PROPOSITION

- The interpretation, when done using PredAct NDT saves about 1.45 - 2.45 hours per job, when using a conventional X-Ray film, effectively saving 33% of the process time.
- The whole process time can be cut down by about 3-5 hours when using a Digital X-ray process and PredAct NDT for interpretation, effectively saving 50% of the process time.
- The accuracy of classification, defect marking and measurement makes it an invaluable asset to companies, big and small, to improve product quality and performance.
- The subscription based model means **ZERO software or infra structure cost** for the companies.
- Totally Web based, accessible anywhere from a multitude of devices.
- R&D efforts in giving solutions integrating technology with domain.



SOLUTION EXTENSIBILITY



- PredAct NDT is currently trained to identify defects in Welds on pipes and tubes. The functionality is extensible to detect / classify other types defects like detecting corrosion, cracking and other damage which can affect operational capacity and safety.
- Speed up the inspection process by using **continuous Digital Radiography (DR)** as a film replacement., which provides a near real-time recognition and classification.

CURRENT STATUS

The POC has been delivered and accepted by a large **Public Sector power major** in India. For POC stage the model was trained to detect, mark and measure linear and rounded defects.

Re-training in progress to include other defect types and welding modalities.

