Neurala VIA for Plastic Injection Molding

Overview

Plastic molded parts are used in so many different manufactured goods: from consumer electronics to automotive and beyond.

Consider a contract manufacturer who creates various molded parts for electronics assembly. They mold and do post-processing before sending the parts to a customer in bulk.

Current State

Typically, the quality inspection is done on a 1/10 visual inspection by a human operator per their largest contract. However, this only is to ensure that in general they are sending good parts. The customer then does manual inspection of every part before using it in assembly.

Neurala VIA Implementation

A GigE camera is installed on the assembly line to inspect the parts after deburring. A switch is added to the conveyor system to allow the signal from Inspector via a gateway (Modbus TCP to OPC UA) to the PLC to indicate defective parts and remove them from the line. A human operator then inspects the defective parts and determines which ones to scrap and which ones can be reworked.

Adapting to Market Changes

They have had a decrease in demand for large orders of the same part due to a general decrease in consumer demand. However, they have had an increase in request for prototypes and small initial batches of medical grade equipment. They see the need to potentially ramp up production of these pieces that have stronger quality control requirements, in addition to be a higher mix of products compared to what they are used to providing. They need to rapidly increase their quality inspection protocols, inspecting each part and tracking that inspection process, with minimal knowledge of machine vision.

The Bottom Line

- Increased inspection rate at a low cost increases the value to contract manufacturer's customer.
- Reduced problems lead to an increase in customer satisfaction and fewer returns from the customer.
- Increase in uniformity (quantification of subjective inspection).
- Early indication that something is wrong with the process if there is an increase in defective parts, leading to a decrease in waste.
- Ability to retrain quickly as new and different parts that are coming in.