

Item Classification



Client

Our client is a multinational motorcycle company headquartered in Chennai, India. It is the third largest motorcycle company in India with a revenue of over ₹20,000 crore in 2018-19. The company has annual sales of 3 million units and an annual capacity of over 4 million vehicles and more than 1,00,000 as their employees.

Problem Faced

- Since the manufacturing process includes a large range of items, the classification of produced parts according to different automobile models was a tedious task. To solve this problem, the customer opted for a machine vision solution.
- The manufacturing unit required the installation of a system. Colour and shape were the deciding factors to classify the parts but after a particular duration, differentiating between similar shades of colors was a tough task and our client wanted to try automating the classification of parts.

Technology introduced by Qualitas Technologies

AI is a powerful technology that has the capacity to solve a number of industrial problems. One of those is to categorize the products based on different parameters. Be it color, shape or size. If a strong algorithm and vast training are set, AI can emerge as a best-suited technology for solving problems based on segmentation, classification or surface defects. Rule-based systems can also solve the problems related to colour detection. But since there are slight variations and large similarities among the variants, AI is preferred. An AI / Deep neural Network (DNN) based solution typically follows the below architecture.



Image acquisition > Image training (includes image segregation) > Model deployment and testing.



Solution

The set-up required would be a typical machine vision setup where the camera was mounted on the top of the inspection table to image the top surface of the component. FOV was adjusted to cover the component having maximum dimensions. Background had to be kept uniform and clear to avoid confusion. The acquired training image set was then labelled/tagged with the correct.

Images

<i>Captured Image</i>	<i>Annotated Image</i>
 <p data-bbox="500 1577 626 1619">N92268699C</p>	 <p data-bbox="1060 1577 1117 1619">HL-2</p>

Results

According to the trials conducted at the customer site, the solution worked perfectly fine for all the variants.

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