

# Classification of parts

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## 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 an annual sales of 3 million units and an annual capacity of over 4 million vehicles and more than 1,00,000 as their employees.


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## Problem Faced

Since the manufacturing range includes a large range of items, 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 instalment of a system. Colour and shape were the deciding factors to classify the parts but after a particular duration, differentiating between similar shades of colours was a tough task ahead and thus our client wanted to try automating the classification of parts.

## Technology introduced by Qualitas

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 colour, shape or size. With a strong algorithm and vast training is 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. So, an area scan camera and an AI based solution were used to resolve the problem.



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## Solution

The set-up required would be a typical machine vision setup where an area scan camera is mounted on the top of the inspection table to take images of the top surface of the component. FOV should be adjusted to cover the component having maximum dimensions. Background has to be kept uniform and there should be a colour contrast between the object and the background to avoid confusion. The acquired training image set is then labelled/tagged with the correct image.

## Images





## Results

The proposed solution works for all the trained OCR characters.

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