

A Visual Inspection System for Automotive Sheet Metal Chasis Parts Produced with Cold-Forming Method

Authors : Imren Öztürk Yılmaz, Abdullah Yasin Bilici, Yasin Atalay Candemir

Abstract : The system consists of 4 main elements: motion system, image acquisition system, image processing software, and control interface. The parts coming out of the production line to enter the image processing system with the conveyor belt at the end of the line. The 3D scanning of the produced part is performed with the laser scanning system integrated into the system entry side. With the 3D scanning method, it is determined at what position and angle the parts enter the system, and according to the data obtained, parameters such as part origin and conveyor speed are calculated with the designed software, and the robot is informed about the position where it will take part. The robot, which receives the information, takes the produced part on the belt conveyor and shows it to high-resolution cameras for quality control. Measurement processes are carried out with a maximum error of 20 microns determined by the experiments.

Keywords : quality control, industry 4.0, image processing, automated fault detection, digital visual inspection

Conference Title : ICAMAME 2023 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : February 16-17, 2023