Keynote Speaker

Industrial Robots and Machine Vision

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Abstract

Industrial robots are used for various applications such as welding, handling, painting, inspection, and assembly in automated production lines, especially in car manufacturing production. The typical operation of industrial robots is called “teaching and playback”. In the teaching operation, an operator moves a robot to the series of points located on desired path of the robot using a teach pendant and stores those positions. In the playback operation, the robot moves to the stored positions sequentially and repeats the sequence. Because the robot follow the same path consist of the programed positions, the target parts of the robot are required to be pre-oriented and aligned using part aligners or fixtures before the robot starts its task.

Machine vision systems allow a robot to perform in more flexible manner. The vision systems are used for such applications as detection of part orientation or position, part inspection and measurement. In the vision system, cameras acquire object images, and the images are transferred to computers and analyzed using image processing software.

The result of the image processing is transferred to a robot controller and the position data of the robot is modified.

In this keynote speech, the roles of industrial robots and machine vision are presented.