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Abstract
Machine vision has been used increasingly in the production lines to inspect the quality of workpieces. There are several ways of inspecting a workpiece by machine vision. One is to hold the workpiece still, so that a stationary CCD camera could grasp a clear picture for further processing. Generally workpieces are transported by conveyors in production lines. It will be more efficient to inspect workpieces during the transportation process. Instead of holding both CCD and workpiece stationarily to conduct inspection, this report studies the methods of moving CCD to track a workpiece carried by a moving conveyor. By doing so, workpieces could keep flowing in the production lines and have their quality examinated at the same time. This would increase production rate and save the cost and time wasted on stopping the flow of workpieces for quality inspection. In this report, a CCD is attached to an X-Y-Z robotic arm, so that the CCD has the mobility to follow the movement of a workpiece and conduct multiple quality inspection on various parts of the workpiece. This report will introduce the methodologies of using CCD to inspect a moving workpiece dynamically. Experiments are conducted to verify the feasibility of such an approach. The results are satisfactory, and some of them are displayed in this report.
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