Visual Servoing for Object Manipulation: A Case Study in Slaughterhouse

Automation for slaughterhouse challenges the design of the control system due to the variety of the objects. Realtime sensing provides instantaneous information about each piece of work and thus, is useful for robotic system developed for slaughterhouse. In this work, a pick and place task which is a common task among tasks in slaughterhouse is selected as the scenario for the system demonstration. A vision system is utilized to grab the current information of the object, including position and orientation. The information about the object is then transferred to the robot side for path planning. An online and offline combined path planning algorithm is proposed to generate the desired path for the robot control. An industrial robot arm is applied to execute the path. The system is implemented for a lab-scale experiment, and the results show a high success rate of object manipulation in the pick and place task. The approach is implemented in ROS which allows utilization of the developed algorithm on different platforms with little extra effort.

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