A short review on vision-based object grasping automation with QR code

ABSTRACT

Rapid development in technologies has improved our quality of life at the same time application of automation into daily activities is becoming an imperative. The online order-picking system is foreseen to be a new normal of life and thus this paper reviews various past researches with related technologies. Few topics mainly on the vision-based grasping automation and monocular vision system using QR code as labels or markers is reviewed. The application of different types of grasping automation in variety field is studied and it shows that an Eye In Hand (EIH) type grasping automation, which the camera sensor is placed together with the robot arm's end, is suitable to be applied into an order-picking system. Thereafter, the monocular vision-based system is also reviewed. Studies found that monocular system is an effective method with low cost and easy installation process. Besides, monocular vision-based automation can operate at high accuracy and efficiency, with the aid of artificial markers such as QR code. QR code technology has been widely applied including products identification, item tracing, and manufacturing management. Additionally, QR codes can be used as markers for picking and packaging products in warehouse. However, limited research is observed using vision-based grasping automation system with QR code markers. Thus, a new research direction of monocular vision-based grasping automation using QR code is expected and suggestive.