Design of an Autonomous Forklift Using Kinect

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Abstract

Material handling is a necessary, but expensive activity in factories. Autonomous robot technology can help reduce the cost and relax humans from the exhaustive job of driving forklifts. In this paper, w e describe the mechatronics design and implementation of an autonomous forklift. The robot can perceive the 3D dynamic world and can plan its motion autonomously to lift materials from a source to target locations. Dynamic map of the world is built using data from a Microsoft Kinect head and readings from wheel encoders, thus enabling the robot to avoid obstacles and reach target locations safely. Experiments showed success of the robot to move and load the cargo to target locations.