

MOBILE ROBOT CONTROL SYSTEM VIA KINECT SENSOR

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Abstract:

Today, human made many kind of complex robot and controlling them was a problem how to make it easy and convenient. My goal of this thesis was to build an example robot application, controlled by the depth of the Kinect sensor. This application is intuitive and feel natural for the user and it should be safe and flexibly set up. In this report, the capabilities of a robot system that is controlled by the Kinect sensor of the Microsoft XBOX-360 are tested. A setup including one Kinect devices, one computer and one robot is presented. An application for using Kinect to track human motion and the information is processed in computer then it is transmitted to the robot via RF module to control the robot.

The mobile robot is built using the Atmega16 MCU, module Radio Frequency Communication and Kinect was the vision to get the demand of human. The depth measurements from the Kinect have been used to directly control the position of the robot. The system could successfully track and follow the motion of a moving human in front of the Kinect. The system could easily follow motion demand with a total system delay of less than 0.2 seconds.

Keywords: Kinect Sensor, Mobile Robot