

ABSTRACT

The development of robot technology is advance today. it gives the good impact for human life. By using the technology of robot can help many jobs done effectively and efficiently. One of example the utilization of arm robot technology is in industry field, arm robot is used to help production process. it is because of many jobs in industry needs high precision, high endurance and high stability.the Arm robot also can be used in medical field, nuclear field, bomb squad etc.

In this final project has made a control system for arm robot using Microsoft Kinect based on PD-control algorithm. The function of Microsoft kinect is a sensor that detects position of skeleton user's kinect, then the data from kinect will be processed by using inverse kinematics for mapping the position of skeleton user to servo motors. After that, it will be done position controlling for motor servo using PD-control algorithm in order to obtain the position of the servo motor in accordance with the movement of the joint user.PD-control algorithm aims to calculate the error values which is obtained from AX12 servo motor, Then through the control process will get the value of the correction for the position of the servo motor. Controller that is used is microprocessor intel core 2 duo. The language program that is used in this final project is python with gedit software in the Robot Operating System platform on ubuntu 11.10 Oneiric ocelot

The determination of PD control parameter value using Ziegler Nichols oscillation method, namely by first determining the critical value of the gain or value of K_P where the servo motor response had stable oscillation, then it can be determined value of P_{cr} or oscillation period. Of both values can be obtained PD control parameter values

Keyword : Microsoft Kinect, PD Control, Robot, ROS