

## POSITION CONTROL OF SINGLE LINK ROBOT MANIPULATOR USING BLDC MOTOR

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### ABSTRACT

Position servo control is more important in recent industrial and robotic applications. This paper presents the position control of robot arm using Brush Less DC (BLDC) motor. A single arm vertical rotating robot has been made through 360° movement with gear arrangement. While vertical movement of robot arm the load is varying with depending upon the position in nature. We need to maintain the speed of arm and desired position at whatever the load is varying in any directions. So it is required a four quadrant operation of drive with robust closed loop control. In this paper position is controlled through closed loop PI controller to get better dynamic performance. The simulated design is tested using various tool boxes in Matlab/Simulink environment. The hardware demonstration of robotic arm coupled with brushless DC motor drive has been obtained using dsPIC 30F2010 digital signal controller.

**KEYWORDS:** BLDC Servo Drive, Dspic, PI Controller, Position Control, Single Arm Robot