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Position and Speed Tracking of DC Motor Based on Experimental Analysis in LabVIEW

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Abstract : DC motors are widely used in industries to provide mechanical power in speed and torque. The position and speed control of DC motors is getting the interest of the scientific community in robotics, especially in the robotic arm, a flexible joint manipulator. The current research work is based on position control of DC motors using experimental investigations in LabVIEW. The linear control strategy is applied to track the position and speed of the DC motor with comparative analysis in the LabVIEW platform and simulation analysis in MATLAB. The tracking error in hardware setup based on LabVIEW programming is slightly greater than simulation analysis in MATLAB due to the inertial load of the motor during steady-state conditions. The controller output shows the input voltage applied to the dc motor varies between 0-8V to ensure minimal steady error while tracking the position and speed of the DC motor.

Keywords : DC motor, labview, proportional integral derivative control, position tracking, speed tracking
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