



DESIGN AND DEVELOPMENT OF A JOYSTICK CONTROLLED ROBOTIC ARM USING ARDUINO

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ABSTRACT

This thesis presents the design and development of a joystick-controlled robotic arm using Arduino. The system aims to provide a low-cost, efficient, and user-friendly solution for safely handling heavy objects and hazardous materials in educational and laboratory environments. The robotic arm is operated through a joystick module that enables precise and smooth multi-directional movement, integrating Arduino microcontroller technology with servo motors and mechanical components for accurate control and reliable performance. The design emphasizes affordability, accessibility, and ease of programming, making it suitable for schools and institutions with limited resources. Overall, the study demonstrates that a joystick-controlled robotic arm can serve as both a practical assistive device and an effective educational tool for promoting automation, safety, and hands-on learning.

Keywords: *joystick, controlled robotic arm, arduino*

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