

Improvement of an Arm and Shoulder Exoskeleton Using Gyro Sensor

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Abstract : The developed exoskeleton device has to control joints between shoulder and arm. Exoskeleton device can help patients with hemiplegia upper so that the patient can help themselves in their daily life. Exoskeleton device includes a robot arm wear that looks like the movement is similar to the normal arm. Exoskeleton arm is powered by the motor through the cable with a control system that developed to control the movement of the joint of a robot arm. The arm will include the shoulder, the elbow, and the wrist. The control system is used Arduino Mega 2560 controller and the operation of the DC motor through the relay module. The control system can be divided into two modes such as the manual control with the joystick mode and automatically control with the movement of the head by Gyro sensor. The controller is also designed to move between the shoulder and the arm movement from their original location. Results have shown that the controller gave the best performance and all movements can be controlled.

Keywords : exoskeleton arm, hemiplegia upper, shoulder and arm, stroke

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