

ABSTRACT

Human motion organs often experience disruption in work function which can be caused by stroke, ligament damage or due to problems of a person's age, causing paralysis. The purpose of this study is to design an upper limb exoskeleton that can be used for rehabilitation of patients with arm paralysis. The contribution of this research is to design an upper limb exoskeleton with a control system that is used to control mechanical movements so that it can be used easily by patients with paralysis. In order to be controlled easily, the upper limb exoskeleton is controlled by using voice commands so that patients with very weak muscle signals can also control mechanical movements easily. The Voice Recognition V3 module is used to detect voice commands that are used to control mechanical movements up, down and stop. There are 6 push buttons namely push button recording commands up, down, stop, saving recording, start the program starting and reset the recording data. The accuracy of the up command is 96.7%, the down command is 93.3%, the stop command is 93.3% and the mechanical overmove time is 0.31 seconds for the up command and 0.29 seconds for the down command. The results showed that the average accuracy obtained was 94.4% and the average overmove value was 0.3 seconds. The results of this study can be implemented to rehabilitate people with paralysis of the upper limb.

Keywords : *Upper Limb Exoskeleton, Recognition of Voice Patterns, Voice Recognition V3, Paralysis.*