DESIGN, FABRICATION AND CONTROL OF UPPER LIMB REHABILITATION ROBOT PROTOTYPE FOR STROKE PATIENTS

S. Mohamaddan¹, J. Annisa¹, A.S.Z. Abidin¹, M.S. Jamaludin¹, M.F. Ashari¹ and H. Helmy²

¹Department of Mechanical and Manufacturing, Faculty of Enginering, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia.

²Faculty of Medicine and Health Science, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia.

Corresponding Author's Email: 1mshahrol@unimas.my

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ABSTRACT: Stroke is one of the prominent causes of disability in the world. In order to have chances for recovery, the stroke patients need repetitive and consistent rehabilitation activities or treatment. However, the increasing number of stroke patients with limited number of therapist and transportation problem for rural patients limits the possibility to have better treatment. This paper discussed the application of robotics system to support the rehabilitation activities focusing on the upper limb area of the body. The result shows two designs of upper limb rehabilitation device were fabricated and controlled. Both prototypes were emphasized on the compact, transportable/portable and simple operation concept. In order to evaluate the prototype, real patient test or experiment needs to be conducted.

KEYWORDS: Stroke; Upper Limb; Rehabilitation; Medical Device

1.0 INTRODUCTION

Stroke is a clinical syndrome characterized by rapidly developing clinical symptoms and/or signs of focal, because of blocked or burst blood vessels, causing the brain tissue to be damaged. The most common symptom of a stroke is the sudden feel of numbness or weakness on the face, arm or leg. It mostly happened on the patient's one side of the body. Besides that, symptoms like confusion, difficulty