A MOTORIZED KNEE EXOSKELETON FOR MUSCLE SUPPORT (CLOSED LOOP SYSTEM)

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Exoskeletons have already commercially made for human and pets for medical purposes. It helps human on daily activities because the most common purpose of it is enhancing the ability of human to do physical activities such as lifting heavy objects, walking normally for disabled people or even replacing the lost parts. Exoskeletons can help people improving motoric muscle performance. This thesis project is a continuation of previous work on motorized exoskeleton for knee muscle support. The device will be improved to a semi-automatic device with FLC (fuzzy logic controller) with help of some feedbacks from sensors and some switches. The two main advantages of using FLC is the components used do not have to be precise which leads to a cheap sensor and fuzzy logic can solve a system without knowing the system mathematical model.

Keywords: *Exoskeleton, Motorized Knee, Arduino.* F*uzzy Logic Controller*

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DEDICATION

I dedicate this thesis work to God, my family, advisor, co-advisor and people with disability or weak knee muscles.

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