DESIGN AND DEVELOPMENT OF AN ASSISTED DIP (EXERCISE) MACHINE, WITH VARIABLE INTENSITY LEVELS

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ABSTRACT

The 'Dip' is an exercise used strength training. Strength training means the use of resistance to muscular contraction to build the strength, anaerobic endurance, and size of skeletal muscles. Normal, shoulder-width dips primarily train the triceps, as well as the large muscle on the back of the upper limb of many vertebrates.

The Dip exercise is hard to perform well and could have serious safety issues for novice and overweight people precaution. In this work, a machine is built to assists the user to perform the dip, creating the Assisted Dip Exercise machine. It has the same ways to do the exercise with Classis Dip exercise. Variable means the ability to have variable strength levels for this machine.

This project covers little part which is mechanical engineering, electrical engineering and software engineering. In mechanical engineering section, this project covers the mechanism part. The absorber is installation as the variable resistance force.

In electrical engineering section, it covers the controller and the display part. It needs the circuit to control the stiffness of absorber and transfer the information to display.

In software engineering section, the software programming is covered. The programming is written to calculate the amount of force and show on display.

As we know, the safety factor is important for the trainer to protect injuries. Therefore, this subject is including in this project report.