

## **Simulation of control for reduced dof lower limb exoskeleton robot using cad design**

### **ABSTRACT**

These years, there has been continuous development in the research of exoskeleton robot for many purposes like augmentation, physical assistance and rehabilitation therapy. Based on statistics, aging population with weakened limbs and people with lower limb disabilities are always increasing. Many therapists are required to perform physiotherapy for walking rehabilitation. Exoskeleton robot research contributes in helping those people to regain normal walking ability. In this research, a lower limb exoskeleton robot for rehabilitation is proposed. Developing the exoskeleton structure and control is challenging in assisting patient to initiate locomotion and walk while providing additional power to the motion. The objective of this research is to design a lower limb exoskeleton robot structure with using mechanical engineering CAD software. Then to investigate the tracking response performed by the exoskeleton to given input to its control system. The research started with the lower limb exoskeleton robot CAD drawing. The CAD design is simulated and its dynamic response is studied. This research finding will improve the studies on the effect of the lower limb exoskeleton robot on rehabilitation therapy. Developing a simple and effective lower limb exoskeleton model can significantly contribute to the advancement of the rehabilitation therapy and health industrial needs.

**Keyword:** Lower limb exoskeleton; CAD; Sim mechanics; Exoskeleton control simulation