

Somphot Tobanleng 2012: Design of Parallel Mechanism Haptic Device for 2 Degree of Freedom. Master of Engineering (Mechanical Engineering),
Major Field: Mechanical Engineering, Department of Mechanical Engineering.
Thesis Advisor: Assistant Professor Taweedej Sirithanapipat, Ph.D. 119 pages.

This research is to demonstrate the results of a grounded type haptic device design and simulation with the virtual environment. The analysis of the five-bars parallel link haptic device both forward kinematics and inverse kinematics is discussed, as well as the kinetics. The haptic device is designed to cover the working area of 200x200 square millimeters with the interaction force about 7 N minimum and 30 N maximum.

The Simulink®/SimMechanics™ is used for the verification of the design and simulation of the virtual environments. The different stiffness in the virtual environment simulations are tested. The maximum torque provided from the selected motor actuators is included to terminate the simulation when the maximum torque is reached.

Student's signature

Thesis Advisor's signature