

# Design of Mechanism for Assisting Walking and Standing Movement Using Planar Linkage

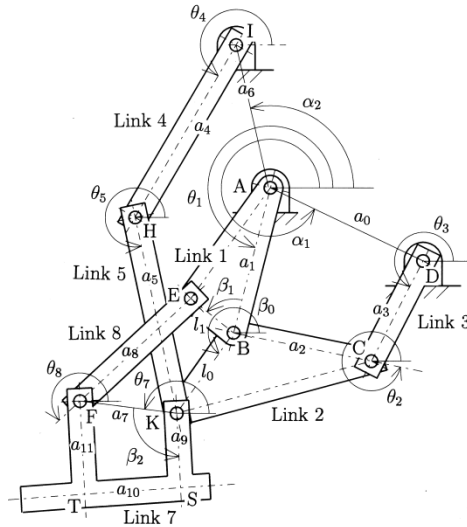
## Associate Professor Jun Nango



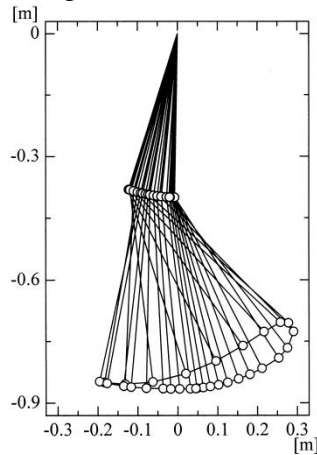
Walker with Assist Device



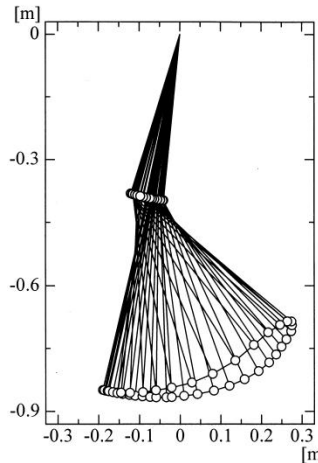
Assisting Device for Standing



Kinematic Model (Walker)



Walking Motion



Generated Curve(Calculated Values)

### Content :

We design and develop the walker with the assist device translating the suspected walking motion to the rotating wheel motion. Using this walker, the rehabilitants are supported by the saddle, so their hands and legs are relieved from pain keeping their body balance. The assist device is designed by using of planar 6-link mechanism, which transforms a oscillating motion to a rotating motion. This mechanism is designed to make its pedal follow a foot motion in a walking by comparing the coupler curve with a trajectory generated by a ankle joint in a walking motion.

Using the same design method, we also develop the device for assisting standing movement, whose seat plate follows the movement of the thigh in the action of standing up for the purpose of relieving the burden from the joints and reducing the effort associated with nursing care. With assisting springs attached to the slider joint and the seat plate, the input torque applied by user's arm can be used to drive the mechanism.

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 Research Interest : Design and Analysis of  
 Planar and Spatial Mechanism

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