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Development of Gripping Assistive Device for Training System

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Abstract

Gripping is an everyday task which goes unnoticeable. Since it is an essential daily movement, without this motion a lot of activities involving this movement could not be done. However due to maturing process and also sometimes mishaps, the grasping movement once in a while become disrupted which then is cause difficulties to whom is influenced. How these impacts, relies upon an individual and also in different ways regardless of age and how the body normally winds up more fragile, less adaptable and less impervious to sickness and damage. Patients with hand gripping issues normally require long term care. This also contributes towards their ability to recover much longer as their regular activity reduces and dependency on other increases. By produce therapy as an, early rehabilitation within the golden period (less than three months prior to incident) is required to improve the gripping motion and regain back the strength of the affected joints as well as muscles. Rehabilitation also helps to improve the patient's ability to return the patient to the level of premorbid function. The current situation is that the rehabilitation process takes longer as there are few physiotherapists available in hospitals. It is anticipated that a mechatronics approach using robotics based devices have been seen as a promising candidate to assist existing forms of the rehabilitation process. The idea is to develop a basic function rehabilitation robot is to support the physiotherapists. The device is aimed to help with the gripping process, where the system is based on a master-slave mechanism which needs a healthy hand to control the weak hand. The system uses a leap motion sensor as the input and the output is an exoskeleton. A gyroscope was used to indicate the finger position and placed on top of the exoskeleton. © 2019 IEEE.

Author Keywords

exoskeleton; gripping assistive device; gyroscope; leap motion sensor; rehabilitation

Index Keywords

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