

The development of arm rehabilitation for muscle contraction monitoring by using Labview

Abstract

Muscle paralysis can be defined as the loss of muscle function. This is caused by the failure of the nerves that send signals for muscle movement. It is often caused by the damage of nervous system especially at the spinal cord. Other major conditions of muscle paralysis are stroke, trauma and muscular dystrophy. This muscle function loss can be a partial or total muscle function loss. Partial muscle function loss or paralysis affects a part of the body whereas total muscle function loss affects the whole body. Arm paralysis is a partial paralysis of muscle function. It can be detected by feeling loss at the arm and unable to lift up the arm as there is sensory damage or motor damage of the arm. The only treatment to treat partial paralysis is through convalescence or rehabilitation. This includes physical therapy and occupational therapy for recuperation. Therefore, the development of arm rehabilitation for muscle contraction monitoring by using LabVIEW is in the scope of physical therapy where it focuses on mobility, help to maintain and build any strength that remained in affected muscle. The distinctive part about this monitoring of muscle arm contraction rehabilitation development by using LabVIEW is the patients and doctors are able to see the progress in real time of the patient's arm muscle contraction. By using LabVIEW, it displays the data of recorded parameters on how much force is exerted from the patient's grip referring to index finger, middle finger and ring finger and rotation angle of the arm at the wrist and elbow when they move upward or downward. The sensors used are electromyogram sensor to detect muscle contraction, variable resistor for arm rotation angle and force sensitive resistor to detect the forces grip. From this, the activities of the patients' arm can be recognized