

Development of prosthetic hand using Arduino for handicap person

Abstract

Prosthetic is an artificial device that replaces a missing body part that may be lost due to trauma, disease and congenital conditions. It is intended to restore the function of the missing body part. The prosthetic that will be developed in this project is prosthetic hand. This prosthetic hand will have the robotic part applied to it to help the handicap person to do their daily activities just as how they used to when they still have their hand. The problem with the current prosthetic hand is that it does not function well and does not assist the patient to do daily chores. Hence, this robotic prosthetic hand is developed to overcome the problem. The objectives of this project are to develop a prototype of the prosthetic hand using 3D printer, to determine placement of actuator on the prosthetic hand, to help assist the handicap person in doing daily activities and to control the movement of the prosthetic hand by using EMG. The prosthetic hand will be design with Solid Work software and then print with a 3D printer. Then, three EMG electrodes are placed on the patient's forearm to detect the signal. The signal will then be interpret by the Arduino microcontroller as to which part of the hand will move whether it is the fingers or elbow. This prosthetic hand can be attached to the patient's bicep. At the end of this project, this prosthetic hand can hold or release for the fingers part and move the elbow up and down.

Keywords

Microcontroller, Robotics, Prosthetics, Diseases and conditions