

Abstract

Abstract—Meeting the crucial needs for the elderly and wheelchair people imposes a real engineering challenge. In this paper, a novel integrated approach of gesture recognition of the upper body limb for the elderly and wheelchair people using Kinect sensor is presented. The purpose of this work is to pave the path toward developing this humane field, in order to assist the elderly and wheelchair people in their daily life activities. The gestures are used to drive a mobile robotic arm as a primary prototype. However, these gestures can be used to trigger any other services for the elderly and wheelchair people to improve their quality of life. The system main components are (i) a Microsoft Kinect device as a skeleton motion sensor, (ii) a Processing software to generate skeletal images and to interface Kinect with the microcontroller, (iii) a microcontroller to generate proper signals to control the mobile robotic arm.