



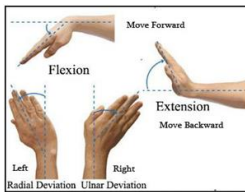
GESTURE CONTROLLED ROBOT

PROBLEMS OR CHALLENGES

In many application of controlling robotic gadgets, it becomes quite hard and complicated for some when there comes the part of controlling it with remote or using different switches. This happens in military application, industrial robotics, construction vehicles in civil side, medical application for surgery. In these fields many times it is quite complicated to control the robot or particular machine with remote or switches, sometime the operator may get confused on the switches or the button itself.

SOLUTION

Arduino is an open-source platform. I have built this gesture controlled robot using this open-source platform. A Gesture Controlled robot is a kind of robot which can be controlled by your hand gestures and not using any buttons. You just need to wear a small transmitting device in your hand which includes an acceleration meter. This will transmit an appropriate command to the robot so that it can do whatever we need it perform. The commands to control the robot can be transmitted through wired or wireless technology.



The most critical sensor used in this is the accelerometer. An Accelerometer is a kind of sensor which gives an analog data while moving in X,Y,Z direction. Using this sensor, the program detects the analog data output and as appropriate sends the necessary controls wirelessly (using ZigBee) to the motor driver for it to perform the necessary action.



This project also uses flex sensor. The flex sensor is a bend detecting sensor which has got numerous applications in robotics, medical and haptic technology. This flex sensor is a variable resistor like no other. The resistance of the flex sensor increases as the body of the component bends.



The next critical sensor used in this project is the xbee transmitter and receiver. ZigBee is an open global standard for wireless technology designed to use low-power digital radio signals for personal area networks. ZigBee operates on the IEEE 802.15.4 specification and is used to create networks that require a low data transfer rate, energy efficiency and secure networking. With today's updates to ZigBee technology, one can wirelessly transmit up to a range of 40kms.

PROJECT PHOTOS

