Introduction:

Gesture Controlled Robot is a robot which can be controlled by simple gestures .The user just needs to wear a gesture devices which includes a sensor.The sensor will record the movement of the hand in a specific direction which will result in the movement of the robot in the respective direction.The Robot and the gesture device are connected wirelessly via radio waves.The wireless communication enables the user to interact with the robot in a more friendly way.

Motivation:

Our motivation to work on this project came from a disabled person who was driving his wheelchair by hand with quite a lot of difficulty. So we wanted to make a device which would help such people drive their chairs without having need to touch the wheels of their chairs.

Our objective is to make this device simple as well as cheap so that it could be mass produced and can be used for number of purposes.

Design:

The two major challenges in this project are

a)Designing the transmitting section.

>Accelerometer
>Arduino uno
>RF module 433MHz
>Bread Board

b)Designing the receiving end.

>RF receiver module
>Arduino uno
>Motor driver IC
>DC motors
>Bread board

Basic construction

The accelerometer records the acceleration in X,Y,Z directions and gives the analog data.The comparator IC compares the analog voltage received from accelerometer with a reference voltage and gives a particular high or low voltage.Encoder IC encodes the data received and address pins into serial coded waveform suitable for RF modulation. Radio frequency is rate of oscillation in the range of about 3KHz to 300GHz ,which corresponds to the frequency of radio waves ,and the alternating currents which carry radio signals.The RF module is working on the frequency of 315Mhz and has a range of 50-80 m.

The input data is decoded by decoder IC when no error or unmatched code are found. The data from the decoder is processed by the microcontroller.microcontroller helps the robot in its decision capability.Motor Driver IC is also known as H-Bridge or Actuator IC.the low current signal received from the microcontroller is amplified by the motor driver and drive a motor.

Accelerometer-250
RF module -100

Motor drivers -11

DC gear motors-500
Estimated cost including all other components like diodes,resistors…..etc is 8000.

Project Name -The Gestured Bot
Team Name -Technovators
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Week Plan:
Week 1: ->detailed study of the outline of the project.
->buying all the required components.
->making the mechanical part of the bot.
->microcontroller programming study.
Week 2: ->making the transmitting device.
Week 3: **->**making the receiver device.
Week 4: ->programming the device.
->connecting with the bot.
->debugging the bot furthur.