Project Title : Gesture controlled robotic arm

degrees of freedom-4
2 in elbow joint, 2 in wrist

Implementation steps:
We are planning to detect hand gestures with the help of gyrosensors.The gyrosensor will detect the changes in angle made by the hand movement.
We will useArduinos and 2 Xbees (for serial communication between arduinos),Accelerometer for taking readings from hand gesture.
Then,we are planning to do testing of the Accelerometer and then finish the coding part.
And then we will complete the circuits and start assembling the mechanical parts.
Once its finished,we will start the designing part of our project.

Flowchart:

hand movement -> gyrosensor -> Aurdino of glove -> Xbee of glove -> Xbee of bot -> aurdino of bot -> respective servomotors

Timeline:
Week1 & 2:
1. To read and research all aspects of the project,
2.To simulate a fully functional working of the project on the computer
3.To read about aurdino codes and brainstorm about the coding required in the bot.
4. To create a scaled down model of the bot in solid works
5. To list and buy all the components to be required
7. Learning about gyroscope sensors

week 3 & 4:
1.Design mechanically a model of robotic arm
2.To create a crude prototype of the model and debug
3.To test the actuators- servo motors and to test torque specifications of servo.
4. to test the microcontroller detector-aurdino
Week 5 & 6:
1. To create the main body and if time permits, to create the shoulder joint also.

Components required & Estimated cost:
1.ACRYLIC sheet
Rs. 735
2.(12V,5A)Adapter,LM338
Rs. 500
3.Resistors,Led's,Bondite,Multimeter
Rs. 200
4.Nuts,Bolts,Connecting wires,etc
Rs. 200
5.Servo Motors
Rs. 2667
6.Arduino
Rs. 1000*2 =2000
7.Xbee
Rs.1600*2= 3200
8.gyrosensors
Rs.900
Approximate cost
Rs. 10,000

What do you expect to learn by the end of the project?

1.Team spirit and group learning
2.Work discipline and sticking to a predecided timeline
3.Learning softwares
4.Learning about new electronic components