Components Used and Cost:

- Xbee Wireless Communication Modules (Ordered online from Nex Robotics):
  - Xbee modules Series 1(x 2): Rs. 1250 each
  - Xbee adapter board(x 2): Rs. 180 each
- Triple Axis Accelerometer (Ordered online from RhydoLabz):
  - MMA 7361: Rs. 690
- Voltage Regulators - 7805ICs and 7809ICs
- Acrylic Sheets For Chassis and gripper
- 12V LiPo Battery
- Wheels
- Motors: 2Kg.cm and 6 Kg.cm torque rating Servo motors, 150 rpm DC motors
- 2 Arduino AtMega328 Duemilanove boards
- Goal Keeping Glove
- PCBs

Description

Gesture Control has many applications today. Exploring the use of it to control a bot is what we intend to do.
There will be a glove worn on the hand containing components of accelerometer, microcontroller, and a wireless transmitter module. The accelerometer will detect the accelerations along its axes and this will be transmitted to the transmitter through a microcontroller. The other wireless module, on the bot, that is, the transceiver will receive these signals and send it to the microcontroller, which will be coded to manoeuvre the bot as desired. Preferably the bot and the glove will have covered components for long lasting. There will be an on-board battery on the bot.
The hand gestures could also instruct the bot to grip objects and take it off with it. The gripping mechanism is controlled by a servo motor. The lifting mechanism is controlled by two high torque servo motors.

Plan Of Action

Week 1

- What we planned:
  - Research on accelerometers
  - Research on different RF modules
  - Research on microcontrollers
- What we managed to achieve:
  - The accelerometer MMA7361L would be apt for the need
  - Xbee RF module with the protocol 802.15.4 would be best for the current project.
  - The ease of procurement of the components could change our choices.

Week 2

- What we plan to do:
  - Design the circuit on the bot and glove.

        - Learn AVR coding and start coding.
        - Place orders for accelerometer.

- What we have accomplished:
    - Made a rough design of the circuits.
    - No AVR coding for now- started coding in Arduino.
    - Ordered MMA7361 online.

Week 3

- What we plan to do:
    - Work on the rest of coding.
    - Start the design of mechanical parts.
    - Receive the components
    - Learn the designing of PCB on EAGLE, design PCB, give it for printing.

- What we have accomplished:
    - Coding - in the process
        -
            - Roughly designed the glove and bot(chassis)
            - Designed the PCB on EAGLE

Week 4

- What we plan to do:
    - Callibration and debugging.
    - Testing and verification.
    - Decide/Buy materials for the glove.
- What we have accomplished :
    - Started callibration
    - Bought glove
    - PCB printing and verification done

Week 5

- What we plan to do:
    - More of testing
    - Possible improvements to code?
    - Design the glove.
- What we have accomplished:
    - Added more gestures to control the bot

    - Ideated a gripper mechanism as an extra feature
    - Glove ready
    - Calibration started

Week 6

- What we plan to do:
    - Complete the bot.
    - Complete the glove.
    - Assemble all the parts together to give a finished product
- What we have accomplished:
    - Mechanical and electrical parts of the gripper
    - Testing done
    - Finishing done
    - Gesture controlled bot done