IMAGE PROCESSING CONTROLLED BOT

Team name- TECH-NO-LOGIC

Club- ELECTRONICS AND ROBOTICS CLUB

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1) Components Required-

-PC preferably running Windows 8 SP1.
- Arduino Uno or compatible + power source.
-XBee(2)
-FTDI chip(1)
- 300 rpm motors(2)
-Chassis and wheels(4)
- Webcam w/UBS interface.
-IC 7805 and 7809
-L293D
-Lead Acid Battery (12V)
- Breadboard and PCB
- Jumper wires.

2) Software Platforms-

-Arduino IDE
-OpenCV libraries
-Microsoft Visual C++

-Serial C++ library for Win64

3) Plan of Action-

-Week 1

- Buying all the components
- Making of bot
-Checking the functioning of the bot by simple programs in Arduino.

-Week 2

-Start studying openCV libraries.
-Emphasising on finger-detection specific programs on openCV

-Week 3

-Start coding in openCV for the project.
-Integrating the wireless parts for project

-Week 4

-Learning how to use Xbee.
- Including the serial data transmission in openCV code.
-Finalising the code.

-Week 5

-Troubleshooting of the project.
-Adding aesthetics to the final product.

IMPLEMENTATION OF THE PROJECT

We will start by making our bot. After this we will start coding for the finger recognition through openCV. Firstly, we will use the simple color detection

technique by using different colors on our fingertips. The command will be transmitted to the bot using Xbee wireless serial transmission. Two XBee's will be used- one for transmitting and other for receiving. The receiver will be attached with the Arduino board on the bot. Through the Arduino programming the bot will respond as per the different color combinations captured by the webcam. Once the color detection is successfully implemented, we will code for the commands without using the color and just using the image processing of the shape of the hand.

Sources-

1) www.opencv.org
2) www.arduino.cc
3) www.duino4projects.com
4) www.google.com