Project Overview

This project is to build a wearable bracelet that can trace hand motion and control a PC via Bluetooth 4.0. The idea of the project is to free user from in front of a keyboard and be able to control computer with simple gestures.

Project Approach

The project will be divided into two parts, hardware building and software interaction. We will use Bluetooth 4.0 as the primary protocol bridging between these two. The project team consists of four people, Philip Loury, Jerry Fu, Brain Kim and Yanming Chen, each person is responsible for one level of abstraction of the project. In Particular, Brain Kim will be working on the board design; Philip Loury will work on setting up the Bluetooth communication; Jerry Fu will use the raw data to do gesture recognition, which will be used by Yanming Chen in the software interface to control the computer.

Project Object

- Build a device integrating microcontroller, accelerometer and Bluetooth models in a reasonable size to wear on brace
- Establish a reliable and convenient data connection between the device and computer via Bluetooth 4.0
- Be able to process the signal from accelerometer and other sensors into gesture information
- Control the computer in real time

Major Deliverables

- A project schedule and blueprint together with time estimations
- A detailed features and well-defined interface so that teammates in charge of different parts can work independently and efficiently
- Working software interface for testing
- Prototype device with planned functionalities
- Final Project

Constraints

The time left for us to build the project is limited compare to the amount of work that needs to be done. As the semester goes on, exams, assignments and interviews will become distraction thus further reduce the time for us to work on the project.

Risk and Feasibility

- Since Bluetooth 4.0 is a relatively new protocol, we might run into many un-predictable problems utilizing it
- Build our device from ground up might require more time than we are allowed
- The Project as a whole is well-planned and feasible