

Weekly Report

Team Physion

Week 3 (01-25-2010)

Things we did

1. Making Game Proposal

We thought of 3 potential game proposals.

- 1) FPS shooting game
 - Use gun model with wiimote to aim.
 - Biofeedback augmented with various weapons.
 - Focused brainwave (Gamma and Beta) make aim steady with sniper rifle.
 - Fast heartbeat enables fast fire rate of machine gun.
 - Based on Galvanic Skin Response (GSR), excess nervousness would blur screen.
 - Replenish energy when player relaxes.

- 2) Balancing jumping game (abstract, space-y feel)
 - Use wiimote to balance.
 - If you are focusing, the floor (jumping panel) becomes wider.
 - Stable heartbeat would stabilize the floor and make easier to balance.
 - Nervousness or stress would delay your jumping action.
 - Character would jump when player actually jump, using HMD sensor. (We will not use HMD but just the HMD sensor.)

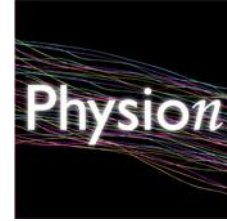
- 3) Zombie Survival game (tongue in cheek, think Zombieland)
 - Similar to FPS shooting game except you only have one weapon and tons of zombies.
 - Increased heart rate and GSR attract zombies and you will need to shoot more of them to stay alive.
 - Focus brainwave makes your aim more precise and vice versa.
 - Goal is to survive as long as possible.

2. Building Logo and Website

We designed a logo, halfsheet, poster and website to put on ETC homepage.

Website address: <http://www.etc.cmu.edu/projects/lm-motion/>

Attached: Halfsheet design



3. Item Research

Body media and wild divine arrived. We try to find out what data they can detect and how to extract data. Hardware and software were different with our expectation. We tried to solve the problem by analyzing code and contacting manufacturing company.

4. Company Contact

1) Minisun - IDEEA

+1 (559) 439-4600

- Motion sensor system
- Question to ask
 - Possible to get data in real time
 - Price and how to buy



2) Wild divine

tori@wilddivine.com

866.594.9453 option "1"

- Received data reporting program 'Data Parsers' and team programmers start to analyze.
- 'Data Parses' exports data manually. We will contact to Wild divine again and ask if another program is available. If not, we need to modify the program to get data in real time, however, it is low-level programming that our programmers are not familiar with.



3) Body Media

Rachel Jackson
Clinical Research Coordinator
412-543-1311 (office)
<http://www.bodymedia.com>



According Body Media,

- There is no provided SDK or way to get raw data with device that we have (GoWear).
- They suggested to us to buy another product of theirs, SenseWear (BMS). BMS originally costs \$3,500 including professional software. After university discount, it became \$2,500. There might be a little room for price negotiation.
- However, both of GoWear and SenWear can't receive data in real time. It stores data and upload after PC connection.
- **For these reasons, we might not use Body Media and just return the item.**

4) Thought Technology

1-800-361-3651 or (514) 489-8251

- It costs \$2300 if we want to use GSR and skin temperature sensor
- To use, an encoder and a sensors are required. 2-channel encoder can use 2 sensors.
 - 2-channel encoder: \$ 1700
 - 5-channel encoder: \$ 3000
 - 10-channel encoder: \$ 6000
- Various sensors are available: EEG, EMG, EKG, Respiration, Temperature, etc.
- Professional equipment
- Can get data in real time and export
- Provide API
- 10% student discount
- If we can't use Wild Divine either, we will consider this product because of data accuracy and variable sensor availability.



<http://www.thoughttechnology.com/hardware.htm>

<http://www.thoughttechnology.com/sensors.htm>

5) GSR/Temp2

(800) 435-5354 (USA/Canada) or (416) 209-2495

- Software costs \$75 and hardware costs \$160
- Also made by Thought Technology, and much simplified one

We contacted Mr. Gordon of MindGrowth, the US distributor. Gordon said it might be possible to get raw data. We sent questions to Gordon and he would contact the software developer.



<http://www.mindgrowth.com/store/index.php?cPath=23>

http://www.mindgrowth.com/store/product_info.php?cPath=1&products_id=34

Things we will do

1. Making Game Proposal

Coming week is due date of 2 game proposal. Based on the feedback, we will develop the ideas.

2. Item Research

The program and use of devices are a little different with our expectation. We will find what data they can detect and analyze programming code. Then we can find out how to extract data and where to use.

In additions, in case if we can't use IOM, we would contact other manufacturers.

3. Prepare presentation

As quarter presentation is coming, we would prepare.