Final Year Project Plan
FLEXIBLE GAMING WITH MULTIPLE CONNECTED DEVICES
- DRAGON MYTH

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**Project Background**

Nowadays, it is easy for a person owning multiple electronic devices such as smartphones, desktop computer, wearable devices and so on. It is because the old electronic devices are replaced by the new and more high tech devices. The new devices have been installed with different powerful hardwares and softwares. Many people enjoy playing electronic games with the new smartphones[1] at home, on the transportation or wherever because of convenient and quality of display. These lead game developers mainly focus on developing various games in one console controlled by single device.

There are some sports gaming related to the project including the followings:

- Kinect Sports in Xbox with Kinect [2]
- Sports Bar VR Game in PlayStation4 with PlayStation®VR [3]

In this project, connecting different devices together to form a gaming network is the main purpose because we think that the experience of gaming should not be only limited by single device. Moreover, people who play games are always sitting in fornt of the computers or holding the smart phones. We would like to change the gaming habit not only sitting, but also moving. Developing sports gaming is one of the ways to promote that habit. Dragon boat was chosen for this project because it needs teamwork with at least 10 people and up to 50 people, and also it is one of the traditional chinese sports. Computer platform will be built and connecting smartphone, Kinect and smartwatch. With different version of games, several features will be included. It will be the first somatosensory dragon boat game.
Project Objective

The project aims to develop a dragon boat sports game which allows players to enjoy a new gaming experience with multiple connected devices and to introduce and promote dragon boat to the public. The game will be developed into two parts: training, competition. Each of them has two sections: paddler and drummer. Players have to select the specific part and section before playing. Through Kinect, various gestures will be captured for controlling the games.

Moreover, at least 20 people from different age-groups will be invited to test and provide feedbacks on those sections of the game. Kinect will capture those players’ motion and data will be processed in order to improve the timing of paddling game and drumming game and to enhance entertainment. Through the test, we would also like to collect the their opinions on how to promote dragon boat in a better way and the extent of acceptance on playing dragon boat.

As dragon boat is a team sports, team spirit will be one of the point to be promoted. Players can enjoy the game of various number of players playing together. By cooperating and talking with partners and competing with their opponents, players can enhance their communication and teamwork skills.

Beside, gaming should not be just sitting in front of the display without any body movement. In the long run, it is unhealthy. We suggest that games can be played healthily. By moving your body, players can keep fit and enjoy playing sports while they are playing games.
Project Methodology

Developmental and experimental Study will be the best for this project as at least 20 people will be invited to test the game. They will test all the sections of the game and give feedbacks to improve the game.

For training, Kinect will be used for motion sensor, smartphone will be used for virtual reality display and smartwatch will be used for vibration. Since players have selected the paddler or drummer section, motion capture will not be affected even part of the hand movement from players may be the same. There is a bar displaying with a moving object and the speed of moving object is according to the frequency selected. Players have to paddle or beat (put their hand down to certain position from a higher point). It will be captured by Kinect and some background calculation will be done to calculate the accuracy. If they can sync with the moving object, they will hear the sound of applause. Otherwise, the smartwatch wearing will vibrate to draw their attention to try to sync with the moving object. The paddling or drumming rhythm can be trained.

For competition, Kinect will be used for motion sensor, smartphone will be used for virtual reality display and smartwatch will be used for vibration and real time chatting. Players can compete with other players online. Similar to the training part, players have to select the role first and do the movement to paddle or drum. After that, they can create a room and invite their partners to join the competition. Competition is similar to training except real time chat room. For each of paddle, data will be calculated according to the speed and consistency. Faster and more consistent motion will be point to win.

At least 20 people will be invited from different age groups. They will test the game with different connected devices and give feedback on improvement. Different gestures will be asked to test. Those data will be processed, calculated and analyzed to specific game section.
Project Schedule and Milestones
References

[1] 2013 Gamers Survey Results: Demographics, Platforms and Smartphone Use
