Project for Gesture Based UI Development

Due Date: 9th April 2018 (or earlier is acceptable)

Develop an application with a Natural User Interface. You have a choice of technologies available to you and an opportunity to combine a lot of technology that you have worked with over the past four years.

At the very least, this should be a local implementation of the application using gestures to interact with it. You can expand out to include real-world hardware and use this as an opportunity to prove a concept. The Internet of Things is a common phrase, so you could implement a solution taking advantage of hardware like the Raspberry Pi, using the cloud for data transfer and creating a real-world scenario through this medium.

The programming language is your choice and there are several options including JavaScript, C#, C++ and Lua.

Hardware available

- (9) Myo Armbands, (2) Leap Motion Controllers, (4) Kinect V2, Cortana (or Siri), (2) Hololens, (6 Durovis Dive) Google Cardboard
- Raspberry Pi, Arduino, Lego Mindstorms (open to you)
- Other stuff you may have……

Requirements

Write up the project under the following headings

Purpose of the application – design of the application including the screens of the user interface and how it works. The application can be an experimentation process for you, testing how pieces of hardware could interact or be combined with gestures. You don't have to solve the world economic crisis just yet.

Gestures identified as appropriate for this application – consider how gestures can be incorporated into the application, making a justified argument for the ones that you pick. This is a research element for the project.

Hardware used in creating the application – You are not limited to the hardware listed above. If you have your own hardware, or hardware simulator that you wish to use, then feel free. The purpose of each piece of hardware should be given with a comparison to other options available.

Architecture for the solution – the full architecture for the solution, including the class diagrams, any data models, communications and distributed elements that you are creating.

Conclusions & Recommendations – Conclusions are what you have learned from this project and the associated research. Recommendations are what you would do differently if you were to undertake the project again. The Reflective Piece – what I learned and "enjoyed"

Marks Awarded

Project is worth 60% of the module marks and is to be submitted through Git, with marks awarded in the following areas

- Gesture consideration and use – the rationale for the gestures used needs to be well documented and explained 20%
- Basic solution implemented and working (the code part) – 45%
- Architecture – use of cloud services, interaction with other hardware, real-world solution – 15%
- Documentation – 10%
- Class presentation – 10% (must stay for the others)

Remember, that Thalmic have a marketplace for applications developed using the Myo armband, so it may be worth having a look there to see the type of projects that are ongoing. It you do release an app to here, please highlight this.