

## EE/CprE/SE 491 WEEKLY REPORT

Jan 2020 – Dec 2020

Group number: 27

Project title: Big Classroom Support

Client &/Advisor: Dr. Lotfi

Team Members/Role:

Brendan Niroula - Leader

Ali Al Ahabbi - Front End Development

Jian Kai Lee - Back End Development

Zechen Huang - Facial Recognition Specialist (Tentative)

---

### **Weekly Summary**

The overall objective of this week was to gather information from the client, meet our team members and research the market for more information on the project. Tasks completed include research, meeting the client and setting up meeting times. No changes to the project have been made as of yet.

### **Past Week Accomplishments**

Research on Language and Device to use - **Jian Kai Lee**

- Researched on different glasses currently on the market and SDK for glasses
  - Compare the functionality between each other and prices
  - Epson Moverio, Vuzix, nreal and google glass
- Looked up framework for mobile app that needed to compatible to Android and iOS
  - Xamarin use .net or C#, Appcelerator Titanium, React Native
  - Researched on socket in Xamarin
- Drafted a list of possible hardware device that support AR
  - Listed the idea google glass, raspberry pi with camera, AR app on phone camera

Gather the essential information about developing a phone app for both iOS and Android - **Ali Al Ahabbi**

- Searched for the best cross platform for developing apps

- Adobe PhoneGap is a cross platform to develop an apps for iOS, Android, windows and blackberry.
  - Advantages:
    1. Open source- free
    2. JavaScript which have a wide variety of libraries that support face recognition ( the main feature of our project) such as tracking.js , face-api.js and pico.js.
    3. Apps on PhoneGap will be similar to native apps
    4. Easier Deployment of apps
  - Disadvantages:
    1. It's not the best choice for gaming apps
    2. Developing an iOS app needs SDKs which requires a Mac.
- Searched on the actual market for face recognition software used in schools.
  - [Www.face-six.com](http://www.face-six.com) is one of the softwares existed now on the market.
    - Uses face recognition to recorded attendance in schools.
    - Used on drone cameras.

#### Research devices and frameworks - **Brendan Niroula**

- Searched for affordable smart glasses which provide streaming via wifi.
  - [https://www.amazon.com/Streaming-Glasses-Camera-Included-Micro/dp/B07RQ1F4WX/ref=cm\\_cr\\_arp\\_d\\_product\\_top?ie=UTF8](https://www.amazon.com/Streaming-Glasses-Camera-Included-Micro/dp/B07RQ1F4WX/ref=cm_cr_arp_d_product_top?ie=UTF8) - Good reviews and affordable
  - [https://www.amazon.com/Streaming-Sunglasses-Glasses-Blocking-Reading/dp/B07T35N7PZ/ref=sr\\_1\\_5?keywords=streaming%2Bsmart%2Bglasses&qid=1580594471&s=electronics&sr=1-5&th=1](https://www.amazon.com/Streaming-Sunglasses-Glasses-Blocking-Reading/dp/B07T35N7PZ/ref=sr_1_5?keywords=streaming%2Bsmart%2Bglasses&qid=1580594471&s=electronics&sr=1-5&th=1) - another option
- Facial Recognition in Python - may not be compatible with windows - [https://github.com/ageitgey/face\\_recognition](https://github.com/ageitgey/face_recognition)

#### Research Face Recognition Algorithm and Papers - Zechen Huang

- Emotion detection which have face recognition process <https://github.com/justadudewhohacks/face-api.js>
- Emotion and face recognition <https://github.com/thoughtworksarts/EmoPy>
- Emotion and face recognition <https://github.com/vjgpt/Face-and-Emotion-Recognition>
- Most of them are using Python
- Install Ubuntu and Python on laptop

#### Pending Issues

- Finding compatible and affordable hardware for the project - Everyone

- Finding good open source facial recognition software - Everyone
- Deciding which languages and frameworks to use (Phone Gap vs .net and C#) - Jian and Ali
- Figuring out socket for text message communication - Everyone
- Glasses SDK programmable - Everyone
- Need to Find a good way to do face recognition with large amount of people - Zechen Huang
- Need to follow eye contact of professor - Everyone
- Need to identify what package to use while transferring data between different languages - Everyone

### **Individual Contributions**

Name	Individual Contributions	Hours This Week	Cumulative Hours
Brendan Niroula	Research on mobile framework and AR glasses in the market	6	6
Ali Al Ahbabi	Gather the essential information about developing a phone app for both iOS and Android	6	8
Jian Kai Lee	Research on Programming Language mobile development and hardware device for glasses with live stream camera	6	6
Zechen Huang	Research on Face Recognition and language to use. Research on Emotion detect which has similar use of face recognition	6	6

### **Plans for the upcoming week**

Test our options of cross platforms to decide which one we will work on -**Ali**

- Xamarin:
  - Install and test the environment.
  - Find what language does this platform support better
  - Explore the platform features
- PhoneGap:
  - Install and test
  - Explore the features of this platform
  - Find how the face recognition libraries that JavaScript provide is going to be useful for the project

Finalize decision on glasses and figure out how it will speak to the back end - **Brendan**

Demo some of the face recognition and emotion detect apps - **Zechen Huang**

### **Summary of weekly advisor meeting**

Week 1: meet advisor and client to gather the product functional requirements, budgets and guidelines in brainstorm ideas, set up weekly meeting time, do research depends on each ones role