Kevin Whitney

Design Project 1

Project Proposal

**Problem Identification:**

The problem that I will be working on over the course of this term will be creating an application that not only translates the ASL alphabet in real time, but also houses several other features that will be user to teach users the ASL alphabet in a fun and interactive way, utilizing computer vision and machine learning. This problem is not something I have directly worked with in the past, however several of my family members are working in the field of education, specifically with children with disabilities. Because of this, I have seen first hand just how important a tool that sign language can be, not only for the teachers, but for anyone. I hope to offer a fun and interactive way to learn this skill as well as offering useful tools to the users in the process.

**Project Requirements:**

~~Rough List after project approval~~

* Feature List
  + Translator
  + Games, solo and competitive (user vs user)
  + Sentence creator (as well as a spell check would be a nice touch, credit to Professor Tagen)
  + Learning (this may simply be the games section on a solo scale)
* Technologies
  + OpenCV library, used for the computer vision side of the project
  + TensorFlow, machine learning aspect
  + Both will be available, planned development for Windows and Android mobile phones
  + Languages: Java, first and foremost.
* User interface
  + App would open directly to camera feed of user, translator would be working right away
  + Bottom or side panel containing other features (games, learning, etc.)
  + User would be able to navigate between areas that they want
* Database
  + The main use of a database in this sense would simply be the high scores of users in the game categories. Since data of users will be stored, users and their logins will also have to be stored so that they may login and see their scores.
  + This can all easily be done using a simple SQL database.
* Networking
  + Again, the networking side of things would be primarily user for the games. This would include communicating with the database as well as allowing users to face each other one on one. Network specifics will be developed more when I have a clearer idea of the games I would create.