Senior Design I
Group Meeting Notes/Milestones
2017-NOV-26

Group Update:

After much deliberation and research we decided to simplify our overall design for our senior project. We worked with several professors and determined that our goals to implement antennas for object detection was at a level higher than the undergraduate. Due to time constraints, budget and support we decided to drop the EM aspect entirely and focus all our efforts on an embedded application for augmented reality. The general idea now is to create an augmented reality sandbox consisting of two major pieces of hardware: Xbox Kinect V2 (for our RGB+D camera) and a USB/HDMI projector. This project is now primarily an embedded software project (with the exception of not selecting a host to run the program on). So for now, this is a pure software project. We will prove the concept with a modern laptop and the current goal is to write the entire program in Python. The requirements document is currently being updated to reflect the changes we decided as well. More document updates will follow this general updated summary of progress.

Ryan:
- ❖ Getting up to speed on Python
- ❖ Currently working some simply Python examples and doing some self-education with this language to be semi up to speed with the rest of the group with respect to the language.
- ❖ Completed ethics homework assignment

Nathan:
- ❖ Researched our projector options and became familiar with the specifications
- ❖ Searched for similar products that have the approximate specifications and fit our budget
- ❖ Ultimately failed in finding something, mainly due to constraints of cost
- ❖ Convinced our department chair to allow us to spend both semesters budget at one time on one piece of hardware and found the exact project online for a deeply discounted price ($699).
- ❖ Karla ordered our component and it should be arriving this next week (Week ending December 1st)
- ❖ Currently working on ethics homework assignment

Randy:
- ❖ Researched and found our ideal candidate for our projector
- ❖ Found the model and cost (~$1000), which is beyond the budget
- ❖ Turned over that information to Nathan to try and source an alternative equivalent component

Next Milestones: 2017-DEC-03

Ryan:
- ❖ Generate a "fake" point map for Randy to read in as a precursor to getting the actual values from the Kinect
- ❖ Create this map based on our current prototyped size of 12" x 12" so that we can actually mount and project the image onto our small sized sand box
- ❖ Create a mechanical drawing of the final sized projector, take into account the aspect ratio of the device so that we know how high we need to mount both devices to accurately map back down onto the sand
- ❖ The mechanical aspect should be created in some relevant software (I.E. Solidworks or Autodesk)

Nathan:
- ❖ Continue working with the Xbox Kinect V2 and get data into Python

- ❖ This requires many external dependency downloads with zero guarantee of success
- ❖ Look for a walk through on how to pull the Z-axis data from the camera
- ❖ Get the actual data out of this device and store into very large matrices
- ❖ Complete the updates to the requirements document
- ❖ Complete the ethics homework

Randy:

- ❖ Take in the "fake" point map created by Ryan and create a connect the dots type map in Python using any dependency you like
- ❖ Check out matplotlib, seaborns & scipy
- ❖ Display "fake" map with all connected contours out through the HDMI port to the projector
- ❖ Leverage Ryan or Nathan for assistance as needed
- ❖ Complete the ethics homework