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CSC 567 – 3D UI

Final Project Proposal

Project Description

For my project I want to create a 3D application to augment computer science learning. Based on some research I was doing (articles found relating to this topic are included in the references section) the way I see myself implementing this would be using some sort of a "QR" code which could be on a PowerPoint, a handout from a teacher, a homework assignment, etc. and scanning the QR code could bring up a YouTube video showing a helpful example, some 3D models explaining a process better, and article with supplemental material, etc. I haven't quite hashed out exactly what ways of the above I would like to implement (I would like to do as many as I can to show the diversity of using AR for learning but I'm not sure how hard this could be).

Technology

I will be developing this project for phone augmented reality. I will use Unreal Engine to develop. I haven't investigated this too much – but if a database is needed, I would likely use Firebase Database as I am familiar with it unless there is a push for me to go in another direction.

Motivation

I really like the idea of developing a phone app that uses augmented reality to enhance learning because I think it would have been valuable in my education. I wanted to work on something that would be fun and that I am passionate about. Finding ways to incorporate AR into learning CS (or anything really) could be so beneficial. There are so many people who are more of a visual learner and this could help them.

Deliverables

The deliverables as I see it right now would include:

- An augmented reality phone application
- Videos showing application running with different scenarios/inputs
- All the checkpoints

- Lesson plans/PowerPoint examples/Example Assignment/etc. with QR codes that the AR program would use to enhance learning

End Project

I see the end project as something where there could be different modules/classes/sections that you can choose at the beginning. For example, if you choose 'Graphical User Interface" it would be content relating to GUI coursework. Once you choose a class/section then you could start scanning QR codes in your assignment or handouts to enhance your learning!
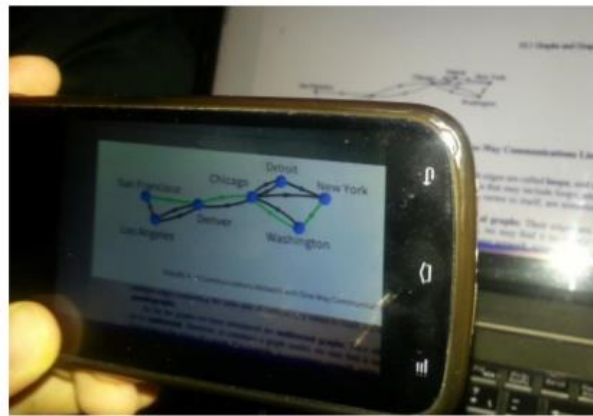

Figure 1: Image taken from the "An Augmented Reality Application for Computer Engineering Curriculum" to show a general idea of what the application could do

References

Below is a list of articles that I have found to guide my research in this project so far.

Kose, Utka, et al. "An Augmented Reality Based Mobile Software to Support Learning Experiences in Computer Science Courses." *Procedia Computer Science*, Elsevier, 26 Nov. 2013, https://www.sciencedirect.com/science/article/pii/S1877050913012507.

Simsek, Mehmet, et al. *An Augmented Reality Application for Computer Engineering Curriculum. An Augmented Reality Application for Computer Engineering Curriculum*.