"CS 386 HoloLens Project" by Stephen White, Jack Garrard, Colton Nunley, Daniel Williamson, and James Todd

Github Link: https://github.com/Swhite9478/CS386-HoloLens-Project

CS 386 Software Engineering, Spring 2017 Instructor: Marco Gerosa

Deliverable 1.2: Customer Discovery

Refined Value Proposition:

In a point in time where technology is at the forefront of human innovation, augmented and virtual reality are displaying themselves as wonderful creative and immersive tools for people of all kinds to make use of. There exists a major milestone that stands in the way of such innovation: with this technology being as new and infant as it is, many developers do not properly understand the capabilities of the technology, and therefore are not able to properly contrive applications for said tech.

Our product is aimed at those developers that are within this category, and we wish to make use of the Microsoft HoloLens to develop a suite of demonstrations that would allow users to get a better understanding of the capabilities of augmented reality. This will be done through making use of the HoloLens' gesture learning capabilities, along with its voice recognition software, environment tracking, and much more. The aim is to display each capability on its own to allow the user to better understand how each component works, and ultimately piece these components together to have an augmented demonstration that will leave a lasting impression.

From our interviews we learned that everyday people have no idea that this technology exists, and or have zero understanding of how it works, along with the potential that it has. These

interviews have been eye opening for the team, and have caused us to shift our focus from market consumers, to the developers themselves, with the hope that they will find inspiration to further progress the boundaries of the Microsoft HoloLens, and augmented reality in general.

Interviews:

- ***Jack Garrard's Interviews:***
    - *Interview 1:*
        - *Can you tell me the difference between AR or VR?*
            - *I could bs, but I don't know.*
        - *How could you see this project being used in the future*
            - *For anything, ar for anything especially. Virtual overlays, in a driver car. (more examples), vr can be used for past games it's hard to imagine, training simulations.*
        - *Have you ever experienced it?*
            - *Yes recently, in ACM with hololens*
        - *What would you like to see be developed*
            - *Games that can be used to teach abstract concepts. Multiplayer game where you can change physics.*
        - *Do you think AR will become as crucial to our lives as cell phones*
            - *I could see it going that way, unknown tech limitations / societal implications.*
        - *Any questions I should have asked*
            - *If you would have asked me if I would have liked a sprite, I would.*
    - *Interview 2:*

        - *Can you tell me the difference between AR or VR?*
            - **schoffs* yeah*
        - *How could you see this project being used in the future*
            - *For educational purposes*
        - *Do you think it'll benefit society?*
            - *Yes, it seems like it'll be very beneficial.*
        - *Experienced?*
            - *Both!*
        - *What would you like to see developed in AR/VR*
            - *Educational programs*
        - *What would the programs do?*
            - *Really cool stuff with geometry, like visualization of sciences and math.*
        - *Popular as a cellphone?*
            - *In the distant future, until then not near as popular*
        - *Anything I should have asked?*
            - *You should have asked me… Uhhh…. To put in my own words of what VR/AR was.*
- ***Colton Nunley's Interviews:***
    - *Interview 1:*
        - *Can you tell me the difference between AR or VR?*
            - -I don't have conscious experience with AR, or Vr. What is it?
        - *(Explained the similarities and differences and was responded with)*
            - communication would be better, can walk you through step by step into something that would take real practice. But can't think about anything

that would relate to business. Every kind of discipline will eventually absorb technology.

- *Can you tell me about what you see this technology being used for in the future?*
  - No, I have no desire to be technically inclined
- *(Having only responded about VR, I prompted about AR helping day to day instead)*
  - Yes actually, Its actually tangible and can be utilized day to day.

- *Interview 2:*
  - *Can you tell me the difference between AR or VR?*
    - Augmented is projected onto reality whereas VR is committing yourself into a different world.
  - *Can you tell me about what you see this technology being used for in the future?*
    - Medicine: use for paralysis
    - Gaming
    - Military uses
    - Conferences(AR)
      - Bring everyone together in one room as holograms
      - Could be expensive to fly someone halfway around the world for an hour long conference.
  - *Have you ever experienced AR/VR before?*
    - No, worried that it might be irritating
  -

- ***Stephen White's Interviews:***
  - Interview 1:

        - Can you tell me your experience with augmented and or virtual reality?
        - The only only thing I know about virtual reality is when my son was in the front yard with his friends playing around with a headset.
        - Have you ever experienced AR/VR?
        - I have never experienced it for myself.
        - Can you tell me about what you see this technology being used for in the future?
        - I can see it being used in a factory situation of in surgeries for sure.
        - Can you give me more specifics on that last statement?
        - You could virtually reproduce an organ with tumors, get the lay of the land, and "practice" the surgery on a hologram beforehand.
        - What about those factories, can you tell me about that?
        - Holograms could display components of vehicles, like a puzzle, and test complete vehicles in a "virtual city" to see how they would work in a real life situation.
        - Given the ability to test out this technology, would you use it?
        - Absolutely!
        - Is there anything else I should have asked you?
        - I guess I would like to know what is already being done with virtual reality?
        - There exists a holographic experience in which a 3-dimensional holographic heart can be looked at and see it's components while it is beating.
        - That is fascinating!
        - Thank you for your time, your feedback has been very valuable.
    - Interview 2:
        - Can you tell me anything that you know about augmented and or virtual reality?

- I don’t know anything about augmented, but I can tell you about my experience with virtual reality
- Please tell about your experience with VR
- I was at GTE, a government group, that had one of the only two glove VR systems west of the Mississippi, and I launched a simulated nuclear weapon. As I reached for buttons, my fingertips vibrated to simulate me actually touching these virtual objects.
- What stood out to you about that experience?
- How real it really was! It had depth and everything! You were actually using your sense of sight and touch, it was incredible.
- You have no knowledge about AR then?
- I do not have any knowledge on the topic.
- *...Brief explanation of AR took place.* Can you tell me what you think AR would be useful for?
- Hmm… It could be used in manufacturing or something. It could be just like an auto maker trying to build something. Medical and space industries could find some use in it as well.
- Describe how it could benefit space programs
- For example if there exists a space station and you had to fix a hatch or something outside of safety, it could be beneficial to recreate the error in holographic form. For any kind of mechanics this could be beneficial.
- Is there anything I should have asked you?
- I don’t believe so, I think you were pretty thorough.
- Thank you for time, it was very valuable.

- ***James Todd's Interviews:***

Interview 1 F 20

- Have you ever experienced AR/VR?
    - Yes.
- Can you tell me your experience with augmented and or virtual reality?
    - I've explored the use of a HoloLens.
- Can you tell me about what you see this technology being used for in the future?
    - Architecture, graphic design, holographic prototypes, medical education, etc.
- Can you give me more specifics on that last statement?
    - Being able to virtually design and/or build something before building an actual prototype.
- Given the ability to test out this technology, would you use it?
    - Testing, yes. Self use, no.
- Is there anything else I should have asked you?
    - How do you think that AR/VR can and/or should be improved for better, easier use, and how can it be made more reliable and enjoyable?

Interview 2 F 51

- Have you ever experienced AR/VR?
    - Yes, the hololens
- Can you tell me your experience with augmented and or virtual reality?
    - I could not understand how it worked
- Can you tell me about what you see this technology being used for in the future?
    - I'm not sure to tell you the truth, art work, drafting for engineering
- Can you give me more specifics on that last statement?

    - For drafting, be able to have a 3D model of what you are drafting.
- Given the ability to test out this technology, would you use it?
    - Yes, if for consumer use not sure.
- How could your experience be better?
    - Explain how to use it so that i'm not confused trying to use it
- Is there anything else I should have asked you?
    - I do not know
- ***Daniel Williamson's Interviews:***

Interview I:

Can you tell me your experience with AR and VR?

- I have never tried AR or VR before besides a 5 minute demonstration at Best Buy using google cardboard.

Can you tell me about what you see this technology being used for in the future?

- VR could be used for educational stand point by being able to see parts of the world while sitting in your living room.

How would that be educational

- By being able to see the world you could visit the pyramids and see how they were built.

If you could use this tech would you?

- It could be cool, but I would rather see it for myself.

Interview II:

Can you tell me your experience with AR and VR?

- No, I have never heard or used either?

Can you tell me about what you see this technology being used for in the future?

- Creating video games in VR would be pretty awesome. Being able to be in the game would be pretty cool.

How would AR/VR make an awesome video game?

- It could make you feel like you have the most realistic gaming experience of your life.

If you could use this tech would you?

- Absolutely, because it would be cool. Everyone wants the newest technology out there. VR/AR would be an addition.

GRADING GROUP PARTICIPATION BELOW:

- Stephen White:
    - Interviewed two separate people about their experiences with augmented and virtual reality
    - Updated the team on how this deliverable will be submitted as well as how to obtain the proper information
    - Communicated with team members through slack
    - Conducted small research on linking github with the unity engine for our project
- Jack Garrard:
    - Communication through slack
    - Interviews with two different people about virtual and augmented realities
- Colton Nunley:
    - Communicated through slack
    - Interviewed two separate people about their experiences with augmented and virtual reality

- Daniel Williamson:
    - Interviewed two separate people about their experiences with augmented and virtual reality
    - Communicated with team members through slack
    - Submitted Deliverable 1.2
- James Todd:
    - Interviewed two separate people about their experiences with augmented and virtual reality
    - Communicated with team members through slack