

Team Name: Infinity

Team Members and email addresses:

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Contact: Hans Brown

Project Sponsor (if any): Not sponsored

Project Description (150-250 words)

- Why is the project being undertaken?
  - We wanted to do a VR project. Some of us wanted to do virtual environments, and others wanted to make a game. Given the scope of recreating the real world in virtual space, we decided on a pet game that would have the possibility of real-virtual world interactions.
- Describe an opportunity or problem that the project is to address:
  - There has been substantial research showing that owning a pet improves health. However, if one can not have a pet due to limiting physical capability, allergies, housing contracts, or any other reasons why a real life pet is infeasible, those health benefits are lost. Therefore, we decided to make a VR pet simulator to allow for those affected to gain the health benefits. By reading in the user's environment, and translating the physical environment to an (ideally) one-to-one virtual environment, the feeling of disconnect between the physical world and virtual world will be less.
- What will be the end result of the project?
  - An interactive virtual pet inside a virtual model of the room which the user can change.

Project Milestones

- 3-5 specific and measurable objectives per semester for first & second semester
- Estimated completion date for each milestone
  - First semester
    - Room is mapped into virtual space
      - October 20, 2017
    - Simple pet model inhabits and moves around room
      - November 10, 2017
    - Pet interacts with surroundings based on some limited AI (neural network or fuzzy logic finite state machines)
      - December 8th, 2017
    - Player interaction with pet
      - December 8th, 2017

- Second semester
  - Polished models
    - May 4th, 2018
  - Player movement through room
    - May 4th, 2018
  - AI is expanded for more interaction
    - March 26th, 2018
  - Finer room resolution
    - May 4th, 2018
  - More choices of pets
    - May 4th, 2018

### Project Budget

- Hardware, software, and/or computing resources
  - Unity Game Engine Personal Edition (free)
  - HTC Vive (provided through the school)
- Estimated cost
  - Unity Game Engine Personal Edition: Free, project is non-profit
  - HTC Vive: \$599
- Vendor
  - Steam for HTC Vive
- Special training (e.g., VR)
  - Unity Game Engine (free)
  - Unity VR API
    - <https://unity3d.com/learn/tutorials/topics/virtual-reality/vr-overview?playlist=22946>
- When they will be required?
  - VR Headgear is needed as soon as we can begin testing.
    - Testing begins after we finish researching VR implementation in the Unity Engine

### Work Plan

- Paul will handle implementation of Pet Logic, the Pet-Player interaction system, and tentative Pet Artificial Intelligence
- Cara will handle VR implementation and the Game Model
- Jackson will handle VR implementation, VR->Real World mapping
- Hans will handle layout design, graphics, and the Game Model
- Danny will handle Sensor Reading and VR->Real World mapping

### Github link

- <https://github.com/Hansigzandrinovka/581-Ecosystem-Pet-Simulator>