<div align="center">

Free Sky

*The sky is not the limit, but your
playground*

Autism Virtual Reality Project

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Members

Gavin Smith: smithg2016@my.fit.edu

Alanah Cottingham acottingham2016@my.fit.edu

Jiaqi Yang jyang2016@my.fit.edu

Faculty
Sponsor

TBD

Client name

Affiliation: The Scott Center for Autism Treatment

Goal

The goal of the project is to create a system to assist in the training of the Scott Center therapists. With the use of our system as a training platform, the ultimate goal is for them to provide a more efficient and comprehensive way in aiding autistic kids. While some attempts to monitor individuals with autism were carried out, there are few that aim to train individuals with the right

Motivation

Our motivation is to assist with the progression of autistic treatment by using an immersive virtual reality experience. As we realize with the increase in technology we can now provide training for monitoring and aiding people with disabilities better.

Features:

Trainee

- Keeping Therapist Engaged - Based on the treatment needed by autistic patients the game levels which will change and provide unique challenges to keep interest
- Positive Reinforcement - A grading system will be included for trainee to see improvements and area of improvements
- Trainee Plan Access - The Trainee will be able to access the trainee plan their Trainer member assigned to them in a gamified form.

Trainer

Accessing and analyzing Trainee data is important for caregivers, so it is equally important that they have several options such as:

- Individual Profile
- Comparing Profiles, e.g. How is Gavin doing compared to Alanah

Progress assessment
- Feedback from the Trainee : How much they are enjoying the process
- Lowest Mean test scores for different categories: e.g. why is everyone scoring low in Hand gesture recognition? is it too hard...
- Highest mean test scores: Is this measurement method too easy?
- Have Trainers been able to put notes on trainees account to help future trainers and trainee move forward better

Novel Feature:

- Our outstanding feature would be the Virtual Reality feature. The trainee will be able to learn in an immersive 360 experience. This experience will include a 360 video, interactive button(s), trainer's feedback, learning progress, and data analysis.

## Technical Challenges: Discuss three main CSE-related challenges:

- Currently we have been having issues with placing buttons into the application. Because of the limited information on some of Unity's features the team has to use trial and error to figure out how to get our application working.

- So after working on the database over the off period of christmas break. A successful beta was not achieved. I could not find a way to have the oculus run successfully. I have decided to pursue the option of trying a different platform for the vr platform.

● On the trainer side the VR set is not needed, for that reason they would use a desktop version of Free Skies. The main issue is being able to pass information between a VR platform and a desktop platform. None of the team members have ever had to tackle a challenge like this.

System Architecture Diagram (Free Skies Application):
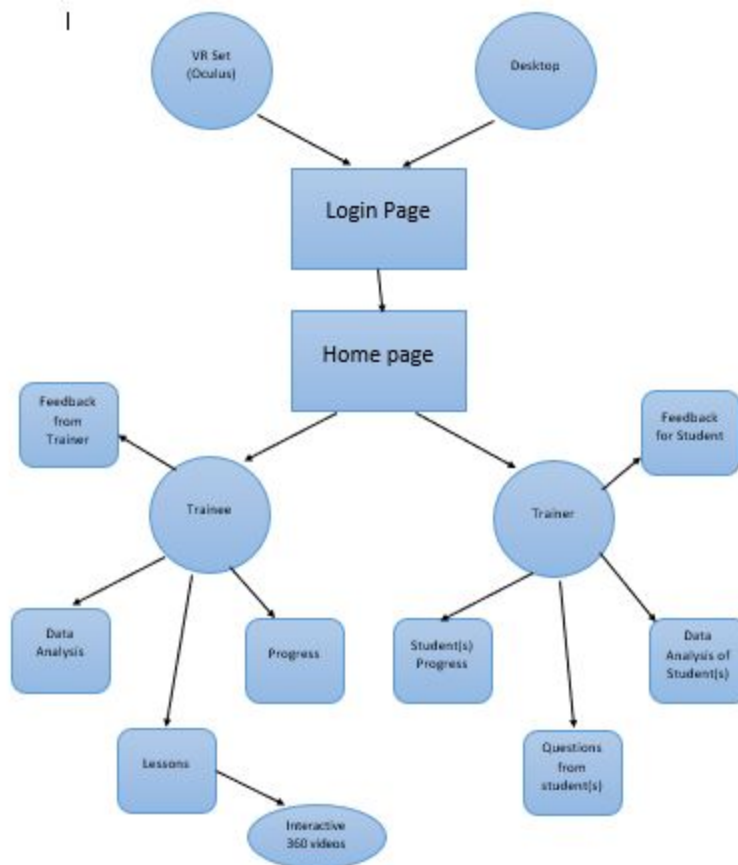
Breakdown of Diagram:

VR Set/ Desktop
- Login Page - where the Trainee and/or Trainer gains access to the application

- Home Page- the screen that the Trainee and/or Trainer sees after logging in
  - Trainee
    - Feedback from Trainer - tips that trainer would like the trainee to know
    - Data Analysis - a visual representation of how well the trainee is doing
      - Pie Charts of strength and weaknesses
    - Lessons
      - Interactive 360 videos - contains clickable buttons that will answer questions that are provided to the trainee
    - Progress - the Trainee will see how many lessons they have completed, lessons that are partially complete, and lessons that have not been started
  - Trainer
    - Feedback for student(s) - the Trainer will see previous feedback that they provided and a space to provide new feedback
    - Student(s) progress - the Trainer will see how many lessons each student has done
    - Question(s) from student(s) - the Trainer will be able to see and answer any questions that are asked by the Trainees
    - Data Analysis of student(s) - the trainer will see how well the trainee is doing

Possible Success and Evaluation:

- Success
  - For the Free Skies team success would mean that the trainee is actually learning and retaining information from the interactive 360 videos
- Evaluation Technique
  - A way to measure whether or not the trainee is learning we could give them two different tests. The first test would be given before the trainee starts using the Free Skies application. After doing a few interactive 360 videos the trainee would take the same test to see whether they have improved. Whether the improvement is slight of drastic will show the Free Skies team how the application could be adjusted.

Progress Summary:

Module/feature	Completion (%)	To do
Work on System Architecture	100%	Nothing
Work on putting buttons in oculus	50%	They are currently in the environment but refuse to show up so have them show up
Makes questionaires to ask	65%	Need to finish up the rest of questionnaires
Have timer code for questionnaire	100%	Have the buttons show up so we can test it
Work on database	30%	Currently Cannot find a current feasible way so might change platform,

Milestones :

Milestone 4 (Feb 17): itemized tasks:

- Consider changing platform from oculus to samsung as technical challenges with both database and images showing up
- Get the buttons that are placed in the 360 environment to show up whether it be on unity oculus or samsung vr set
- Talk to the scott center about the changes
- Create desktop application
- Put questionnaires in the video
- Continue to work on the application of Database

Milestone 5 (Mar 23): itemized tasks:

- Continuing working on training aspect
- Finish trainee aspect to have a small demo ready
- Talk to the scott center about the changes
- Start working on poster
- Start working on final presentation
- Test filter on data (mean data, accounts)
- Work on putting notes on accounts
- Work on user accounts

Milestone 6 (Apr 24): itemized tasks:

- Ensure Senior design poster is done
- Finish up any small bugs in systems
- Test oculus platform with willing participants
- Submit to the scott center
- Have senior design presentation set up

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Task Matrix

Task	Gavin	Alanah	Jiaqi
Create the user screen	Review and adjust (20%)	Create the trainer screen (40%)	Create the trainee screen (40%)
Put questionnaires in the video	Review and adjust (20%)	Make sure the questions show up on the oculus (40%)	Put the questions in the video and make them pop up on a certain time (40%)
Continue to work on the application of Database	Work on the database component (33.3%)	Work of gaining all resources for testing (33.3%)	Working on coding the platform for the testing (33.3%)

Create desktop application	Review and adjust (20%)	Work on creating the app and work on the trainee's version (40%)	Work on creating the app and work on the trainer's version (40%)

Approval from Faculty Sponsor

"I have discussed with the team and approve this project plan. I will evaluate the progress and assign a grade for each of the three milestones."

Signature: _____ Date: _____