UNT College of
ENGINEERING

Senior Design Day 2021

Department of
COMPUTER SCIENCE AND ENGINEERING

COMPUTER SCIENCE

Senior Design Day 2021

Teams (A- Z) – Project Name

• BBBE - BOT

 [Saidat Babatunde, Jordan Black, Benjamin Vanek, Khaemon Edwards]

• DFW Himalayas - One Stop

 [Rakesh Yadav, Sabin Shrestha, Alan Vides, Sangeev Neupane, Hemant Pant, Sailesh Thapa Magar]

• Eyes wide shut - Efficient Coding

 [Kale Bruton, Jeremy Lynch, Brandon Staley, Nelson Alfaro]

• Full Stack Frontiers - Child friendly clock

[Rupesh Solanki, Juan Saldana, Arnulfo Molina, Ali Tahririan]

• Girl Scout! - Girl scout badge system

 [Anthony Solorio, Chae-uk Lim, Christy Ramey, Gloria Kim, Gregory Tillotson, Jonathan Nguyen]

• MOBIUS - Children's alarm clock

[John Long, Aaron Hurley, Ayman Alqaq]

• Sudo rm & Team 5 - ABET Course Assessment Tool

[Floreta Krasniqi, Avery Berg, Lela Jones,Todd Bensmiller, Adam Aguilar ,Yafet Kubrom, Armaan   Dhanoa,Ty Rozell, Jordan Simmons, Ryan Schick]

• Team 11 - UNT Greenlight Projects Portal

[Jacob Simmerman, Jacob Preston, Richard Butler, Gabriel Thompson]

Teams (A- Z) – Project Name

- Team 14 - Two-level reinforcement learning model in competitive games

[Jakob Smith, Anthony Solorio, Daniel McGartland]

- Team JADAT - Home Construction Progress Viewer

[Zayra Thomas, Zach Thomas, Ben Cramer,Blake Cox]

- Team KERNY - Project UZO

[Ephraim Emilimor, Kubiat Inyang,Nazir Khimji, Nyeneime Inyang,Richard Lin]

- Team Kevin 2.0 - Avenger Backup Tracker

[Quentin Thorpe, Corgan Davis, John Walters,Kevin Gonzalez, Oluwaferanmi Owolabi]

- Team SRG - Temporally-biased clustering web app

[Santosh Khadka, Reynaldo Ferrari, Gregory Tillotson]

- TMVP – Braille2Text

[Tad Joseph, Michael Rivera, Patrick Friedman,Victor Anyanwu,Matthew Cheney]

Teams (A- Z) – Project Name

- Beep Boop- Dominik Keul

  [Tyler Parks, Nabin Bhatta, Saiman Sigdel, Chris Dunlap, Cayden Chancey]

- Team Final SegFault - CSE Department
[Chuong Duong, Emmanuelli El Mahmoud, Alexander King, Simon Kharel, Carlos Mancia, Rafael Fuerte-Luna]

- LeftOvers -
[Alex Daughters, Duncan Campbell, Roshan Karki]

- Mamba – Oberkirch Jackson
[Het, Patel, Fergen, Joseph, Shehan, Aaron, Ghuman, Nick, Wolf, James, Wallis, Jonathan]

- One Piece -
[Sagar Karki, Sunita Khadka, Kamal Chaudhary, Milan Karki, Monika Bhusal, Sharan Sherpunja]

- PROgrammers -
[Steven Hurley, Nicholas Jones, Aleksander Racz, Matthew Robinson, Marcus Summers, Jonathon Wright]

- Runtime Terror - Alex Marek, Portal 2 Community (2.5k people)
[Daniel Bates, Josh Bednarz, John Fiedler, Michael Murphy, Mitchell Baker]

- TBD-2 - Zach Eisenhauer, Asterisk
[Gabriel Castro, Long Nguyen, Michael Elem]

Teams (A- Z) – Project Name

- Rocket -

[Samuel Adagbon, Nathan Duncan, Danielle Crenshaw, Conner Lynch, Michael Rakestraw, Melissa Rogenski]

- ULTRA -

[Raghib Aftab, Megan Dexter, Cody Girouard, Zion James, Abhaya Neupane, Ian Ocasio]

- WJNKCW -

  [Caleb Halter, Wafi Hussain, Nikki Meyer, Brian Little, James Peters, Kyle Petrie]

- The Core Dumps -

[Waleed Ayyash, Jeremy Kracy, James Nicolas, Austin Reeves, Jonathan Sanchez]

- The Girls Club -

  [Emma Cooledge, Desere Crawford , Vi Nguyen, Manasa Nimmagadda, Asha Wright]

- The Krusty Krew - Christopher Fajuke

[Carlyn Thomsen, Elizabeth Adeeko, Andrew Araujo, Micheal Adeyemo, Oliver Velez, Patrick Walterschied]

- The Organ Harvesters -

[Sam Hearn, Anthony Hanel, Hanna Flores, Noelle Mansilla, Jacob Murillo, Jasmine Kaur]

- Whatever works – Grant Luna

  [Jake Anderson, Sedek Ciprien, Eric Easley, Brendon Rhodes]

BBBE Bot

Team Members:

- Saidat Babatunde
- Benjamin Vanek
- Jordan Black
- Khaemon Edwards

External Sponsors/Mentors:

Internal Sponsors/Mentors:

Abstract:

The Task AI Bot is designed to help students manage their everyday classes and schedules. This system would allow students to maintain a healthy social schedule. It utilizes many tools that most students commonly use.

Discord is used as the main platform for the bot because of its popularity among students. Many students choose Discord as their primary communication app to stay connected with their friends to talk about school, play games, and more. We thought that using Discord would be very convenient as a means to deliver information about the user's academics, especially if the student already uses Discord on a regular basis.

OneStop / DFW-Himalayas

Team Members:

- Rakesh Yadav
- Sabin Shrestha
- Alan Vides
- Rubesh Phaiju

- Sangeev Neupane
- Hemant Pant
- Sailesh Thapa Magar

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- **Professor Dr. Stephanie Ludi**

Abstract:

Reliability and user interface is our main priority for grocery buyer. We solved the time consumption for the user to visit the stores physically. We digitalized the market through online shopping, and decreased crowd in public. The app is available 24 hour a day which gives user an access to shop whenever needed. It also promote the business of stores that are listed by the seller to access items for public. It helps on saving people's time, skip random crowd, establish more control and no pressure on buying, wide comparison of prices and can access on own time. We offer business to add product and let them have their market through app which is essential for ecommerce and user can access new upgraded items from the market.

OneStop

- The easiest way to shop

- Fast and reliable

- Find groceries in neighbour

Team Finder brings a new way to shop

Project Title: Efficient Coding
Group Name: Eyes Wide Shut

Team Members:

- Kale Bruton
- Jeremy Lynch
- Brandon Staley
- Nelson Alfaro
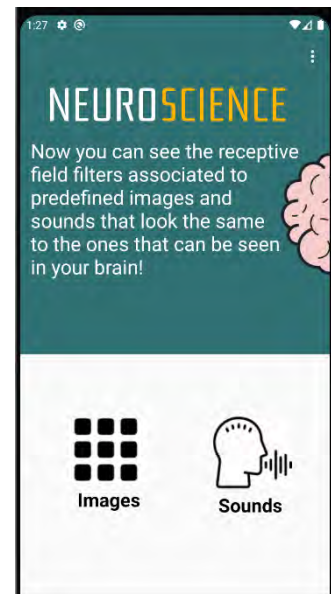
External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Biomedical AI Lab
- Dr. Mark Albert
- Ryan Moye (Graduate student)

Abstract:

The goal is to create a mobile Android application that allows users to upload images and audio on the go. The user can then process images or sounds through tools such as ICA to efficiently code visual and auditory information to simulate the neural coding process done in living creatures or daily objects seen routinely.

The application is intended for anyone interested in understanding the sensory neuroscience field. It will be applied more towards neuroscience students. But with it's user interface versatility it allows a much broader audience to experience the application, and in doing so improve the overall understanding of computational tools in the neuroscience field.

Fullstack Frontiers

Team Members:

- Rupesh Solanki
- Juan Saldana
- Arnulfo Molina
- Ali Tahririan

External Sponsors/Mentors:

- N/A

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

We are creating an application that serves as an alarm clock that parents can use to help their children keep to a schedule. The clock and alarm is designed around a child centric theme using color changes, sounds, changes to the clock face, and timers for children who are learning virtually. We are hoping to help parents by creating something that they can use to help their children keep to a schedule now that virtual learning is becoming more prevalent. This application could be used like an interactive clock in a living room or study area. There are a lot of clock/alarm applications out there, but our focus on creating a more child friendly alarm clock is what makes this application stand out.

Girl Scout Badge System
Girl Scout!

Team Members:

- Anthony Solorio
- Chae-uk Lim
- Christy Ramey
- Gloria Kim

- Gregory Tillotson
- Jonathan Nguyen

External Sponsors/Mentors:

- There is no external sponsors/mentors.
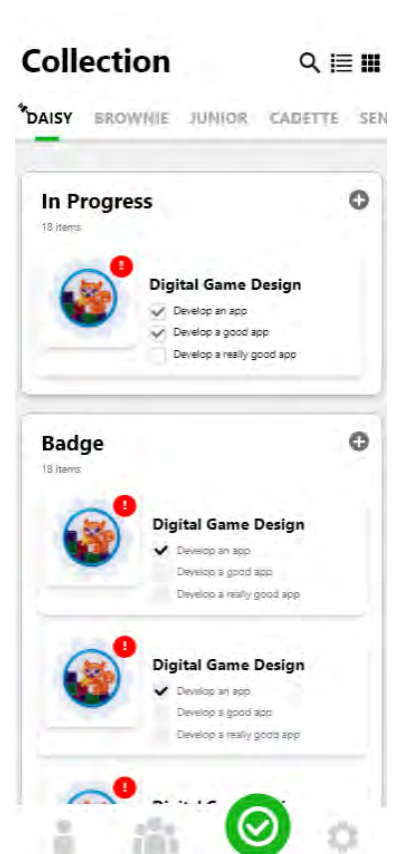
Internal Sponsors/Mentors:

- The internal sponsors/mentors are Dr. Stephanie Ludi and Aboubakar Mountapmbeme.

Abstract:

Girl Scout offers many kinds of badges and requirements to obtain by completing various exercises. Girl Scout leaders are generally in charge of tracking who has what badge and what requirements the badge has. However, tracking badges can be tedious, and paper files can be easily corrupted.

To provide a solution for these leaders, we suggest an app that easily track badges on the fly, without hassle. The app has features to (1) keep track of badges of members over time *and* at different levels, (2) keep track which badges need to be parched, have been bought, and handed out to the members, (3) show progressive information that may involve with special projects, (4) archive badge information, and (5) keep track of cookies for cookie season.

The app is also available for both iOS and android, and it provides a better tracking environment for Girl Scout leaders.

Children's Alarm clock/ Mobius

Team Members:

- John Long
- Aaron Hurley
- Ayman Alqaq

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

The purpose of this system will be to allow parents to set alarms and timers to assist children with time management and task completion.(Ex. Zoom meetings, Homework completion times, Assignment duration timers, Wake up alarms).

When kids are young, parents are very involved with their routine; managing this routine takes a lot of time and effort that could be alleviated via automation.

Currently, with most of the population owning at least one smart device, a mobile app would really come in handy to schedule and keep track of a child's routine.

Sudo rm –rf & Team 5

Team Members:

Sudo rm –rf

- Floreta Krasniqi   Avery Berg
- Lela Jones   Todd Bensmiller
- Adam Aguilar

Team 5

- Yafet Kubrom   Armaan Dhanoa
- Ty Rozell   Jordan Simmons
- Ryan Schick

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi
- Diana Bergeman

Abstract:

Each term, students and faculty enter data for each course they are enrolled in/teach in the CSE department. This data is used to assess the department courses for ABET accreditation. Near the end of the term, students are given a link where they assess their CSE courses based on pre-specified course outcomes. After the course is completed, instructors have data (including attachments) that are provided. Reports are provided to the department Undergrad Curriculum Committee and the Undergraduate Coordinator so that the courses can be assessed according to the course and relevant program outcomes. There is a current system, which is hard to use and hard to maintain. The program outcome mappings are obsolete due to ABET changes, so a new version is needed. This system is important since ABET accreditation provides assurance that a college or university program meets the quality standards of the profession for which that program prepares graduates.

UNT Greenlight Projects Portal

Team Members:

- Jacob Simmerman, Jacob Preston, Richard Butler, Gabriel Thompson

External Sponsors/Mentors:

- Dr. Mark Albert

Internal Sponsors/Mentors:

Abstract:

UNT Greenlight Projects Portal is a web application that is attempting to solve the problem of cultivating and recruiting for project concepts. What started out as a project repository for Senior AI students has turned into an application for all UNT professors to collect and track the status of projects in a way that will allow for students to come together and collaborate. This project could prove to be a valuable asset to the university, as having a central location such as this to share projects would make it much easier to build interest and assemble teams for other projects.

Two-level reinforcement learning model in competitive games.

Team Members:

- Jakob Smith
- Anthony Solorio
- Daniel McGartland

External Sponsors/Mentors:

- Dr. Mark Albert
- Chengping Yuan

Internal Sponsors/Mentors:

- Dr. Stephani Ludi
- Aboubakar Mountapmbeme

Abstract:

Reinforcement learning has been used extensively to learn the low-level tactical choices during gameplay; however, less effort has been invested in the strategic decisions of when and how to effectively engage a diverse set of opponents. Here we implement a two-tier reinforcement learning model to play competitive games and effectively engage in matches with different opponents to maximize earnings. The multi-agent environment has four types of learners, which vary in their ability to make board-level decisions (tactics) and their ability to bet or withdraw from game play (strategy). The agents are implemented in two different competitive games: Connect 4 and Tic-Tac-Toe. A human can play either a single match against a selected difficulty agent that makes no strategical choices or a series of league matches against a randomly chosen agent that will vary in it's tactical and strategical ability.

Home Construction Progress Viewer - Team JADAT

Team Members:

- Zayra Thomas
- Zach Thomas
- Ben Cramer
- Blake Cox

External Sponsors/Mentors:

- Jeff Thomas with Palo Duro Builders
- Anthony Do

Internal Sponsors/Mentors:

Abstract:

The Home Construction Progress Viewer allows home construction companies a way to provide live progress updates to their clients. This application is meant to streamline and help bridge the communication gap between the client and the contractor by allowing them to access a messaging system, track price changes as they arise, and upload/view fully immersive 360 degree images of any room or area at various stages of progress. This application proves to be especially useful during a time where COVID-19 may not allow the contractor and client to meet in person, thus providing a way for the client to view their home's progress remotely.

Our team was contracted to develop this application by Palo Duro Builders, a home construction company that needed an easier way to provide updates and track changes on home progress to their clients. The sponsor required two applications to be built for mobile devices: one for the contractors and another for their clients. The sponsor specified that we prioritize iOS as a platform for the client application since the majority of their clientele use iPhones. As for the contractor application, Android was their platform of choice.

The contractor application allows the user to manage all projects that they add to their account. They can then upload images to that project, type messages to the client tied to the project, and upload change forms for the client to review and sign as a living record of all modifications that are made. The client application will allow the user to access their project, view the images that the contractor has uploaded to that project, type messages to the contractor, and sign any document that the contractor uploads pertaining to any modifications made to their project.

We'd love to thank Anthony Do for all the support throughout this project. We are eternally grateful and will keep you in our memories forever. The things we learned from you during our short time together will impact us for the rest of our lives. We're just so sad that you weren't able to see the final version of this project. Team JADAT for life.

Project UZO – Team KERNY

Team Members:

- Ephraim Emilimor
- Kubiat Inyang
- Nazir Khimji
- Nyeneime Inyang
- Richard Lin

External Sponsors/Mentors:

<none>

Internal Sponsors/Mentors:

- Dr. Nandika D'Souza

Abstract:

There isn't a suitable current platform that marries the concept of professional networking, the need for diversity in the workplace, and the ability to drive informal mentorship by matching aspiring professionals to relatable current professionals.

As such we are changing the role of the middleman. Instead of providing formal services that are rigid and impersonal, and routine attempts at networking and mentorship, we strive to bridge the gap connecting users to mentors who share common interests along the lines of culture and gender allowing them to create their own network.
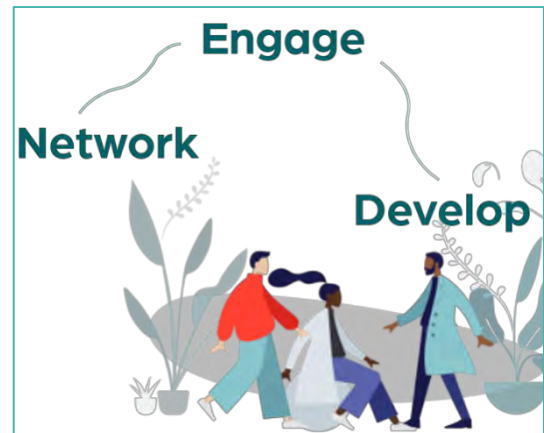
Acknowledgements:

Avenger Backup Tracker
Team Kevin 2.0

Team Members:

- Quentin Thorpe
- Corgan Davis
- John Walters
- Kevin Gonzalez
- Oluwaferanmi Owolabi

External Sponsors/Mentors:

- Avenger Flight Group

Internal Sponsors/Mentors:

Abstract:

The problem Avenger Flight Group is currently facing is the loss of information on backups due to not having enough space. All backup information is currently being written on a single white board despite the fact that there are at least 50 hard-Drives which contain their own unique information. This projects purpose is to transition them from the whiteboard to a more reliable webapp that has endless amount of space and capabilities to efficiently track and assist with handling backups. This enables anyone to back-up a computer as the webapp will automatically inform the one in charge of handling backups. It will also track hard-drives and their locations while also informing on when it needs to be backed-up. This webapp is unique because it has the capabilities of excel along with some security features and emailing capabilities. This webapp tracks the location of every hard-drive through the information stored which also gives this webapp tracking capabilities.

TMVP

Team Members:

- Tad Joseph
- Michael Rivera
- Patrick Friedman
- Victor Anyanwu
- Matthew Cheney

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr Stephanie Ludi

Abstract:

Translating Nemeth Braille to English using OpenCV Image processing. Application is android platform based.

Captured image will be pre-processed for Black and white. Then image will be read as a matrix. OpenCV will map the processed data to a database of matrix braille to translate.

Braille2Text

Team: BEEP BOOP
Project: Small Channel Shootout

Team Members:

- Tyler Parks
- Nabin Bhatta
- Saiman Sigdel

- Chris Dunlap
- Cayden Chancey

Small Channel Shootout Logo

External Sponsors/Mentors:

Dominik Keul

Internal Sponsors/Mentors:

Hyunsook Do, Kaushik Madala, and Rrezarta Krasniqi

Abstract:

Small Channel Shootout is a web application that aims to fill a gap in the content creation sector and shine light on small content creators. This project promotes content creators based on quality work instead of "luck of the draw" processes. Our website will be populated with videos that have been created by small* creators and posted on various video-sharing platforms like YouTube, Twitch, and more. Users will then vote on their favorite videos in a cyclic, scheduled, "shootout" format. After each voting cycle ends, the winners' videos will be highlighted across our website. Our team anticipates that this system will stimulate and promote the community of small*, committed content creators that are overlooked on other platforms.

*small: channels or creators that have a relatively small amount of subscribers/followers/likes/etc... (ex. under 10,000 subscribers on YouTube).

Team: Final SegFault (Team: Sudo rm -rf, Team 5)
Project: ABET Course Assessment Tool

Team Members:

Sudo rm -rf

Floreta Krasniqi   Avery Berg
Lela Jones   Todd Bensmiller
Adam Aguilar

Team 5

- Yafet Kubrom
- Ty Rozell
- Ryan Schick
- Armaan Dhanoa
- Jordan Simmons

Final SegFault

- Chuong Duong
- Emmanuelli El Mahmoud
- Alexander King
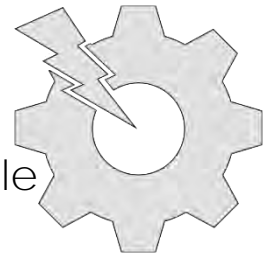- Simon Kharel
- Carlos Mancia
- Rafael Fuerte-Luna

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi
- Diana Bergeman

Abstract:

Each term, students and faculty enter data for each course they are enrolled in/teach in the CSE department. This data is used to assess the department courses for ABET accreditation. Near the end of the term, students are given a link where they assess their CSE courses based on pre-specified course outcomes. After the course is completed, instructors have data (including attachments) that are provided. Reports are provided to the department Undergrad Curriculum Committee and the Undergraduate Coordinator so that the courses can be assessed according to the course and relevant program outcomes. There is a current system, which is hard to use and hard to maintain. The program outcome mappings are obsolete due to ABET changes, so a new version is needed. This system is important since ABET accreditation provides assurance that a college or university program meets the quality standards of the profession for which that program prepares graduates.

Team: LEFTOVERS

Project: Safety Analysis Tool : Autonomous Vehicle

Team Members:

- Alex Daughters
- Duncan Campbell
- Roshan Karki
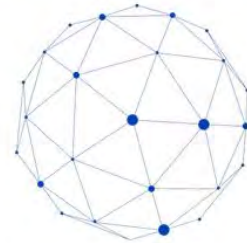
External Sponsors/Mentors:
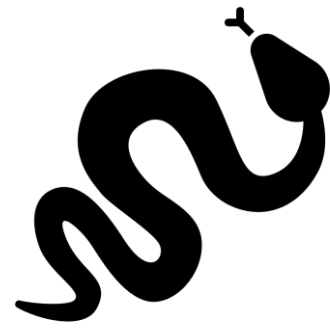
Internal Sponsors/Mentors:

- Kaushik Madala

Abstract:

Our goal is to implement a helpful and easy-to-use web-based graphical user interface (GUI), which will incorporate the pre-existing ACTS tool. We do this with the intent of giving researchers and engineers ease of access to software that will not only make their work better but also people's lives safer. There has not been a website to implement this tool so that it can be used easily, and results saved and shared with others. Which is why we have decided to be part of making this website.

SATAV

Team: Mamba
Project: Cookbook App

Team Members:

- Het, Patel
- Fergen, Joseph
- Shehan, Aaron

- Ghuman, Nick;
- Wolf, James
- Wallis, Jonathan

External Sponsors/Mentors:

- Jackson, Oberkirch

Abstract:

Team Mamba is creating a cookbook / social media web application. This application allows users to create and upload recipes. Chefs can follow other chefs to view their new recipes they post on their front page. Cooking enthusiast can now easily share their ideas with other cooks across the world. This web application is easily accessible for anyone, and only requires a web browser and a Gmail Account to access and share recipes with just a few clicks.

Team: ONE PIECE
Project: Student's Expense Tracker

Team Members:

- Sagar Karki
- Sunita Khadka
- Kamal Chaudhary

- Milan Karki
- Monika Bhusal
- Sharan Sherpunja

External Sponsors/Mentors:

- Sunil Lama

Internal Sponsors/Mentors:

- Dr. Hyunsook, Do

Abstract:

Students can have a hard time managing their money during their student's life. As most of the time of the students is spent on completing their assignments and exams, it can be difficult to manage their expenses and stay financially strong.

Student Expense Tracker is a web application that can help students to stay financially strong and track their money in effective way. It can help them to set a reminder for any of the upcoming payments and allow them to split their expenses among multiple persons. This web application can be beneficial to in-order to save a lot of time of students and also help them to become financially stable.

Team: PROgrammers
Project: Social Media Privacy Bot

Team Members:

- Steven Hurley
- Nicholas Jones
- Aleksander Racz

- Matthew Robinson
- Marcus Summers
- Jonathon Wright

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Kaushik Madala

Abstract:

Social media has become an integral part of life, but it also comes with its own set of problems. One of these problems is the use of spam , scams, and malicious apps in order to gain access to the user's personal information that could potentially be used for illegal purposes. Our project will use the Twitter API to create a bot that can determine the probability of whether a tweet is malicious or not. This will help users of any kind, whether technologically literate or not, avoid falling for scam, spam, or any other malicious attacks on Twitter. This project is unique is because while helping prevent malicious attacks over Twitter, it also teaches users to look out for certain clues or patterns to look out for that can let a user know that a certain Tweet might be dangerous and that they shouldn't interact with it.

Team: TBD-2
Project: Stream Studio

Team Members:

- Gabriel Castro
- Long Nguyen
- Michael Elem

External Sponsors/Mentors:

- Zach Eisenhauer
- Asterisk

Internal Sponsors/Mentors:

- Zach Eisenhauer
- Asterisk

Abstract:

Many people want a type of Zoom meeting with a fancy overlay of graphics to make it look more "professional". Producing this type of event for clients is a laborious process compared to the actual length of the event, and given the similarities between them and templatized nature, we think there is a market for a product that can basically make these self-service.

We believe there is a market opportunity for a streaming platform that is browser based and designed with the use case of event producers in mind.

There currently isn't a product that we're aware of that fits this market. Existing products don't have many features like advanced customization or better graphical control, and aren't set up for things like intelligent Q&A, speaker green rooms, speaker training, etc. The competitors are traditional webinar software, which is designed for ease of use at scale but no professional appearances (graphics, transitions, videos, etc).
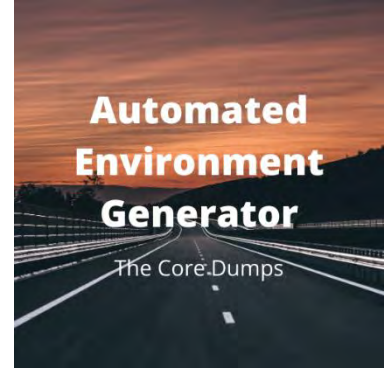
Team: The Core Dumps

Project: Automated Environment Generator

Automated Environment Generator
The Core Dumps

Team Members:

- Waleed Ayyash
- Jeremy Kracy
- James Nicolas
- Austin Reeves
- Jonathan Sanchez

External Sponsors/Mentors:

- Kaushik Madala

Internal Sponsors/Mentors:

- Kaushik Madala

Abstract:

Unity game engine is currently used to design autonomous vehicle simulation software. However, testing autonomous vehicles requires diverse environments, which include different road types, different vehicles, different environmental settings, different types of pedestrians, etc.. All these environments are currently being created manually. In this project, the major goal is to create such environments automatically. The project group members can simply use various artifacts available in the Unity asset store. They will need to create a UI that offers options based on the assets available, using which the users must be able to specify options of what elements and sizes of maps they want. The program will need to consider these inputs and any additional constraints given by the users and need to generate maps automatically. If time allows, the group is encouraged to add random vehicles which will have a way-point base movement.

Team: The Girls Club
Project: Covid-19 Vaccine Waitlist System

Team Members:

- Emma Cooledge
- Desere Crawford
- Vi Nguyen
- Manasa Nimmagadda
- Asha Wright

External Sponsors/Mentors:

Internal Sponsors/Mentors:

Dr. Marty O'Neill

Abstract:

Our project is to build a website that aids in administering COVID-19 vaccine to residents. The website let people fill out a questionnaire to collect their information and some data for statistical purposes, then place them on a waitlist. The system then keep track of this waitlist and update the health center staff on details of waitlisting, scheduled for vaccine and vaccinated patients lists. Based on the eligibility criteria and the availability of vaccine doses, the system will automatically choose patients from the waitlist while letting the staff schedule them for their vaccine shots . The staff will also be able to send out emails notifying the location, date, and time for administering the vaccine, set and update the eligibility criteria, and update patients' records as "vaccinated first dose" or "fully vaccinated" in the system based on the type of the vaccine they got.

Team: The Krusty Krew
Project: Galleria

Team Members:

- Carlyn Thomsen
- Elizabeth Adeeko
- Andrew Araujo

- Micheal Adeyemo
- Oliver Velez
- Patrick Walterschied

External Sponsors/Mentors:

- Christopher Fajuke

Internal Sponsors/Mentors:

- Kaushik Madala (Teaching Assistant)
- Rrezarta Krasniqi (Teaching Assistant)

Abstract:

Motivation for our project, a digital gallery archive website, called 'Galleria', we wanted to have a website that functioned more akin to a modern gallery of art, but more focused on storage and viewing, rather than a full archive or museum of data. The inspiration came from other known storage services like Dropbox and iCloud, but restructures the idea of data as more personal and isn't limited to specific file types. Also, instead of merely being backed up data, it is presented as data important to you, that may follow a theme, and most importantly will never disappear from the internet. Additionally, we wanted to have it to be more user friendly and community driven, as all the uploads are considered to be open for all to see, unless specified otherwise, and this flies against most forms of digital storage, where privacy and security are prioritized. The major problem to be solved is making a sleek, share driven website that has an extensive database system for many forms of data and allows for great customization for the users account. The website is meant to have users share content and proudly share their data interests on their account page and we need to facilitate this to the best of our ability.
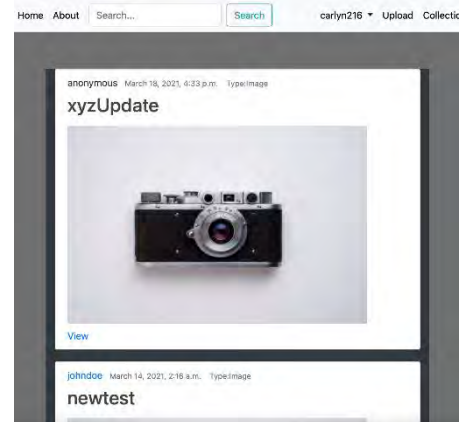
Team: The Organ Harvesters
Project: Greenlight Projects Portal

The Organ Harvesters

Team Members:

- Sam Hearn
- Anthony Hanel
- Hanna Flores

- Noelle Mansilla
- Jacob Murillo
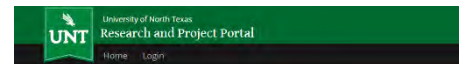- Jasmine Kaur

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Mark Albert
- Lakshmi Nunna
- Havish Nallapareddy

Abstract:

The Research and Project Portal will be a web application to organize all AI related projects in the CSE department at UNT in order to bring together students, instructors, researches, and project proposers.

Currently, UNT does not have a system like this in place so this portal will be a a place to allow UNT faculty and students to continue innovating and make research easier.

Team: Rocket
Project: Lingua Francas

Team Members:

- Samuel Adagbon
- Nathan Duncan
- Danielle Crenshaw

- Conner Lynch
- Michael Rakestraw
- Melissa Rogenski

External Sponsors/Mentors:

None

Internal Sponsors/Mentors:

Sponsor: Hanna Flores

Abstract:

Lingua Francas is an app that facilitates language learning exchange between language learners. All language learners will need to practice writing in their target languages at some point, but not everyone can easily meet native speakers with which to practice language skills. This app allows the user to find native speakers of the language they are learning who want to learn the user's native language. Users can have private messages, private groups, edit their profiles, and share public posts.

This app utilizes JavaScript, CSS, and HTML. The framework is Node.js, and the middleware is Express.js. The database is MongoDB accessed by Mongoose.js.

Team: Runtime Terror

Project: Portal 2 Challenge Mode Leaderboards

Team Members:

- Daniel Bates
- Josh Bednarz
- John Fiedler

- Michael Murphy
- Mitchell Baker

External Sponsors/Mentors:

- Alex Marek
- Portal 2 Community (2.5k people)

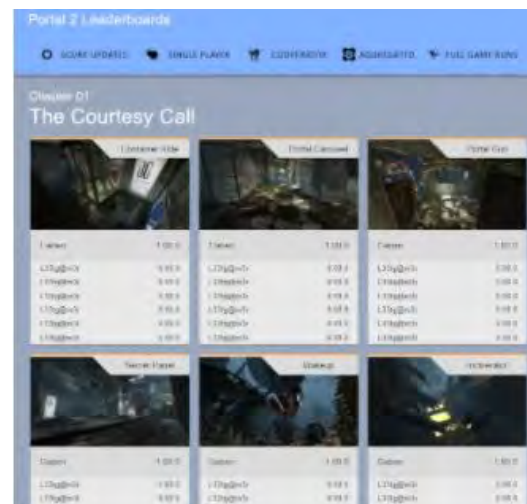## Internal Sponsors/Mentors:

- Hyunsook Do

Abstract:

The purpose of this Portal 2 Challenge Mode Leaderboard is to give more control to admins and community figures over the state of the game as well as the possibilities for expansion in terms of possible game-modes and categories runners can take part in.

We want to provide a more modern web approach, as well as expand categorical offerings for runners and expand the proof standards and methods of submission. This is being done using the follow stack:

- React JS (Front-end)
- Actix-rs (Web-Server)
- Diesel-rs and Rust (Backend)
- MySQL (Database)

The goal of this project is to test and expand our team's knowledge as developers and use it to benefit a community that is in desperate need of a new leaderboards to call their own. The project presents us with an interesting challenge to overcome.

- iVerb – Legacy Database & Previous Board Maintenance (Portal 2 Community member)
- NeKz – Least Portals webpage using Actix-rs and React (Portal 2 Community member)

Team: Ultra
Project: Ultra Medz

Team Members:

- Raghib Aftab
- Megan Dexter
- Cody Girouard

- Zion James
- Abhaya Neupane
- Ian Ocasio
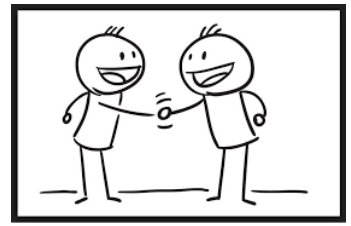
External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Shraddha Piparia

Abstract:

Ultra Medz aims to help those that need keep track of the many medicines they take. Many find it difficult to manage their daily pills as the number increases. This is where Ultra Medz comes in; with our app, users can add their current medicines and start setting up notifications right away. Ultra Medz also gives reminders for when refills are due, so users are always fully stocked up on their necessary medicines. Our project also differs from competitors by letting users redeem points (for taking medicine on time) on self-rewards.

Team: Whatever Works
Project: *Friend Finder*

Works Inc.

Team Members:

- Jake Anderson
- Sedek Ciprien
- Eric Easley

- Brendon Rhodes

External Sponsors/Mentors:

Internal Sponsors/Mentors:

Grant Luna
 - Undergrad computer science major
 - Target demographic

Abstract:

In the midst of social distancing, it is difficult for one to conveniently network with other people. Therefore, our aim of this product is to allow users to connect with like-minded individuals in regard to personal hobbies. Unlike other social networking apps, this product will find people with similar interests as the user instead of having the user manually seek them out.

With this product, a person with obscure interests (perhaps horror genre) will find it easier to connect with other people who share that specific interest, instead of awkwardly having to share that with other people or frequenting anonymous, siloed internet groups. Users will only be able to interact with people within

Connect, Chat and Locate potential friends in your local area.
Social networking that allows one to see who they want to see.

Team: WJNKCW
Project: Reinforcement Learning Model for Games

Team Members:

- Caleb Halter
- Wafi Hussain
- Nikki Meyer

- Brian Little
- James Peters
- Kyle Petrie

External Sponsors/Mentors:

N/A

Internal Sponsors/Mentors:

Dr. Mark Albert
Chengping Yuan
Ty Washburn

Abstract:

This project utilizes machine learning principles to allow a player to challenge Artificial Intelligence in the board games Tic-Tac-Toe, Connect Four, and Dots and Boxes. The AI utilizes Reinforcement Learning, and it is developed purely through machine learning. There are multiple difficulties for each game, using different "q - tables." Q-tables describe a method to give an AI weight to different future decisions, and they are the basis by which this reinforcement learning model works.

The project is implemented using Python scripts with a GUI for players to interact directly with the system. To create the GUI, the project uses the Kivy framework for Python.

The goal of the project is to provide students an engaging way to see how machine learning works and to become interested in the field. Students can play fun, simple board games that demonstrate the learning and decision-making behavior of machine taught AI.