Senior Design Day Fall 2023

COLLEGE OF ENGINEERING
Department of Computer Science & Engineering

Senior Design Abstracts
Fall 2023

UNT COLLEGE OF ENGINEERING

a11y upgrades

Team Members

Thomas Gibbons
Ali Tayyari
Bailey Shelton
Omar Kaddura
Dang Nguyen
Grant Helms

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Abstract

The a11y upgrades project is aimed at creating and maintaining an information-based website. The project's primary objectives are to promote accessibility awareness, and test the knowledge gained by interacting with our website.

"a11y" stands for "accessibility." It is a numeronym, with 11 representing the count of letters between the letter a and the letter y. Other numeronyms you may be familiar with include: i18n (internationalization), P2P (peer to peer), WWII (World War 2), etc.

Making things accessible translates to better opportunities, as it means more people can use them. Accessible digital experiences also remove barriers. This is incredibly important for things like employment, an area where disabled people have historically faced discrimination.

Accessibility Text-Based Adventure by Live, Laugh, & Love

Team Members

Oliver Ponder
Jeremy Durflinger
Olivia Cantrell
Samrajya Prasai
Humza Khan
Shijin Guo

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Avijeet Shil (mentor)

Abstract

The massive amounts of information and resources that are accessible online are rarely accessible to those with eyesight disabilities. Our project is to explore different functionalities that could be used to allow those with color blindness, and other ocular afflictions to still effectively use our website. This is done by by creating a Text-Based Adventure game that will allow us to highlight the different tools and methods we employ to make our project more accessible. The premise of our software is a game engine that can be used to create a game, or play a sample game, with built-in accessibility features. Some of these features include text-to-speech, high-contrast color themes, text magnification, and a font manager. We are implementing our project using JavaScript.

Aerie / My Awesome Group

Team Members

Caleb Guardiola
Fatima Shibli
Yousif Al
Jared Singleton

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Mark Albert,
UNT Dept. of Computer Science & Eng.

Abstract

The AERIE project is designed to provide graduate students a safe environment where they can be placed into groups with like-minded individuals to expand their social network as well as their skills. The project will also provide an area for individuals to post their accomplishments to help inspire others to continue pushing themselves to achieve their own accomplishments.

Learning Kids

Team Members

Diego Aleman
Miguel Mendez
Andy Khounnoraj

External Sponsors/Mentors

Internal Sponsors/Mentors

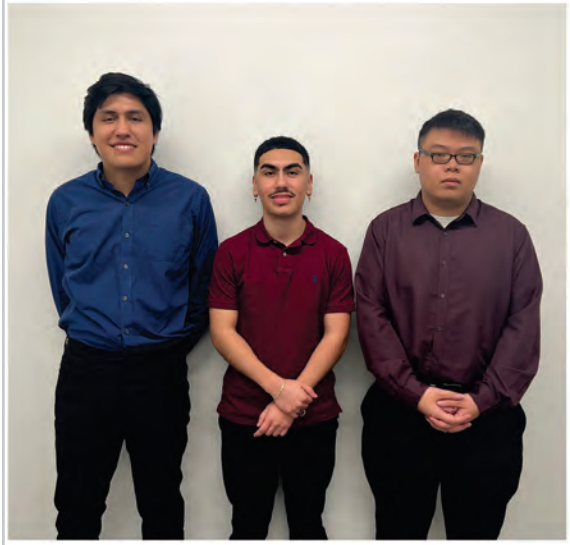
Diana Rabah,
UNT Dept. of Computer Science & Eng.

Abstract

Autistic children struggle to grasp concepts, and because of this it is important to teach them in a friendly environment. Learning Kids. is an app that aims to teach autistic children primary contact information for emergencies, with fun interactive mini-games.

Mission Statement: Our application is rooted in a mission to empower autistic children with essential life skills through an innovative educational platform. We are dedicated to ensuring that every child becomes proficient in critical information, such as their parents' contact details.

Our commitment is to provide an engaging and diverse app that strives to make a meaningful difference in children's lives. We are devoted to fostering an interactive and captivating educational journey, designed to help children learn and grow with confidence.



UNT COLLEGE OF ENGINEERING

Meet in the Middle
by Team DotExe

*This is our logo

Team Members

Alex Keen
Aaron Pham
Niranjan Thakur Badahi
Jonathan Badibanga

External Sponsors/Mentors

Internal Sponsors/Mentors

Abstract

Finding the best and most convenient meeting place for two parties is a problem easily solved. Whether it's meeting a friend, custody exchange, or unsafe encounters that can arise with online resellers and dating apps, these are some of the problems being addressed. We propose the creation of an app that allows users to find a safe public location that is midway between them without disclosing either parties starting address. The proposed solution involves a list of possible meeting locations both parties would be fine meeting at such as police stations, restaurants, stores, etc. The app aims to provide meeting locations that are fast and safe for both parties. The focus is on equality of time spent by both parties in commuting as well as protecting the privacy and safety of both parties by ensuring that each party only knows the meeting location.

UNT COLLEGE OF ENGINEERING

Open Office

Team Members

1. Mohammad Mari
2. Megan McAdams
3. Connor Pursell
4. Benjamin Strange
5. Camron Veazey

External Sponsors/Mentors

Jacob Makuvire

Internal Sponsors/Mentors

Abstract

The goal and vision of OpenOffice and its cofounders, Jacob Makuvire and Dell Birch, is to foster connections between creators, entrepreneurs, innovators, and industry experts. To better realize this vision and build upon the services already offered by the platform, our team will be adding new capabilities to one of the main features of the site: the Mastermind Sessions. These video sessions, hosted by an expert where they can share their knowledge and experience with a group of participants, the team will add the ability for the host to invite another user to co-host the session, a method for live feedback from attendees during the session using intuitive emojis, and a session-wide chatroom that can be moderated by the host and any cohosts of the session.

Additionally, our team will be extending the opportunity to connect beyond the video sessions with a brand-new feature for OpenOffice. Our sponsor ultimately envisions three kinds of text-based forums and asked our team to begin by implementing one of these known as ‘Hallways’. A Hallway is intended to be a space for Entrepreneurs within a specific industry to connect, collaborate, and grow their network in a persistent space as opposed to the more temporary, topic focused video sessions. In implementing this, we will be developing a robust, scalable architectural framework that will facilitate future development of the system to support the other desired forum types.

Parking Availability App by Team Bro Code

Team Members

Anuj Gajmer
Austin Haddock
Nicolas Hidalgo Rotunno
Nathan Kevil
Habib Ojoye
Violett Tidwell

External Sponsors/Mentors

Internal Sponsors/Mentors

Vishnu Priya Yenumula (mentor)

Abstract

The Parking Availability App will assist users with attempting to find parking in large urban areas where finding a parking spot is never a guarantee. Users will be able to search up specified parking locations on the app and get to see the current and live updates of how filled up that parking lot is, and if there is any room left.

Goal: Provide and facilitate the search of a parking spot throughout the university by using a mobile application that the user can use to locate and get direction of that parking spot.

Portal to Support Accessibility Research & Participant Recruitment by The Backup Team

Team Members

Carlos Diaz
Connor Knox
Geary Erua
Jeremy Tollison
Sri Bandakunta

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Dr Stephanie Ludi,
UNT Dept. of Computer Science & Eng.

Abstract

From the request from Dr. Ludi and Dr. Wajdi, we are creating a place to gather information from people with any kind of difficulty or disability through the use of surveys and studies. As well as provide a place to communicate with others and professionals through support groups and opportunities. We are using a website as our platform, as it will let people use it from most devices (computer, tablets, phones). The website uses a combination of javascript, html, and css; as well as xampp for the server side data management.

Portal to Support Accessibility Research Team

Team Members

Minh Hein Luong
Ngoc Yen Nhi Ha
Leslie Cruz
Sienna Newby-Sanchez

External Sponsors/Mentors

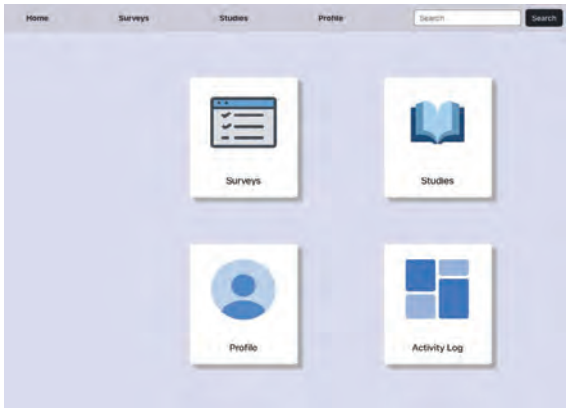
Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Dr. Stephanie Ludi,
UNT Dept. of Computer Science & Eng.

Abstract

Around the world, individuals with disabilities are spread across various regions. While they may face daily challenges,many companies and researchers have been dedicated to developing a wide range of technological solutions to enhance the lives of these individuals. Collecting feedback is crucial in achieving the highest quality outcomes. Accessibility experts and organizations greatly value input from individuals with disabilities to refine and create their projects. Our inclusive platform aims to offer a space for those conducting focus groups, surveys, and research studies to extend invitations to individuals with disabilities. This platform will provide comprehensive information about the surveys, additional studies related to the topics, whether participation is online or in-person, and whether there is compensation involved. Through this portal, individuals with disabilities will have the opportunity to receive updates about opportunities that align with their interests, and also directly communicate with those organizing the opportunities. What sets this project apart is its dedicated focus on creating an inclusive and user-friendly platform that not only connects individuals with disabilities to valuable opportunities but also provides detailed information and facilitates direct communication with organizers. This unique approach aims to empower individuals with disabilities and promote a more accessible and inclusive society.



UNT COLLEGE OF ENGINEERING

Shape Shift

Team Members

Gilbert Martinez
Jeremy Groce
Jon Parker
Diego Suarez

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

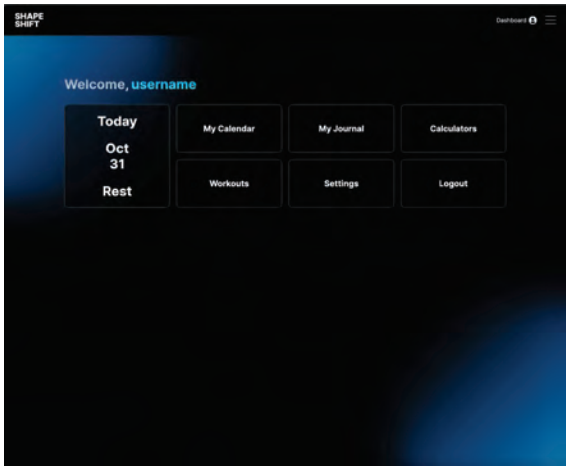
Abstract

Our Capstone project is ShapeShift. ShapeShift is a comprehensive desktop website to help users create and manage their fitness goals, and keep track of their progress.

Users are able to easily create and save their workouts, track their macros, calculate needs using calculators, and visually view their progression with implemented charts.

To accomplish this, we wrote a front-end in javascript, CSS, and utilizing react framework, and created a backend using Express and MongoDB.

Our end goal is to combine restful aesthetics with ease of use.



UNT COLLEGE OF ENGINEERING

SightLine

Team Members

Josh Wilson
Percy Tizio
Samantha Fisher

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Abstract

Games often have a flashing lights warning put on as a precaution, regardless of whether they need it. This makes it very hard to know which games are safe to play. Our tool will let you analyze footage of your game to see how risky it is for causing epileptic seizures.

This system is intended for game developers seeking to improve the accessibility of their games. They are expected to have some familiarity with basic game development concepts relevant to the visuals of a game like particle effects, flashing, and other various visual components of the game.

The user should have a passive interest in improving their game as well as some ability to communicate the changes needed to those capable of making them.

Team Alpha

Team Members

Peter Dyer
Alejandro Garcia
Kameron Gulley
Alexander Seneca

External Sponsors/Mentors

Internal Sponsors/Mentors

UNT Professional Leadership Program

Abstract

Creating meaningful pairs between mentors and mentees is a complicated and time intensive task for humans. Effectively using the vast amount of human input data is time consuming, and creating quality matches of mentors and mentees is difficult. To solve this problem, a web-based solution capable of capturing, storing, and using this data programmatically was proposed. A website is available to potential applicants provides a way to capture user inputs, and a database is used to store and help process the data. Without intricate technical knowledge, administrators can control records and invoke an algorithm that automates the 1-to-1 matching of mentors with mentees, as well as download and view results with a spreadsheet program such as Microsoft Excel or Google Sheets. No longer a tedious process, for the end user, matching data is only a button press away.

Mission Statement: PLP aims to bridge the gap between academia and industry by efficiently matching students with prospective employers, empowering universities' ability to guide students towards fruitful employment opportunities.

UNT COLLEGE OF ENGINEERING

Team 7

UNT Canteen

Team Members

Karan Budhathoki
Manoj Gurung
Julian Mendoza
Long Phuoc Tran

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Department of Computer Science

Abstract

We all know the importance of balanced diet and saving in our daily life. People are always worried about saving money and eating tastier food. With that in mind, we, Team-7 have created an application for UNT Canteen. UNT-Canteen provides canteen personnel with a user-friendly interface to effortlessly add products, creating a more efficient and dynamic menu management system. Simultaneously, users benefit from real-time notifications about exclusive offers, creating a more engaging and rewarding dining environment. The standout feature of UNT-Canteen is its incorporation of a coupon discount system, allowing students to enjoy financial savings while indulging in their favorite meals. Beyond its operational enhancements, UNT-Canteen places a strong emphasis on promoting healthier lifestyles. Students can easily track their calorie intake, fostering a conscious approach to nutrition. The platform encourages informed choices, aligning with the broader goal of supporting well-being within the university community.

Trading Card Manager by Team 10

Team Members

Jonathan Santhosh
Aaron Geist
Brett Lo
Shreya Nellutla
Isaac McPherson

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Abstract

Under the sponsorship of Dr. Aljedaani from the UNT Department of Computer Science and Engineering, we are developing a Pokémon trading card web app that allows users to create portfolios to manage their cards, assist with card grading, and interact with a marketplace to distribute or collect cards. One of the key features of the app, is allowing users to be able to create their own portfolios that they can upload their own cards to, while also determining the grade of the card, with an option of an additional user description of the card. Users can also access a marketplace with Pokémon cards that is available for users to view and even purchase if they wish, which is another key feature, enabling users to expand their portfolios. Market values of the cards over time can be viewed as well, should the user look to profit using this app, or if they simply wish to see how much the contents of their portfolios are worth. To build our front-end design, we utilized ReactJS, and for the back-end we utilized Google Firebase with firestore as our database.

UNT Rides
by The Capstonians

Team Members

Rohit Shaw
Janie Arianna Reyna
Edwin Soto-Villela
Beion Poly

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Wajdi Aljedaani,
UNT Dept. of Computer Science & Eng.

Abstract

The UNT Rideshare Project is a forward-thinking initiative designed for transportation by seamlessly connecting drivers and passengers for shared rides. Key features of the Rideshare Project include user-friendly interfaces for both drivers and passengers, real-time ride matching, secure payment processing, and robust communication tools. By providing an easy-to-use platform, it empowers users to reduce traffic congestion, lower individual transportation costs, and contribute to a greener environment. Our platform has been meticulously designed to prioritize efficiency and user convenience. For passengers and drivers, logging in unlocks access to a tailored comprehensive dashboard, providing a plethora of options at their fingertips. These options encompass the ability to post ride requests, accept ride offers from drivers, review ride history, and explore rideshare opportunities throughout the DFW-Metroplex. Through thoughtful design and user-centric features, UNT Rides aims to revolutionize the way students, including international students, access transportation, making their journeys to school, work, and internships in Dallas more affordable and convenient. UNT Rides Project's vision extends beyond convenience - it aims to foster a sense of community, promote carpooling among students with internships, reduce carbon footprints, and enhance transportation accessibility.

UNT COLLEGE OF ENGINEERING
celebrating 20 YEARS

@UNTEngineering

engineering.unt.edu
940-565-4300