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UNT College of ENGINEERING

Senior Design Day 2019

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Department of

COMPUTER SCIENCE AND ENGINEERING

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COMPUTER SCIENCE

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Git-Ripped

Team Members:

- Brayden Berglund
- Zac Chambers
- Juan Orta
- Josh Robbins
- Jon Wendt

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

We are building an all-in-one weight-lifting web application that allows a user to log their workouts and visually see their progress over time and receive recommendations from the app itself – all within an attractive, user-friendly interface. With a flourishing fitness industry, there are a myriad of fitness applications on the market. Our end goal is to separate ourselves from competitors by giving users the option to create their own routines or use a customized routine that we generate for them, which has yet to be explored. This application will be beneficial to professional weightlifters, beginners and everything in between. By deployment, we plan on having this app available on both web and mobile platforms.

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ResQpet/Nexus

Team Members:

- Dheepthi Somangili Babulal
- Julsan Magaju
- Mario Mendiola
- Makayla Zacarias

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

In the United States, 2.7 million dogs and cats are euthanized every year. Most animals are either dropped off at shelters or thrown on the streets due to reasonings out of their control. Reasonings such as a move, inadequate funds, or impatience for owning a pet. This is unfair to the animals. The number of euthanized and abandoned pets could be reduced if people had a way to share pets for adoption on a broad scale. ResQpet strives to resolve this issue by providing a platform shelters and everyday people can use to provide animals their forever homes.

ResQpet allows shelters and individuals to post animals up for adoption, while allowing potential adoptees to browse through the animals, pick their favorites, and adopt the pet, all through a mobile device. The app allows users to browse animals all across the country, increasing the likelihood of an animal being noticed and adopted. Animals are a gift to the world and deserve to find the best owner for them, ResQpet aims to help.

ResQpet

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Food Logging App - Team Spirit

Team Members:

- Dania Chavez
- Greg Faaborg
- Oliver Banza
- Priyank Shah
- Pramisha Thapaliya

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Rapid development in technology have encouraged the use of smartphones in health promotion research and practice. This smartphone application may provide a novel method of dietary assessment to capture real-time food intake and contextual factors surrounding eating occasions. The aim of this application is to evaluate the capability of a smartphone meal diary app to measure the health issues, either the users known issues or the issues which they are trying to figure out by logging and monitoring. This app will be the first step in helping users figure out or even over come the allergy or health issues that individual face in their everyday life.

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I Don't Know

Team Members:

- Hoang Huynh
- Tuan Mai
- Gary Kau
- Horus Vidal

External Sponsors/Mentors:

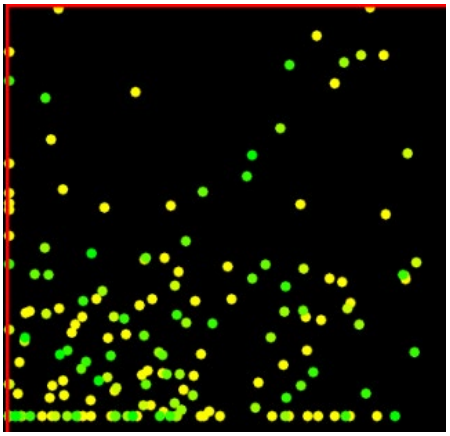
- None

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

This project will simulate and display the population of the prey and predators in the given environment based on hunger, speed, death and birth rate, etc. This can be used for educational purpose or to pre-determine result of the environment's result given by the users.



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Highway Fatalities
Team Scrumbledor

TEAM SCRUMBLEDOR

Team Members:

- Chhering Lama
- Fahim Sham
- Patrick Long
- Adam Williams

External Sponsors/Mentors:

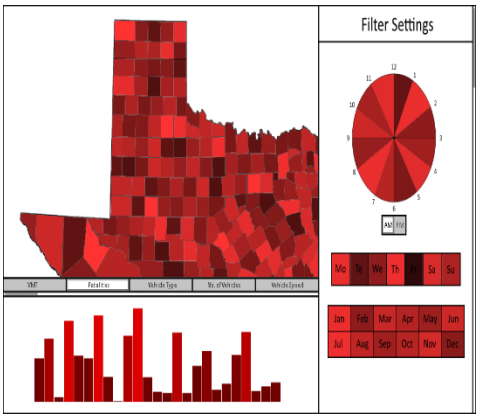
- N/A

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

In an effort to create easily accessible crash fatality data for researchers and educators, we have developed a web application which allows users to select from a variety of crash criteria and visualize the data in an easy-to-use interactive map and graph. A number of filter settings allow users to customize what information is displayed. This will help to monitor the crash area and take safety precautions in that area to reduce fatalities.



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UNT GradBook

Team Members:

- Ethan Teel
- Kim Ashmore
- Andrew Clark
- Kevin Carroll

External Sponsors/Mentors:

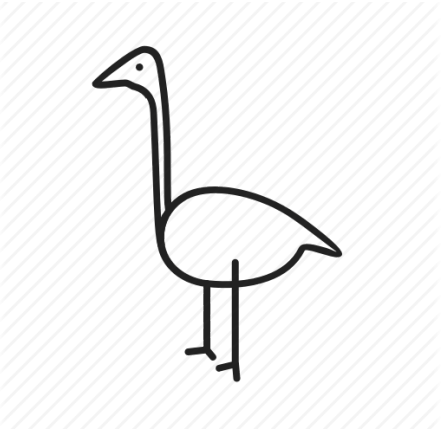
Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

With a continuing influx of new graduate students each year at UNT and the rapid change of the area, a strong desire for readily relevant resources at the reach of your phone could go great distances in aiding these onboarding students.

Whether the information pertain to the area, UNT, or department, onboarding graduate students need a medium for multiple resources and shared experiences so they can focus on beginnings of their new journey



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Kidney Pirates
Renal Patient Education App

Team Members:

- Chris Cox
- Olivia Haynes
- Justin Hick
- Kevin Morales
- Jackson Pfeffer

External Sponsors/Mentors:

- John Warth - DaVita

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

The End Stage Renal Disease Network of North Texas wishes to provide better education and accessibility for their treatment options to their patients. Most hospitals and dialysis centers rarely give enough information for people to understand their options and patients have very little knowledge of how their kidneys even work. This application will help educate users about their kidneys, renal disease, as well as give patients the resources to find nearby clinics and setting up appointments for their respective treatments.

A special thank you to Susan Haynes for stepping in as an external mentor to the group.

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Highway Fatalities
Team 7

Team Members:

- Steven Montes
- Fernando Martinez
- Thomas Vilchez

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

Texas is considered to be among one of the most dangerous states to be driving on a highway. To validate this statement we will compile information from all over Texas into an interactable map. This product to display most recent information about transportation fatalities and accidents based on user pre-requisites or filters.

Educators, researchers, or any person needing information will be able to have access to an easy-to-use product to learn more about their local area or any place in Texas.

Currently, there is no website or data source that provides this kind of service. Our solution will be the first of its own type.

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Team Blue: Sponsor-Team Matchmaking Tool

Match Me

Team Members:

- Bohan Zhang
- Bobby Kim
- Abigail Rivera
- Theodore Tilleman
- Dillon McDonald

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Project to match capstone teams with sponsors based on location, skill set, etc. Has various roles such as Sponsor or University. Matching can occur through suggestions or through browsing. The UI will support W3C Guidelines and will be accessible to disabled users.

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React.log
Team TBD

Team Members:

- Garrett Brumley
- Carlos Sibrian
- Muhammad Azam
- Alex Yu

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Our app, React.log, is an online food reaction log to assist individuals in tracking medical issues they may experience due to consumption of certain foods. React.log takes advantage of the React.js library to offer a highly interactive UI to assist tracking your eating patterns and the option to generate reports based on your log entries. Whether you are having allergic symptoms, or just want to keep an eye on your general eating habits, React.log will help you watch your health.

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PhD Evaluation Tool
Team Rockit

Team Members:

- Jax Saunders
- Lee Robertson
- Jeremiah Dickens
- Chad Leito
- Triston Blessing

External Sponsors/Mentors:

- Melanie Dewey

Internal Sponsors/Mentors:

- Dr. Bill Buckles
- Dr. Stephanie Ludi

Abstract:

Ph.D. students must provide an annual self-evaluation as part of their program and work towards their degree, as well as part of their standing in the department. The students' advisors must also provide feedback on their evaluations. We are currently working on a digital portal to replace the current entirely analog process. This would save significant amounts of time for the student, the advisors, and whoever else needs access to these documents. With our program, all of the self evaluations will be in one central, searchable, and archivable location.

Our program does not have a system like this, and we look forward to bringing this process into the twenty-first century.

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Parberryes Peasants

Team Members:

- Adam Bell
- Anderson Adams
- Michael Cooper
- Erwin Sparks Jr.
- Denver Jayroe

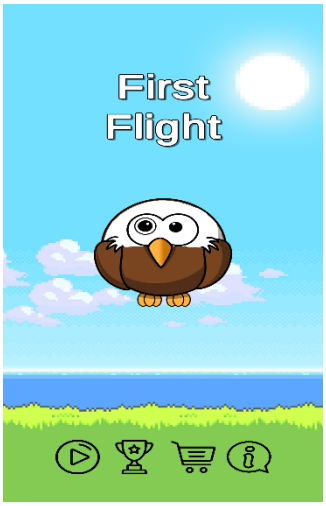
External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Our group is attempting to design and create an application for android smartphones that allows students to take an AR tour of Discovery Park. This will allow students to become familiar with the places where they will be taking classes and areas of Discovery where they can obtain additional resources. We hope that this application will give students more incentive to learn about their campus while having fun in the process.



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Optimize Prime

Team Members:

- Jesus Rodriguez
- Allison Goins
- Dan Shadel
- Chalet Shelton

External Sponsors/Mentors:

- Dr. Nandika D'Souza

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Incoming freshmen and transfer students often times struggle to determine what classes they still require in order to graduate. Our application fills the gap for students by providing an easy way for them to view their current college credits, as well as provide a way for them to see different options they have on their path to graduation.

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No Java Please

Team Members:

- Malik Fleming
- Sebastian King
- Brendan Nyambati
- Gustavo Espinosa
- Trenton Mitchell

External Sponsors/Mentors:

- Wooley, Gerry & Wooley, Robert from GLR Transport

Internal Sponsors/Mentors:

- N/A

Abstract:

The business of transportation and logistics is growing faster than ever, and yet it does have much of a footing in the field of mobile technology.

In order to improve the logistics industry we are developing an application to simplify the documentation required when transporting goods. GLR transport performs the transportation of heavy goods and large freight, each job requires creating meticulous documents describing the contents, time constraints, contact details, pickup and drop-off locations as well as any government permits.

Each job currently requires filling out a Word document and e-mailing PDFs with permits. Even for a small company, these documents stack up quickly. It becomes easy to make mistakes, to type in the wrong destination to the GPS, to lose the number of the contact, to forget a job has been cancelled or approved, etc.

Our application will centralizes all of the documentation needed by GLR Transport. It automates functions such as calling the contact to verify orders, setting the GPS location and it even fills out timesheets for employees. The data entered is validated and all jobs status' are tracked, and all of the permits and employee information, including edits, timestamps of documents and history is easily accessible. Furthermore, the data is available offline for mobile users allowing it to be used on truck routes that have poor or no phone signal.

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Nicole & The Boyz: Meet Me Halfway

Team Members:

- Alexander Alfonso
- Filmon Belay
- Mason Hobbs
- Preston Mitchell
- Nicole Russo

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

The purpose of this system is to create an application that will safely allow two people to find a safe meeting place, such as a police station, between them. This system can be useful in many scenarios where you need to meet someone - be it relatives on a family vacation or to exchange custody of items. This can be especially useful if you find yourself in an unfamiliar area.

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Nice For What | Stats Coach

Team Members:

- Richard Miles
- Cole Bush
- George Raheb
- Adam Boyer
- Kristin Carden

External Sponsors/Mentors:

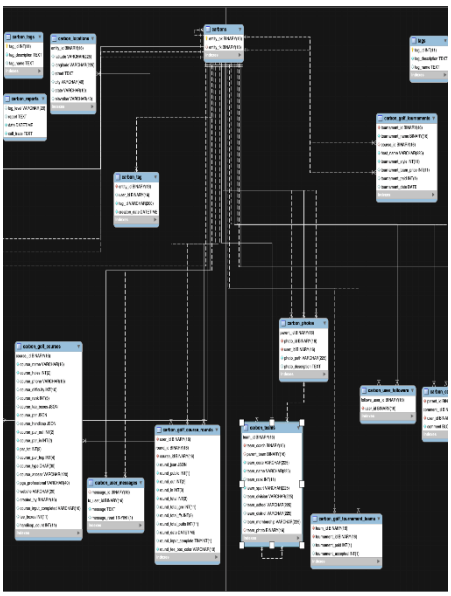
- Miles Systems, LLC

Internal Sponsors/Mentors:

- Bill Buckles
- Mark Thompson
- David Keathly

Abstract:

https://Stats.Coach/ was a product needed by a team members parental unit. The original goal was to reduce the amount of paper score cards used by high school student athletes weekly. Throughout the UNT experience, something more quickly came into existence. CarbonPHP is a minimalist PHP 7.2, a scripting language written in C and rated faster than Python, framework designed to complete this goal as well as generally being sufficient for most web application backends. The most important structural note would be the entity system with **MySQL**. An **Entity system**, common in game programming, is a simplistic way to represent all information uniformly in an equally important graph. Thus, being analytically similar to an unweighted graph. The proposed improvement, which is seemingly very uncommon in web-applications is to centralize the Primary Key database. Moreover, the majority of tables in the database will have a centralized schema that only contains primary and foreign keys references in a tuple structure. In the visualization to the right you may notice the processor like logical information flow this also mimics. This objective flow allows two system critical features: Every table or entity is allowed to extend every other table. When an entity needs to be deleted all sub references will be cascade-deleted, a built-in MySQL feature, without additional programming needed. Simplistically said, this allows photos on comments, comments on photos, likes on either, ect… and any combination of the sort.



Entity Relationship Diagram

Most importantly Google Fu and Github. Then comes the Grand Master Thompson for his socket lecture and David Keathly for his go-for-it mentality. Finally thanks to Bill Buckles for letting us do us.

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Meet Me Halfway
MAARK-5

Team Members:

- Miranda Bigby
- Amy Raney
- Kaytlin Lafluer
- Abdullah Mumtaz
- Robin Rajan

External Sponsors/Mentors:

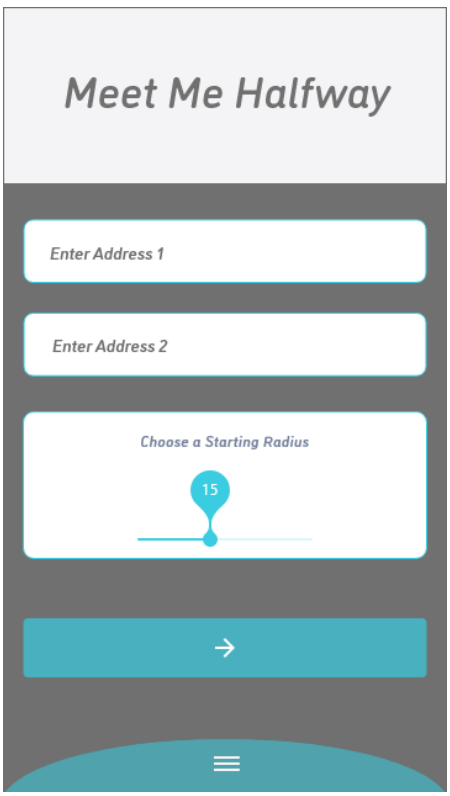
Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Meet me Halfway is an Android application intended to help users find a destination at the halfway point between two entered addresses. This application may only have one broad functionality but can be used by a wide variety of users for many different scenarios, including but not limited to; custody exchanges, business transactions, or simply meeting up with a friend who lives far away.

While not a new concept, the market lacks a well made and refined application that provides the functionalities Meet Me Halfway will contain.



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Logica Aquilae
Models of Predators and Prey

Team Members:

- Gerardo De La Maza
- Logan Kuhn
- William Middlemiss-Kurtz
- Aashish Pandey
- Jesse Pierce

External Sponsors/Mentors:

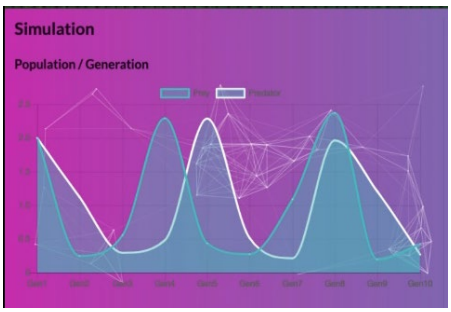
- N/A

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

Predator and prey population simulation using user inputted values. The user is directed to input initial populations for the predators and prey. They are directed to input both birth and death rates for both the predator and prey populations. Time is divided into generations with the population calculated multiple times per generation to improve accuracy. The population is displayed as a graph of both populations with the population on the vertical axis and the generations on the horizontal axis.



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DnD

Dungeons & Dragons All-in-one App By Homeschool Valedictorian

Team Members:

- Adrian Lacour
- Brad Dennis
- Damien Wiggins
- Geoffrey Plasterr
- Trenton Blackburn

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Bill Buckles

Abstract:

The goal of the Dungeons & Dragons All-in-one App is to make a simple and straightforward resource for all standard Dungeons & Dragons 5th edition material. Dungeons & Dragons can be a complex and confusing hobby to get into. The Dungeons & Dragons All-in-one App was created to be intuitive so that getting into Dungeons & Dragons is simple. This is done by having all resources available to players and providing an easy way to manage player's characters.

Thanks to Wizards of The Coast for making Dungeons & Dragons

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plateGuard
Heavy Machinery

HM Heavy Machinery™

Team Members:

- Michael Nutt
- Nathan Burgess

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Qing Yang

Abstract:

In today's world there are cameras everywhere with little regard for the security of the privacy information gathered by those cameras. In many states police forces are using Automatic License Plate Reader (ALPR) cameras to record and catalog license plates in specified areas, often using lax security practices such as cameras that are connected using default passwords and are easily accessible over the internet.

plateGuard is a solution to these issues by working on both the embedded camera system and on a centralized server, first encrypting the entire video before transmission so cameras that are compromised still have the video secured and then encrypting just the plate area of the video once it has been transmitted to the server so the footage can be reviewed and individual license plates searched for and revealed.

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Meet Me Halfway
Team Drop Table Students

Team Members:

- Justin Muskopf
- Fischer Davis
- Matt Floyd
- Jaqob Montes
- Solomon Anowey

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

Sometimes two people need to meet at a halfway point in order to meet up so that neither party has to drive more than the other. There can be a variety of reasons for this such as meeting up with relatives as part of a trip or a custody exchange. This app will help 2 parties find the halfway point between them so that they can meet at a place of business, police station or some other establishment (as opposed to the middle of the road somewhere). The app can give the address of the location, as well as directions if desired.

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TEAM CORE DUMP

WakeyWakey

Team Members:

- Shawn Lutch
- Chelsea Greer
- Richard Kriesman
- Cody Kyrk
- Miika Raina

External Sponsors/Mentors:

- N/A

Internal Sponsors/Mentors:

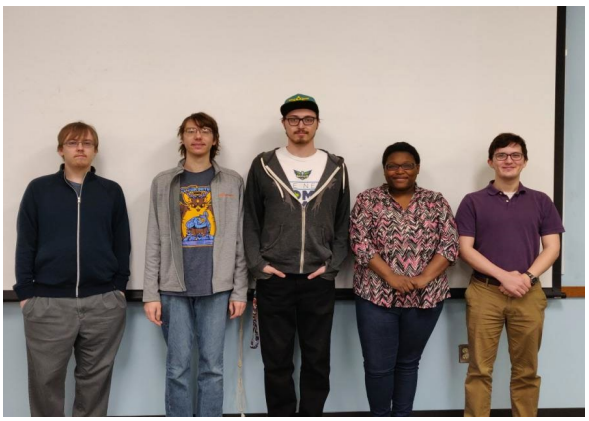
- Dr. Stephanie Ludi

Abstract:

Conventional alarm systems provide few alarm customization options and use jarring noises that may startle small children. These systems can be reconfigured by children, whether accidentally or intentionally, which results in unintended behavior. Parents and guardians have little control over options such as alarm type, customization, and sleep scheduling.

WakeyWakey is a child-focused, guardian-managed alarm clock app for iOS and Android. Guardians create weekly *schedules*, each with a set of daily alarms. Each alarm has a time for a child to go to bed, wake up, and get out of bed. Alarms are highly customizable, with child-friendly avatars and sounds, color changes, and configurable snooze functionality. Settings are protected by a passcode to avoid unintentional changes.

WakeyWakey provides guardians the means of enforcing a more rigid – yet gentle and friendly – weekly sleep schedule for their children.



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NCT9-1-1
SAVING LIVES AND MAKING A DIFFERENCE

Breakpoint — 9-1-1 Emergency Calling Simulator

Team Members:

- Agustin Vallejo
- Alexander Perkovich
- Dakota Lambert
- Zachary Ferris

External Sponsors/Mentors:

- North Central Texas Emergency Communications District (NCT9-1-1)

Internal Sponsors/Mentors:

- Dr. Bill Buckles
- Dr. Stephanie Ludi

Abstract:

Currently, the nation's best is learning how to handle an emergency using outdated technology. We aimed to modernize the emergency learning environment by developing a native solution on the Android platform to work on smart phones.

The application allows students to practice dialing and speaking to a 9-1-1 operator (the teacher) in a controlled environment.

With the 9-1-1 Emergency Simulator, parents and teachers can rest easy knowing that their children will be prepared for any situation that involves dialing 9-1-1.

We would like to thank Amelia Mueller, the 9-1-1 Communications Coordinator, for all of her help through the development of the application.

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VIPER Text Editor – Bits and Pieces

Team Members:

- Jose Duarte
- Stephen Lederer
- Dan Merlino
- Travis Pete

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

The Viper Text Editor was designed to aid visually impaired programmers with writing code for Lego EV3 Mindstorms Kit using the Python programming language. The editor will have user accessibility options such as bookmarking, speech-to-text, and screen-reader compatibility to facilitate a more streamlined user interaction for programming. Additionally, the editor will have more common features such as, font size and color options, line numbering, debugging, etc. This project is innovative because it brings together a lot of the existing tools for the visually impaired into one lightweight application.