



Department of
**COMPUTER SCIENCE
AND ENGINEERING**

Senior Design Day 2018

PRISM

Team Members:

- Prajwal Waiva
- Roshan Karki
- Samantha Akos
- Matthew Maddox

External Sponsors/Mentors:

Abstract:

Stock plays a vital role in any company/country's economy. It provides capital for companies and reflects financial health of any country. To be able to predict highs and lows of any company's stock would help in profitable investment. Use of neural network as part of algorithm for prediction comes from two different source i.e. software and hardware for comparing the most precise values. This is hoped to create opportunities for economic growth.



Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil
- Clement Cole





Spacecraft Lighting Network System: 2b | !2b

Team Members:

- Taylor Shinn
- Gladys Hernandez-Amaya
- John A. Todd
- Jorge Cardona

External Sponsors/Mentors:

- George Salazar - NASA

Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil – UNT
- Adam Chamberlin - UNT

Abstract:

Our project goal is to use off-the-shelf commercial devices to implement the DMX-512 lighting protocol for managing a network of LEDs. We demonstrate the utilization of this network by simulating the circadian lighting patterns as a proof of concept for future deep space missions. At this time commercial lighting bus standard chip sets are not suitable for intense cosmic radiation environments. Our solution in the Space Lighting Network System is for all clients to implement the Open Lighting Architecture(OLA) framework for DMX-512, and the server to relay all commands from a central graphical user interface using Raspberry Pis. The reason for doing so with programmable devices, is so that hardened or radiation tolerant devices can then be implemented. A few limitations that led to our design plan is the weight of hardware currently used in stage lighting. The SLNS will be a robust, fault tolerant, dynamically scalable network of cost effective microcontrollers.



George A. Salazar P.E of NASA

Dr. Tim Urban and Talia Jurgens of TSGC

Dr. Barrett Bryant of the UNT CSE Dept.

Dr. Robin Pottathuparambil of the UNT CSE Dept



Emergency Life Detection System

Team Members:

- Shobin David
- Justin Jacob
- Abdullah Almofeez
- Huy Ly

External Sponsors/Mentors:

N/A

Internal Sponsors/Mentors:

Dr. Robin Pottathuparambil
Thomas Kanabay

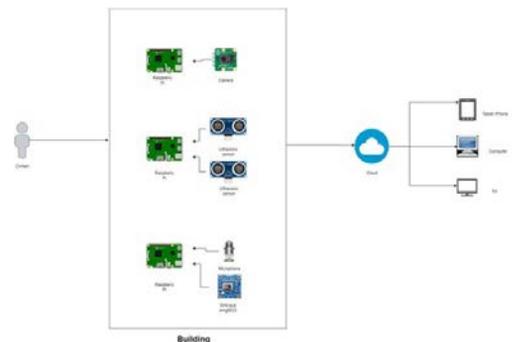
Abstract:

The Emergency Life Detection (ELD) system will aid first responders in detecting individuals inside a building. The ELD system will be a building installed service and composed of three main components: Building Entrance, Building Rooms, and Cloud data.

The entrance system will use facial recognition technology to track and recognize people entering and exiting a building.

The building room component of the system is able to monitor room activity and determine the location of people in the event of an emergency using a sensors system composed of thermal, ultrasonic, and microphone sensors.

The final component of the system will involve the cloud to backup and process the data at all times. The sensor data will be analyzed and used to provide information on the location of individuals inside the building. The data can only be viewed by authorized personnel to ensure building safety.



Apollo's Legacy – Intelligent Lighting Control System

Team Members:

- Jesse Boswell
- Cory Fairweather
- Charles Goff
- Scarlett Jones

External Sponsors/Mentors:

- George Salazar, NASA

Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil

Abstract:

As mankind attempts to travel deeper into space, the need to have spacecraft with intelligent lighting systems is on the forefront. Lighting systems need to be reliable, use less power, compensate for outages or degradation of lights, and help astronauts be more productive by helping maintain their circadian rhythms. Longer missions will require sources of food for the crew members. We propose that we add the ability to grow vegetation, control system settings using voice control, and increase the networking abilities for the current lighting system.



George A. Salazar, Dr. Tim Urban, Talia Jurgens, Dr. Robin Pottathuparambil, Team Spatium Lucis, Thomas Kanabay, Zachary Simpson, Office of the Dean for the College of Engineering at UNT

Detecting Disease Contacts/The Cavalry

Team Members:

- Travis Shatto
- Deepkumar Mistry
- Julian Bugarin
- Pal Bajwa

External Sponsors/Mentors:

- Not Applicable

Internal Sponsors/Mentors:

- Dr. Armin Mikler (Sponsor)
- Dr. Robin Pottathuparambil (Project Manager)

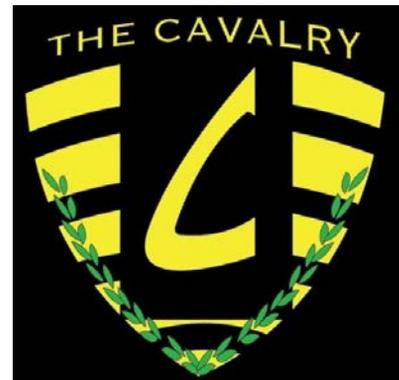
Abstract:

The Disease Contact Detectives (DCD) team (UNT, 2016-2017) accepted a proposal to create a research tool to assist in research directed by Dr. Armin Mikler from the University of North Texas. This research tool, known as the Detect Disease Contacts Initiative (DDCI) tool, is capable of measuring the number of contacts a person encounters in an average day. This is achieved by detecting the presence of an individual (or multiple people) within a 6 feet, 360-degree field of view by using a variety of commercial components.

A volunteer will wear the DDCI tool for a period up to 12 hours. During this period the tool collects data on the contacts the volunteer encounters. Once the volunteer is finished with the tool the research data is collected by the use of two mobile Android applications; one mobile application is designed to transfer the research data to an AWS storage service while the other application is used to display the final results of the processed data. Ultimately this data can be analyzed by Dr. Mikler and his research team. To facilitate this functionality the tool sustains the power and data requirements for the 12-hour period. This research data has many applications but it is primarily focused on the potential to identify where airborne illnesses are commonly spread.

Our team has improved the functionality of the DDCI tool by moving the post-processing procedure to an online system using several Amazon Web Services (AWS), upgrading the infrared thermal sensor for greater accuracy, creating a more discreet and compact platform for the system to be placed, and developing two mobile applications capable of transferring raw data and viewing processed data.

Thomas Kanabay – Lab Manager



Computer Security Investigators: Hardware Based Trustworthiness System

Team Members:

- Jeremy York
- Spencer Igwe
- Eric Salas
- Charles Rasmussen

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil
- Dr. Krishna Kavi

Abstract:

The intent of this project is to create a hardware-based computer security system. We are attempting this because we want to find a faster and more stable way to protect a computer. We believe that the current solutions are too slow and require too much power from the computer that it's protecting. We also believe that our way is much more difficult to trick because no new algorithms are required to check for any new viruses.

The project is designed around an external device (an FPGA in this case) that communicates with the computer using a USB connection. We created an application to push all relevant files on a computer to the external device to check whether any file has been modified. Each file will be passed through an algorithm in order to create a base "integrity measurement" that will be checked against in future scans. Our intent is to use the parallelism of the FPGA to create a much faster algorithm than a regular PC would allow.



Smart Home and Security System

Team Eclipse

Team Members:

- Alejandro Olvera
- Gibran Castaneda
- Isa Adeyemi
- Miguel Hernandez

External Sponsors/Mentors:

- Intelativ

Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil
- Dr. Mark Thompson
- Dr. Pradhuma Shrestha

Abstract:

Currently, Smart Home and Security systems rely on third-party software and hardware to function. An internet connection might also be required in order to process voice commands and other vital system information. This presents a risk since it exposes the system to outside attackers, and also compromises home security when internet or other services are unavailable.

Our system aims to solve this problem by using a private secure network that processes voice commands locally. We have prototyped several types of sensors and controllers to demonstrate basic smart home functionality. Our system also includes the use of a console and an Android application to control the system. This project required working as a team of four, and we all used our skills in programming, networking, hardware, application and GUI design to complete it.



Medicine Minder – Team FroZone

Team Members:

- Aaron Mayville
- Andrew McAllister
- Brian Pullen
- Zack Watkins

External Sponsors/Mentors:

- N/A

Internal Sponsors/Mentors:

- Dr. Robin Pottathuparambil
- Dr. Thomas Derryberry
- Thomas Kanabay

Abstract:

The problem we are trying to solve is being able to cool medicines portably in a timely fashion. Once the medicine is cool, our device will then keep the medicine at its desired temperature range.

The Medicine Minder will help preserve prescription drugs and ensure that medicines are secure and consumable.

Our project is unique because of its portability, and its ease of use. Once the user selects a medicine, the Medicine Minder does the remainder of the work. This makes our device user friendly and easy to learn how to operate.



Enhanced Bike Safety System (E.B.S.S)/ Insomnia

Team Members:

- Aaron, Arthur
- Brady, Almond
- Edward, Reyna
- Rickey Proby

External Sponsors/Mentors:

- N/A

Internal Sponsors/Mentors:

- Robin Pottathuparambil
- Thomas Kanabay

Abstract:

There are many bicycle accident cases that happen every day, because either the rider loses balance or they are not focused on the road. Our goal for this project is to reduce the chance of an accident, and to improve the time for help to arrive when they do happen. We will accomplish this by having a built-in turn signal, and a crash detection system on the helmet. The turn signals will allow the user to signal without removing their hands from the handlebar, therefore allowing them to keep their balance better. The crash detection system will inform the user's emergency contacts that they were in an accident, which allows the emergency contacts to call help for them. The E.B.S.S also has a set of cameras to allow the user to always see what's going on behind them, and to record video so the user can use it if they get into an accident that was caused by someone. The bike will be self-powered to allow the user to ride without any worry of battery life. The user can also view his/her speed and heart rate while biking.

Google.com, StackOverflow.com, Robin Pottathuparambil, Thomas Kanabay

Rhyno

Team Members:

- Rickey Dixon
- Yessenia Ramos
- Ryan Kaakaty
- Hamdi Hmimy

External Sponsors/Mentors:

- Don, Triumph Group, Inc.

Internal Sponsors/Mentors:

- Robin Pottathuparambil

Abstract:

Large structures of aircraft like fuselage, wings, and other parts are built by riveting aluminum, steel, or titanium sheets together. These are very large structures and require 100s of rivets to combine and construct various structures needed for the aircraft. These rivet locations are marked by technicians using stencils and then verified and drilled to place the rivets. The markings needs to be very accurate, within .003 inches and a small error could make these large sheets unusable. The goal of the project is to automate the entire rivet process by using a robotic arm and a mechanical slide (designed and fabricated by the mechanical engineers) to precisely mark the rivet locations.



Sleep Apnea Monitoring & Diagnostic System

Team Snooze

Team Members:

- Yale Empie (Team Lead & Reporter)
- Tyler Anderson
- Andrew Asdel
- Jason Van

External Sponsors/Mentors:

- Edwin Simon, MD

Internal Sponsors/Mentors:

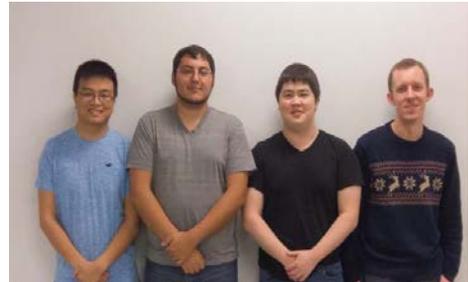
- Dr. Robin Pottathuparambil

Abstract:

Approximately 25 million adults in the U.S.A suffer from Obstructive Sleep Apnea. This is an ailment that causes a person to cease breathing for small periods of time throughout their sleep. It is a large risk factor that can lead to development of other, worse conditions such as hypertension, coronary artery disease, stroke, depression, and even dementia.

Current sleep studies are done in-lab in an unfamiliar environment, with diagnostic tools that cost upwards of several millions of dollars. It is also incredibly labor intensive and difficult for a patient to get into a sleep study for diagnosis due to the number of available sleep study locations in a region.

Our project set out to create a solution that would allow for a patient to do an effective sleep study within the confines of a familiar environment, such as their home, so that the patient can be properly diagnosed with Obstructive Sleep Apnea.



From Left to Right: Jason Van, Tyler Anderson, Yale Empie (Team Lead & Reporter), Andrew Asdel

We would like to acknowledge the immense help that Thomas Kanabay has lent our team in making this project to completion.

VIEC Network System

Team Members:

- Marco Duarte
- Richard Ervin Jr.
- Kaothar Sowemimo
- Alberto Olvera

External Sponsors/Mentors:

- George A. Salazar, P.E. ,ESEP

Internal Sponsors/Mentors:

- Robin Pottathuparambil, PhD

Abstract:

Whenever a space shuttle goes into space, a number of controllers are needed to control the various systems in the craft. If a controller breaks, it will need to be replaced. One option is to send replacements, but for a shuttle far way from earth, this would be too time consuming. Taking extras of each type of controller is also an impractical option because they add to the weight of the cargo, which translates into a greater cost to get enough fuel to send it all into space. The Vehicle Interchangeable Electronic Controller(VIEC) Network System aims to alleviate some of this burden by creating a system of interchangeable controllers (IC) that can be interchanged into the network at any time. The server that manages this system loads the appropriate application IC whenever a new one has been plugged in. A universal connector will be used to interface the ICs with the corresponding input devices. The simulated systems will be a Habitat Lighting System, Environment Monitoring System, and a Reaction Control System.



DROP TABLE Teams

Team Members:

- Kamyak Addagatla
- Jay Bishop
- Tara Boyle
- Hansaj Patel

External Sponsors/Mentors:

- Team members' mothers
- Tara's friend who is a mother

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

Track My Baby is intended to be a mobile application to allow new parents/caregivers to track milestones and everyday life occurrences involved in caring for babies. Life occurrences include events such as feedings, diaper changes, and sleeping. With this application, our goal in its implementation is to allow for potential users to be able to sync the milestones and data collected across multiple devices as well as be able to share needed data with a pediatrician (or the parents if being used by a caregiver). Track My Baby will be an essential tool that will aid parents in raising and caring for their babies.

This will help parents keep up with their babies needs. Help everyone using the app and the baby to remember there medication and allergies. The tracking done will help doctors diagnose illness with their baby easier and more accurate.

Our app stands out due to sharing baby track data with doctors and caregivers. Also stands out with illness tracking and friendly user access.



We'd like to acknowledge Android studio forms and Google firebase.

Senior Design Day 2018

Team Hydra

Team Members:

- Nohemi Gonzalez
- Aaron Bucklin
- Jose Salazar
- Robert Torres
- Russel Price

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

With the integration of technology into every aspect of our society and with there being no industry in which computers have not take a central role, there is a push in education to teach younger generations about the fundamental concepts of programming and computer science. While there have been some curriculum shifts to include the subject in various schools and grades, the trend has been slow to spread. Outside of the classroom, searches for games and apps both online and in the phone market have shown that there is no medium that is targeting this age group in a relatable and engaging way.

The aim of this project is introduce to children between the ages of seven and eleven the basics of Boolean Algebra as well as fundamental coding concepts such as if-else statements, while loops, and for loops. Through an interactive and progressive learning style, it is our hope to ingrain these core concepts in an immersive and fun environment that will spark a lifelong interest in a diverse and rewarding field.



Inventory Management System (IMS): EP.CF()

Team Members:

- Ethan Pomish
- Cameron Fullerton

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

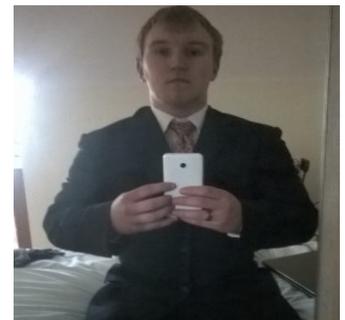
Mom and Pop shops are the backbone of America, though they frequently lack the resources to pay for complicated and expensive inventory management systems. Most of these systems are tailored to suit larger store fronts and are feature rich at the expense of simplicity and usability.

Inventory Management System (IMS) by EP.CF hopes to provide an easy to use and EXTREMELY inexpensive method of managing inventory for small businesses. Simple inventory management procedures with minimal keystrokes and click- counts allow these businesses to reduce training cost and manage their inventory on older machines with less available resources.

IMS allows multiple levels of users to access different levels of functionality depending on their role in the business. A standard user will only have the ability to check-in the weekly truck shipment, modify item descriptions, and ensure the accuracy of inventory during cycle counts. An elevated user will have the ability to add and remove user access, shrink inventory, and even delete an entire store's inventory.



Ethan Pomish



Cameron Fullerton

3 Factor-Authentication Project name: Halfway

Team Members:

- Daniel Jimenez
- Gabrielle Cordray
- Brandi Werner

External Sponsors/Mentors:

- Vicki White-Community and Family Relations Coordinator of Cottrell Halfway House Texas Juvenile Justice Department

Internal Sponsors/Mentors:

Abstract:

The Cottrell house is part of the State Juvenile Justice Department. Once county resources cannot support the youth with felonies in their system, the youth are transferred into the state system where they will be enrolled into a state school. Typically, the youth are transferred into a halfway house before they are released on parole. Halfway houses bring the youth from a closed facility to an open facility with integration programs. These homes serve the residents by aiding them to adjust to normal life. The hope is that the halfway home experience rehabilitates the youth and gives them foundations to become productive members of society. Unfortunately, once they leave the halfway home they may not stay on the right track.

We have proposed an idea to supplement the support given to the youth. We will be creating a web friendly and mobile friendly website to serve as a support system for the juvenile offenders to use during their time in the halfway home and after they leave the Cottrell house. The website will connect the youth to a mentor to ask questions, as well as peers to have discussions and seek support. The aim of our project is to have a positive social impact on juvenile offenders who are in, or have left halfway homes, to ensure they stay on a positive track, and are aware of resources they have for help.



Baby Aid

Team Members:

- Jaylan McLendon
- Nathan Cramer
- Naumaan Hassan
- Aaron Batch

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Taking care of children is known to be a very tough job. In this task, a parent/caregiver must be able to take care of multiple things such as feeding sessions, napping sessions, medicine-giving sessions, and many other things for the child/children that they are taking care of. Many people do these activities without recording the important information that can be acquired from them, and when they do, they must use potentially annoying methods like pen and paper.

The purpose behind this application is to keep track of the many caretaking activities and the important information in those activities a child's caretaker finds themselves engaging in (feeding sessions, napping sessions, etc.). This app endeavors to ease that burden upon the caretaker by providing a means where they can log, view, and share important data regarding the child they are taking care of.

With this tool, a parent/caregiver can potentially bring some more organization into their parenting/caregiving lives while also allowing them to improve some of their many parenting/caregiving skills.



CodeQuest: megabite

Team Members:

- Hailey Burlison
- Kevin Hinson
- Malesa Williams
- Mohammed Abdali

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

We are making megabite in order to show preferred food restaurants along a route. You simply put in where your destination is and the type of food you're interested in, as well as restrictions like vegetarianism or Kosher friendly locations, and our app will query Google Maps (for routing), and Foursquare (for more information on found locations) in order to find locations that are along the route. In addition, menu and venue information will be shown for places selected.



UNT Onboarding by Team Lenny

Team Members:

- Edgar Sanchez
- Justin Penny
- Steven Wyman
- Tsung-Han Hsieh

External Sponsors/Mentors:

- UNT Grad Students

Internal Sponsors/Mentors:

- Stephanie Ludi

Abstract:

Most UNT CSE grad students come from outside of the DFW area (or even the US). It would be great to have a web app that they could use as they plan to relocate here and once they arrive to help them settle into the area, UNT, and the department.

UNT Onboarding will provide a way for CSE grad students to have a central location to find invaluable information related to their new University and surroundings such as information regarding UNT, CSE grad student programs, Denton transportation, and city life.



Bloom: Healthcare Made Easy

Team Members:

- Michael Bido-Chavez
- Miguel Melendez
- Thomas Miller
- Victor Musasia
- Steven Harris

External Sponsors/Mentors:

- Sylvia Musasia, RN

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

There are several problems with existing electronic medical record systems (EMRS). These problems include the dependence on legacy software, poor user interfaces, and the lack of information access and control for patients. Bloom solves this by providing a new environment for instant access to patient records for both medical staff and patients. Patients are able to share record access by adding practices, schedule appointments to meet with their doctors, and minimize the amount of paperwork involved with their healthcare.

As a web application built on ReactJS, Bloom provides users access from anywhere with an internet connection and a javascript enabled web browser. As users work with this system, their work is backed up by Google's Firebase, to ensure secure remote storage. Additionally, Bloom provides a modern platform that is independent of legacy systems unlike other EMRS.



DigitalAdvisor

Team Members:

- Benjamin Meaders
- Jacob Hanson
- Andrew Harres
- Anthony Hicks
- Brennan Schamberger

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Stephanie Ludi
- David Lowell

Abstract:

Currently, the busiest students in our community are held at a great disadvantage as they often don't have the time to attend an advising appointment. They are left on their own to attempt to decipher their degree audit and course catalog, and could possibly run into the problem of taking courses that they don't have to, wasting time and money in the process. DigitalAdvisor solves this problem by recommending courses to students based on their current progress through their degree and lines up all of their semesters until they graduate.



BabyLog

Team Members:

- Pedro Miranda
- Erick Ortiz Barrera
- Arturo Rodriguez
- Danny Salas
- Aisha Shrestha

External Sponsors/Mentors:

Internal Sponsors/Mentors:

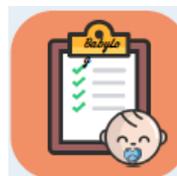
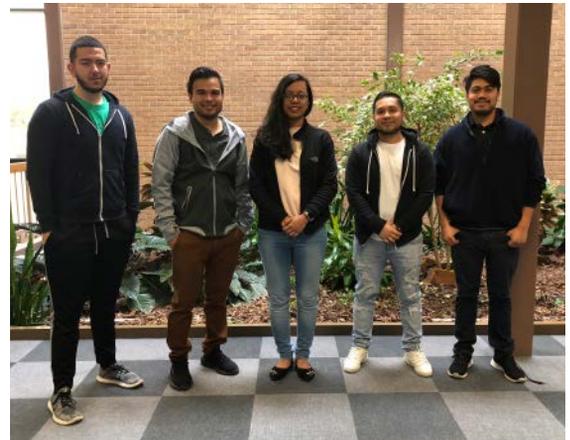
- Dr. Stephanie Ludi

Abstract:

Our app helps the busy parent track their baby's activities. The first month of the baby development is an exhausting period for those parents that are adjusting keeping track of their newborn daily schedule. The BabyLog app will help parents reminding/tracking about feeding, sleeping time, vitamin supplement and diaper change time while visualizing the data via graphs.

Our goal is to provide an easy to understand user interface. Where the user is able to learn how to navigate the menus and screens fluidly. As a busy parent, we want the user to quickly record their baby's information. Then at the end of the day be able to see all the important details in the summary page and also view this information in graphs to better understand their baby's development.

We created a unique design using big fonts and buttons to help the busy parent navigate the system as easy as possible. One of our goals is to help the user be able to use our app in a one-handed motion and use shortcuts to quickly access the important features of the app. Keeping everything concise and easy to understand is what makes our app different from other apps in the market.



BabyLog

*Team
Savage*

Senior Design Day 2018

Home Chores

Team Members:

- Tai Nguyen
- Esteban Delasancha
- Cameron Cook
- Luis Chaparro
- Alish Shrestha

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Social Function theory suggests that we all serve a purpose in society in order to keep harmony within the society, and this harmony is what our team intends on facilitating in the home setting. The Home Chores application serves to allow a household leader to organize and maintain order throughout the home through the scheduling of chores and utilization of reminders. With the home database at the push of a button, users can better organize their family's tasks, manage household upkeep, and increase overall productivity within the home.



Fi Message

Team Members:

- Aaron Hamilton
- Chase Parker
- David Walker
- Keith Santamaria
- Kristopher Duran

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Looking at encrypted messaging applications we noticed a few things. Either you can only message users with the app, the messages get stored on a database, data is being sold to companies for advertisements, or the app is owned by Facebook. Our goal is to create the best and most secure messaging application on the market. Our team of developers is doing this by solving problems other messaging apps have by creating an all in one application that allows users to communicate with friends and family without the app, sending encrypted messages directly to other users, and not collecting users' meta data. Having one application is user oriented because it helps keep all their messages in one place. Having the messages being sent directly from peer to peer instead of being sent through a server and stored gives the users piece of mind that unauthorized parties will not be able to read their private conversations. Our app does not have data to sell to uses' because we cannot read their messages, so they do not have to worry about data mining.

FiMessage

DOS

Infinity

Team Members:

- Andrej Rosolak
- Ben Jimenez
- Saina Baidar
- Spencer Ronshagen

External Sponsors/Mentors:

- Antonio Chamorro

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Life can be busy and full of responsibilities. Whether being a parent, college student, having a full-time job or any combination of these, it can be overwhelming. Owning a pet will only add to those responsibilities. Sometimes, owners forget to walk their pet or get food for their pet. Also, pet information such as medical records can be hard to keep track of. Creating an app to help keep up with pet duties will lighten the load of work needed to take care of pets. Pets will be in a happy state due to their needs being fulfilled. The app will be an innovative way to take care of your pet. Pet owners will be able to set reminders when to perform certain task. When taking them to the veterinarian, important information will be accessible quickly through the app. When having a friend pet sit, allergy information can be easily shared. Overall, the app will make it easier for pet owners since it reduces the stress of having to remember and keeps information organized.



Pet Friend



Ecommerce Solution For Nepal – TEAM VIPER

Team Members:

- Anjan Shrestha
- Sandip Gurung
- Upawan Khadka
- Roshan Pandey

External Sponsors/Mentors:

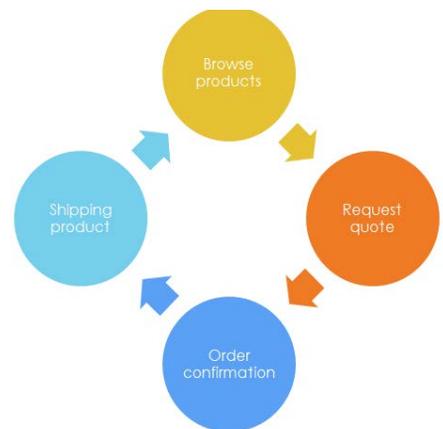
- Yuvraj Budhathoki (IAM Access
Adminsitrator Process Engineer, AIG –
Houston, TX)

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi
- Amar Maharjhan

Abstract:

Online shopping in Nepal is currently is still a new concept and limited to country's borders. People have no easy medium to shop online, and make purchase through websites, such as Amazon, E-Bay or any other online retail store. There are several obstacles which contribute to this factor. Firstly, debit cards and e-checks are not allowed for online shopping or any foreign transaction. Credit cards are the only way to purchase merchandise online, but credit cards are only issued to people with substantial wealth. Furthermore, big monetary transactions done online (usually more than \$1000) are blocked by the banks or credit unions that issue the credit cards under various government regulations. The goal of this project is to create an online shopping platform that will enable and make it easier for people in Nepal to make buy merchandise online. This website will attempt to provide a fast and restriction proof way for the people in Nepal to order item globally through websites, such as Amazon, E-bay or any other retail websites.



Supplies for Teachers/ Green Team

Team Members:

- Rawdhah, Al Shaqag
- Sundos, Al Subhi
- Syed, Asad
- Tevin, Mosley

External Sponsors/Mentors:

- N/A

Internal Sponsors/Mentors:

- Dr. Stephanie Ludi

Abstract:

Free supplies for teachers is a website which allows donor to post supplies of different sorts that can be useful for school/teacher. K12 teachers will conveniently look for stuff that they want to use in the class from the website.

The goal is helping teachers by donating the supplies through the website.

The unique thing about our project is that we are trying to help schools and teachers to obtain what they need for classes, we are also helping parents to spend less money for their children while giving students the opportunity to have all the supplies they need and lastly giving people the opportunity to donate stuff.



UNT Events Package

Team Members:

- Charles Bido
- Zachary Eisenhauer
- Zachary Langley
- Axel Yates

External Sponsors/Mentors:

Internal Sponsors/Mentors:

- Classroom Support Services

Abstract:

We are trying to solve the segregation of events on campus. We believe it is hard to advertise and find events at UNT due to the amount of sources and lack of unification.

Our solution is to build a REST API for events that can take in from multiple sources and send all the information needed to any application that wants to display the events. This is innovative because there isn't officially supported adapters for tools like Ad Astra, EMS, and University Tickets. In order to unify events at universities, the school would just have to try to pick a catch all system instead of being able to utilize different systems for different catches. Also, REST APIs are a newer concept, but easy to work with as a developer so events can be viewed in unique ways. For example, students can look at a map to see events around them and their schedule rather than a calendar. Students can also explore events by groups rather than time. We believe consolidating and giving access to information this way opens a lot of opportunity for UNT and other universities in the future.



The Usual: Food Recommendation Platform

Team Members:

- Roger Gray
- Rey Castro
- Tyler Duff

External Sponsors/Mentors:

Ricky Yamashita

Internal Sponsors/Mentors:

David Keathly

Abstract:

The Usual is a website that allows users to browse restaurants as well as track, save and share their favorite selections. It also features a recommendation feature to help the food selection process, which can oftentimes be harrowing. There are three main features:

- **Profile:** A user may set a profile picture, display personal information, and save favorite food items to their profile. From here they have the option to share their selections on several social media sites.
- **Browser:** The browser features a map of restaurants in the area along with a menu of food items that they serve. In the browser, the user may select any food item as a favorite and save it to their profile.
- **Prim Recommends:** Our website also features a recommendation page. In it, we implement a swipe-left/swipe-right stack to have our mascot, Prim the Cat, choose a food item for a user based on past choices and favorites saved.



Giganto Inventory / Team Dynamo

Team Members:

- Reginald Barnes
- Brandon Hastings
- Juhn Baek
- Tavon Hayes

External Sponsors/Mentors:

- Josh Bell – Meridian Business Solutions

Internal Sponsors/Mentors:

- David Keathly – Capstone Professor

Abstract:

We were given the opportunity to work with Meridian Business Solutions to create an inventory system to keep track of important assets. This product is unique in that it can keep track of assets in multiple locations but also provide reports to help determine what assets are needed to be replenished as well as which individuals have made changes to the system.

UNT Factory by Strategic Gravity

Team Members:

- Cody Johns
- Cherise Doublin
- John Knowles
- Matt Partida

External Sponsors/Mentors:

The Factory at UNT - Judy Hunter

Internal Sponsors/Mentors:

David Keathly

Abstract:

Our group worked towards creating a new website for the UNT Factory to use. The Factory is a 3D printing lab that allows students to submit files that are then 3D printed for the students.

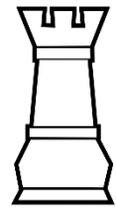
We worked on creating an entirely new website both the front end and the back end. In the process we created a login portal for the site admin and users. We also created forms that allow a student to submit a file and have it approved by the staff at the factory.

One of the biggest obstacles we had involved connecting to the payment portal. We had to interface with an existing payment system so that the students can pay for their 3D prints.



We would like to thank the Factory for sponsoring us in this year long capstone project.

Senior Design Day 2018



ITSS Status Board Refresh - Rook IT

Team Members:

- Cyrus Bahrami
- Nick Partridge
- Rayneil Williams
- Tyler Cook
- Jacob Shafer

External Sponsors/Mentors:

- None

Internal Sponsors/Mentors:

- Andy Mears
- Michael O'Rourke
- Gordon Albury
- Christopher Hutson

Abstract:

We are trying to demonstrate the first integration of an enterprise service bus with the UNT ITSS department.

The ITSS department has dozens of services that are actively being monitored and tested at any one time. The problem with this, is that with every new service that is added: there must be a new set of customized options and protocols for it to be integrated correctly into the UNT network.

Having a service bus with a set of defined protocols that enables any new service to only be customized to the service bus, as opposed to every interlocking application of the network would be a great step forward for the department.



ResqueMe

Team Members:

- Joseph Tye
- Zach Newman



External Sponsors/Mentors:

- None

Internal Sponsors/Mentors:

- Dr. Kamesh Namuduri

Abstract:

ResqueMe is a web-based platform that allows first responders and volunteers the ability to work together during natural disasters and major emergencies providing a framework for collaboration, communication, and information dissemination between personnel.

ResqueMe uses lessons learned during recent disasters and utilizes technology to mitigate the problems often seen in large-scale disaster response.

CSE Scheduling Assistant

Team Members:

- Andrew Manley
- Alexandra Martinez
- Jesse Culver
- Alexander McCulloch
- Donald Jones

External Sponsors/Mentors:

- Dr. Armin R. Mikler – CSE Professor UNT

Internal Sponsors/Mentors:

- David M. Keathly - CSE Professor UNT

Abstract:

Problem:

The process is done manually without computer assistance forming several problems.

Conflicts:

- Enrollment vs Room Capacity
- Instructor Assignment
- TA and Grader Assignment
- Dynamic Data: Waitlists
- Room Assignment/Reassignment

Solution:

A web based user interface that will allow a conditional search that returns filtered data in an organized fashion easing the process significantly.



Makes Sense – Foot Traffic Analysis

Team Members:

- George Tipton
- Andrew Johnston
- Grant Jackson
- Travis Johnson

External Sponsors/Mentors:

- Signal Aware:
- Adam Perschke
- Adam Kila
- Brooks McMilin

Internal Sponsors/Mentors:

- David M. Keathly (University of North Texas)

Abstract:

The University of North Texas is an ever expanding grounds for both students and staff to grow, learn, and work. With the addition of new facilities, expanding and changing infrastructure, and implementation of better accommodations to University staff and students.

In order to ensure efficiency in commuting and that community members are taking full advantage of University resources and offerings, it's important to analyze traffic patterns on our University walk-ways and recreational/break areas.

We, paired with a sensor-based research company Signal Aware, gathered significant traffic-related data on campus in order to generate ideas for how to make our walk-ways more efficient, make staff and student accommodations more effectively located, and identify prime areas for placing advertisement and marketing material on both UNT's main campus, as well as at UNT's Discovery Park campus.

Special thanks to: Rory Rivoire (UNT Datacomm), Sean Martin (UNT Datacomm), Rich Anderson (UNT IT Security), Charlotte Russell (UNT IT Security), UNT Institutional Research Board

GM Tile&Coping / GADG(IT)

Team Members:

- Gezim Kashtanjeva
- Alejo Ponce
- Daniel Martinez
- Gustavo Martin Jr.

External Sponsors/Mentors:

- Gustavo Martin Sr.
- GM Tile & Coping

Internal Sponsors/Mentors:

- Mentor: Professor David Keathly

Abstract:

Mr. Martin was in need of an online portal/e-commerce store, for his clients as well as future clients, where his company could advertise, estimate, showcase and be reached via email at anytime.

Through modern designs, as well as ease of internet tools, my team and I have designed, per spec, what was needed by Mr. Martin. Being exposed to online environments allows for optimum use of resources available. The addition of a web based platform for the company allows for global reach if ever decided by Mr. Martin.



Beyond Denton

Team Members:

- Sean Van Zanden
- Brandon Reid
- Tyler Thornburg
- Garrett Crowe

External Sponsors/Mentors:

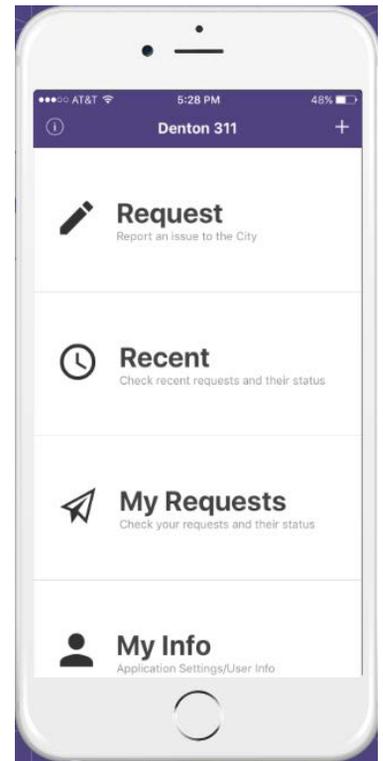
- Habib Abdulrahman (Open Denton)

Internal Sponsors/Mentors:

- David Keathly
- Dr. Bryant

Abstract:

Large cities are complex organizations and it can be difficult for residents to know who to call or what to do in a non-emergency situation. There is a tremendous need for coordination and communication between citizens and the City of Denton to utilize modern technologies in order to better report non-emergency situations. Our project will consist of creating a working prototype 311 mobile application to propose to the City of Denton. This will be an attempt to show the City of Denton that an application like this can be both feasible, and beneficial to the city and its citizens.



Project Aero

By: Fantastic Four

Team Members:

- Alyssa Thurston
- Breuna Riggins
- Travis Goral
- James Sabetti

External Sponsors/Mentors:

- Denton Techmill
Dan Minshew, danminshew@gmail.com
Kyle Taylor, kyletaylor@gmail.com

Internal Sponsors/Mentors:

- Professor Keathly

Abstract:

Due to the large amounts of traffic from various highways, many large businesses, and two universities it is quite shocking to find that there is only one air quality sensor in Denton. The next closest is over 15 miles away. Given these facts, we don't know just how bad the air quality is in the city. It is the goal of this project to rectify the lack of air quality data. This project, upon completion, will help the citizens of Denton become publicly aware of the air quality, the standards set by the EPA, and take civic action. This project's innovation is derived from the fact that the data collected is publicly available. Additionally, citizens can elect to create their own sensor and contribute data collected from it.

