## 2016 Undergraduate Research Conference
## MOBILE APPLICATION DEVELOPMENT

**NIAGARA UNIVERSITY**
*Education That Makes a Difference*

## Niagara University
### Computer and Information Sciences Department

# Smart Campus

**Danielle Allan**

Advisor: Dr. Yonghong Tong

## Introduction

This mobile application is designed to allow user to view a location and the times that the location is open. The app was supposed to show how many individuals were in a specific location based on how many devices were connected to a particular access point. Assuming most students have a cell phone and are constantly connected to the Internet, it would be an assumption that this would be an accurate way to measure populations. The location features the four most popular places on campus: Kiernan Center, Clet Dining, Gallagher, and the library.

## Methods & Result

A survey is conducted to collect the students' interests for a smart campus application via various social networks allowing the student population to answer and explain what they think would be most beneficial in an application for the campus. The responses included: An app to show the times different places were open, a map of the locations on campus, a list of events on and off campus, and an app that shows how many people were in a given location at a given time.

The combination of all those are used for this design, it would show the hours and a map of campus, with the amount of people in a given location. The DCHP clients list per access point will be shown in a given location.
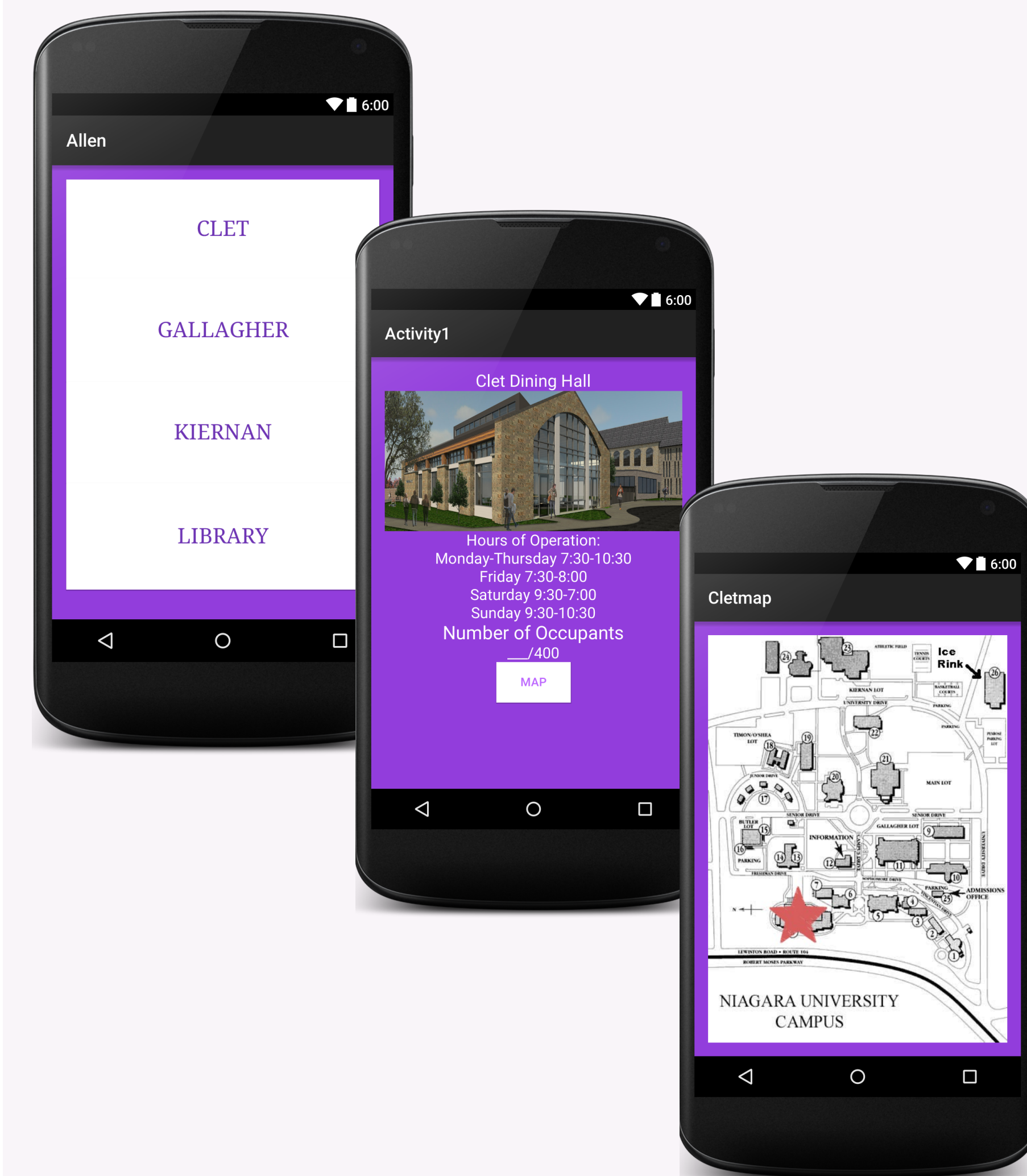


## Discussions and Future Work

Further work should be performed to make this app work in the way as designed. This app would be extremely efficient when up and functioning. The app would allow students to make more conscious choices about how to utilize their time. By seeing that the gym is packed they could choose to go to the library that is empty and do some work before going to the gym. Further study will be considered in applications and website development.

# STEM Virtual Labs

**Brett Smith and Megan Baker**

Advisor: Dr. Yonghong Tong

## Introduction

The Stem Virtual Lab mobile application is a game to help today's youth get more involved and interested in STEM disciplines. It was created to be used in elementary school classrooms. The purpose of this application is to help students draw different style cars to scale based off the desired length they wish it to be. First the students choose between five different styles of cars (coupe, sedan, van, SUV, and truck). After that it prompts another screen that asks the student to input the desired length of the car. Finally the student clicks the calculate button and the results are displayed for the wheelbase, length, height, front overhang and rear overhang, along with a picture for reference.

## Methods & Result
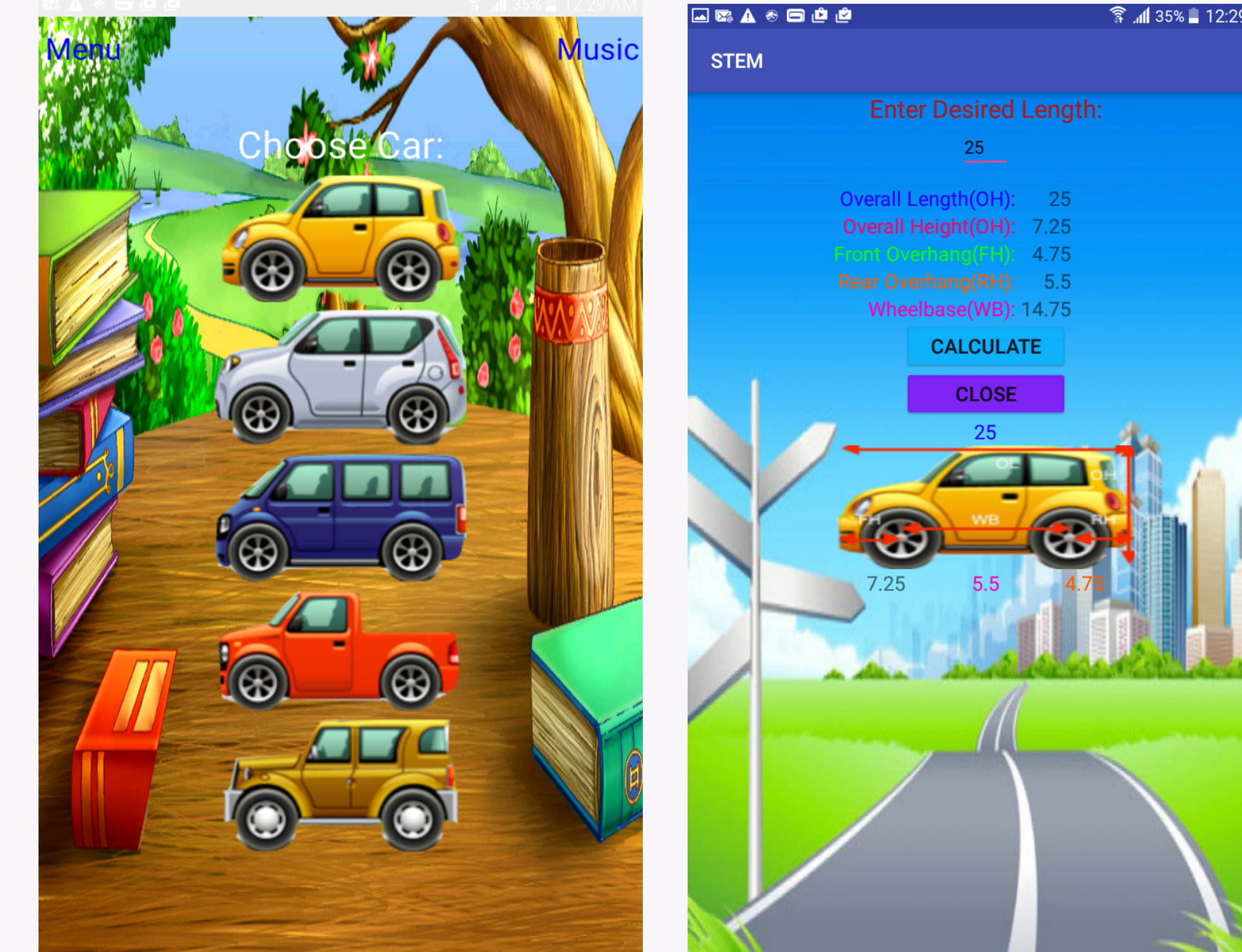


The main methodology behind creating this application was agile development, where it was designed and refined in one week sprints. Using the agile approach new features and enhancements that were suggested by feedback could be rapidly corrected. It also allowed several changes, enhanced quality assurance and multiple test cycles.

Using the agile methodology an application was created that will help encourage and intrigue young minds into pursuing the science, technology, engineering and math behind everyday tools such as cars. The reference feature allows students to incorporate simple knowledge such as car dimensions within their classroom environment to enhance and further their learning.

## Discussions and Future Work

Future research would involve implementation of the application into classrooms for better audience related feedback. It would also involve any updates to the application and possible future versions that progress with the student into higher level classrooms. These different versions would take the student from the calculations being in the background to the students calculating the dimensions themselves and comparing them to the actual dimensions and being graded on them.

**Creative Thinking
Creative Learning**