

Campus Connect

by

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CAMPUS CONNECT



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Abstract

Within the past five years, The University of Cincinnati hasn't had a consistent Campus Link solution for managing student groups, none of which have had a mobile solution. The current University solution does not reach the expectations of students and organization leaders. Campus Connect provides an active and intuitive user experience with both web and mobile. The project aims on giving the users an all in one solution that allows them to actively see posts and meetings from the clubs or organizations they have joined through the application. Campus Connect will consist of a series of features that allow the user to search and join organizations of their choice. Organizations create and edit posts as well as their own personal organizational pages. Campus Connect allows for an easy communication between students and organizations.

1. Problem Statement

1.1 Introduction

For a student attending a university in today's world connecting and communicating is vital to their success. Having to use multiple applications to communicate with different student groups and organizations can become very overwhelming. There is a demand for an application that will allow communication between student's groups and students themselves to centralize communication. This application will allow its users to have an all in one location for communication between students and organizations.

1.2 Project Description

To rethink and create how students find and connect with different student organizations and clubs. "Campus Connect" will allow students to search these organizations and to join student groups through the app. Being subscribed to a specific organization or club allows students to see their subscribed organizations posts on the main feed. Students seeing this on their feed may have the option to "RSVP" to the posted event. Additional information on the original post made by the organization may include location, date, and time.

1.3 Problem

Within the past five years University of Cincinnati hasn't had a consistent Campus Link solution for managing student groups, none of which have had a mobile solution. With the frequent changes of the current University of Cincinnati web application, both the students and the student groups haven't been able to confidently learn how to navigate the site.

1.4 Solution

Submit a working mobile application in which has been developed with the key focus of helping students and student organizations connect with one another. Students will have confidence to easily navigate the application in which they will be able to search for different clubs and organizations throughout the university. Student Organizations will be easily able to connect with students and post about various activities and events the organization is hosting or apart of.

1.5 User Profile

Figure 1: User Profile: Provides the expected user for the Campus Connect application. It highlights the target audience for the application along with Related Experience, Similar Applications, a summary of the user's task experience, and the recommended requirements the user should obtain to successfully use and navigate the application.

Project Name: Campus Connect – An easier way to stay connected.
Potential Users: - Students attending the University - Organization leaders who are affiliated with the University (Students or Faculty)
Software, Interface, And Related Experience: This application will be attended for students who have had some experience with using any sort of social media platform. Students who have had experience connecting with other people using Social Media and other forms of online communication. Users who have had not prior experience to online social media and other social web applications may find difficulties in learning to navigate the application.
Experience with Similar Applications: Many current social media platforms share features that Campus Connect will contain, these social media platforms consist of:

- Twitter - Facebook - Instagram - Reddit
Task Experience: Student users will experience an easy to use and intuitive design that once they are logged in, will allow them to easily navigate their feed to stay up to date with organizations posts that the specific user has joined. Organization leaders will be able to login and successfully manage students and create posts that are informative to the student users.
Frequency of Use: The frequency of use of this application will vary on the involvement of the user. This application can be used daily if the user is frequently involved in student organizations. Campus Connect also allows the users who aren't as involved to stay up to date with their joined clubs and organizations.
Key Project Requirement that the profile suggests: - Easily accessible and navigable UI - High priority in allowing users to easily join organizations - Appealing design with material design standards - Easy transition between mobile and web application

Figure 1: User Profile

1.6 Use Case Diagram

Figure 2: Use Case Diagram: represents the minimum requirements needed to successfully use and navigate the campus link application.

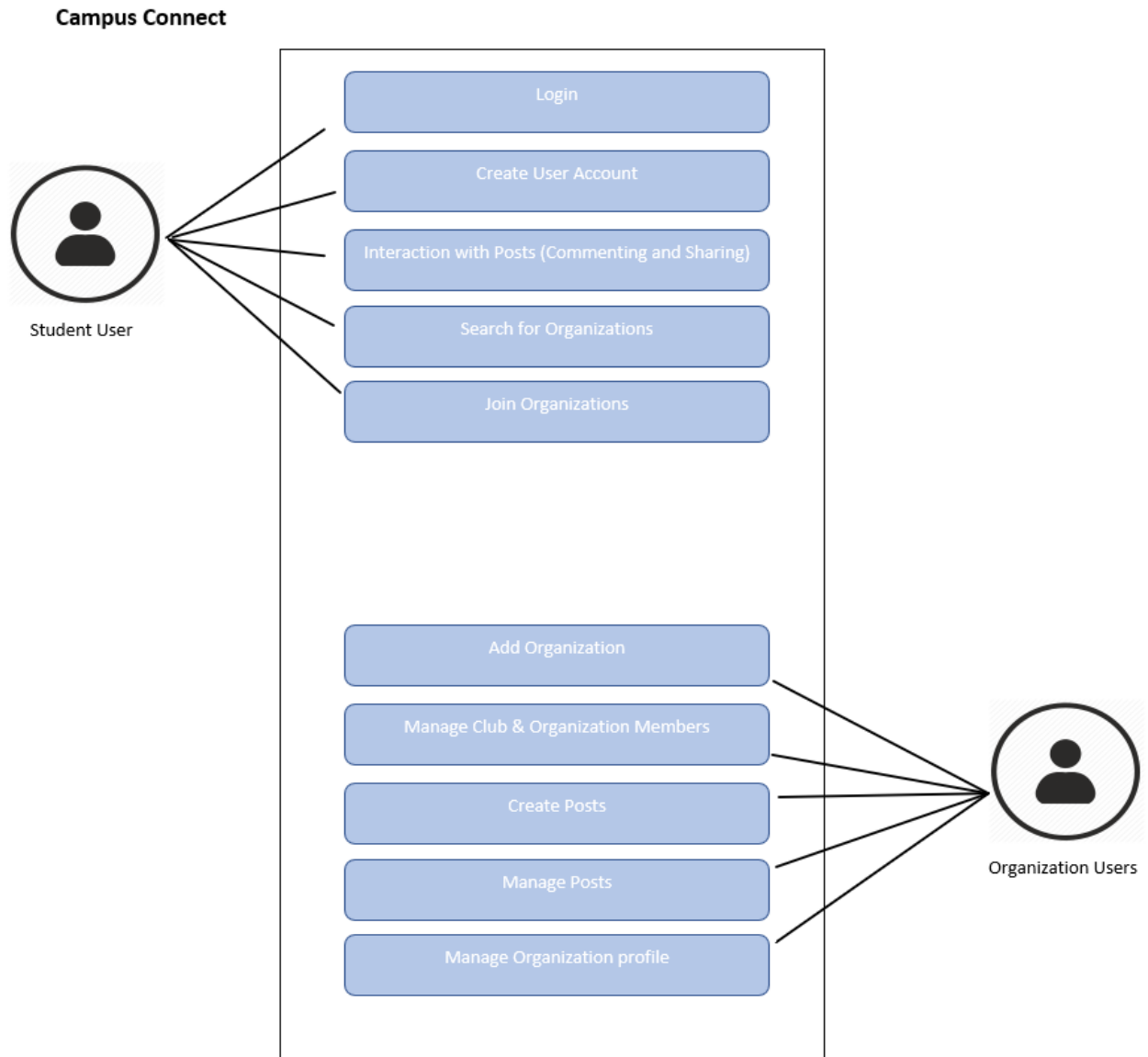


Figure 2: Use Case Diagram

1.7 Overview

The remainder of this report outlines in detail on how Campus Connect was completed. The rest of the report consists of the budget, schedule, objectives, technical elements, and UI image.

2. Project Management

2.1 Budget

Table 1: Project Budget: Projects the real-world project costs of \$12,000 for the development and completion of the Campus Connect application.

Risk Identification (See Risk Types tab)					Project Stakeholder(s)				
	<i>Risk Rating "1-5 (\$ is</i>	<i>Comments</i>	<i>Weight</i>	<i>Score</i>	Team members are the primary stakeholders.				
Work Effort (days)	3	Estimates of 600 working hours	40%	1.20					
Complexity	3	We are making a better user experience along with a new	60%	1.80					
Project Risk Score:				3.00					
Estimate of Benefits									
If project will generate revenue, estimate 1 year here:		\$ 20,000.00							
Select other benefits the project may bring a customer or user:									
Risk Avoidance		☐							
Improved customer satisfaction		☒							
Increased system availability		☒							
Productivity or process improvement		☒							
Reduced costs		☐							
Estimated Cost Rough Order of Magnitude:									
	Rate Per/Hr	Work Effort (Hours)	1 X Costs	Ongoing Annual			Comments: still working out total Costs		
				Rate Per/Hr	Work Effort (Hours)	1 X Support Cost			
Labor - IT	20	600	\$ 12,000.00	20	150	\$ 3,000.00			
Labor - External			\$ -		0	\$ -			
Software - External									
Hardware - External									
Misc.									
TOTAL			\$ 12,000.00			\$ 3,000.00			
5-Year ROI Analysis									
Description	5- Year Expected		Conservative (1.5)						
Total Costs	\$	27,000.00	\$	40,500.00					
Total Benefit	\$	100,000.00		\$50,000					
Total Costs/Benefit Differential	\$	73,000.00							
Conservative Costs/Benefit Differential	\$	9,500.00							

Table 1: Budget

2.2 Objectives and Deliverables

Table 2: Objectives and Due Dates: This table represents the specific completion dates throughout the duration of the project. The left side of the table are the start and end dates for our own deliverables. While the right side of the table are the start and end dates for the deliverables of the class.

Major Deliverables Start Dates					
Fall Semester 2018					
	Start date	Completion Date		Start Date	Completion Date
Project Search Initiation	8/20/18	8/31/18	Team Contract Submission	9/14/18	9/24/18
Project Research	9/3/18	10/16/18	Abstract Draft	9/7/18	10/15/18
User Interface Design	10/8/18	10/28/18	User Profile/Use Case Diagram	10/11/18	10/22/18
Development	10/16/18	1/19/18	Elevator Speech	10/29/18	10/29/18
Implementation	12/1/18	2/1/19	Fall Presentation	11/26/18	11/26/18
Spring Semester 2019					
	Start date	Completion date		Start Date	Completion Date
Backend Development	10/23/18	1/15/19	Tech Expo	4/9/18	4/9/18
Feature Testing	2/9/18	3/18/18			
Survey First Round	1/14/18	2/16/18			
Survey Second Round	2/17/18	3/18/18			

Table 2: Objectives and Due Dates

2.3 Project Schedule

Figure 3: Project Schedule and Gantt Chart: The timeline and structure scheduled start and end dates for the Campus Connect application.

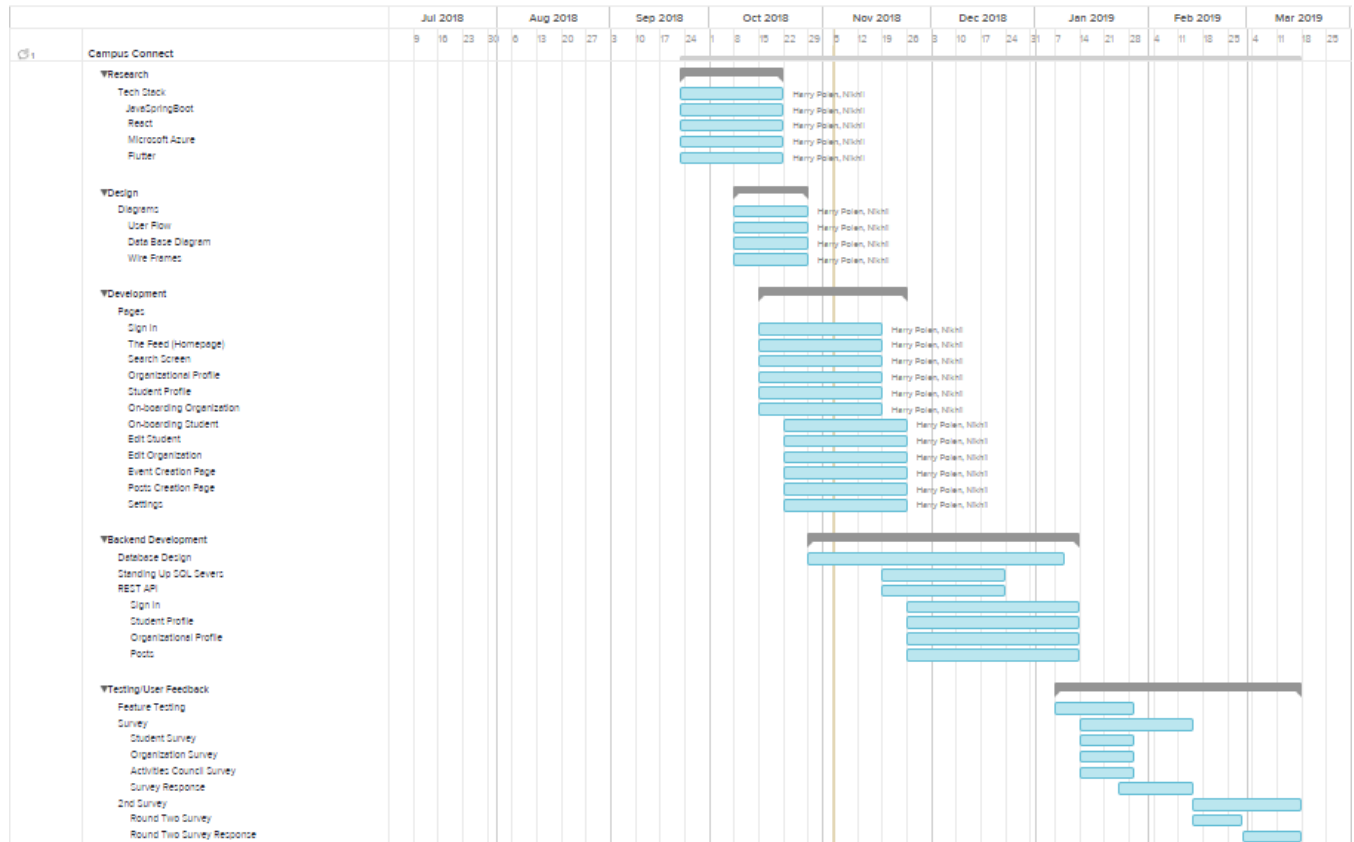


Figure 3: Project Schedule and Gantt Chart

3.1 Technical Elements

Campus Connect is all about allowing student users and organizations having a central location where they are easily able to manage and communicate with one another. For this to be success some key features needed to be added to allow the most optimal experience for the users. One of the core features for this application is the feed that each student user will have access. Each feed is that student users own personal feed, which contains specific posts related to the clubs that the student user is a part of. Students play a key role when it comes to interacting with organizations. Each specific post will have the option to either comment or share. These features allow the organization to have better interaction with their members.

3.2 Three Pillars

For Campus Connect to have an impact on its user base we came up with three main pillars that are the platform for the application. The three pillars consist of Searching, Connecting, and Maintaining.

3.2.1 Searching

Students will have the ability to search for the desired organization by the specific club or organizations name, along with the option of being able to search for specific tags that related to the organization type they are looking for.

3.2.2 Connecting

Once a student has found an organization they wish to be part of, they are then able to request to join that organization. The request is then forwarded to the administrator in charge of that specific organizations page. They then have the option to either accept the join request or deny. Once the organization accepts the student user to the group the posts from the organization on able to be seen on that student users feed.

3.2.3 Maintaining

Students and organizations play a strong role in actively maintaining. Organizations will have the option to customize their specific Organizational Page. This page can consist of meeting info, executive information, or any other information the organization seems fit for a student user to see. Students will also have the ability to join new organizations or leave organizations at any time.

3.2.3 Challenges

With a project of this scope you are bound to run into some challenges. When deciding how we wanted people to use Campus Connect, we came to the conclusion we wanted for our users to be able to access the application through their phone and computer. This ended up being a great decision but also created its own challenges. One of the challenges in particular was making sure the applications were being developed in parallel to one another. This helped ensure that both mobile and web applications were on target with the scope and would provide a fluid experience for the user if they wish to jump from one platform to another. The development of the application itself also brought along its own challenges. The mobile application was developed in Flutter, this is a new framework written in Dart 2 which just came out of beta while working on

the app. Due to it's new release, Flutter has neither the same large developer community as Android and iOS native development nor the large plugin support as the two platforms.

4.1 Login Screen

Figure 4: Login Screen: Illustrates the first the student user and organization user will see when opening the campus connect application. They will be met with a clean easy to use UI, in which allows the user to login and select the domain they wish to enter.

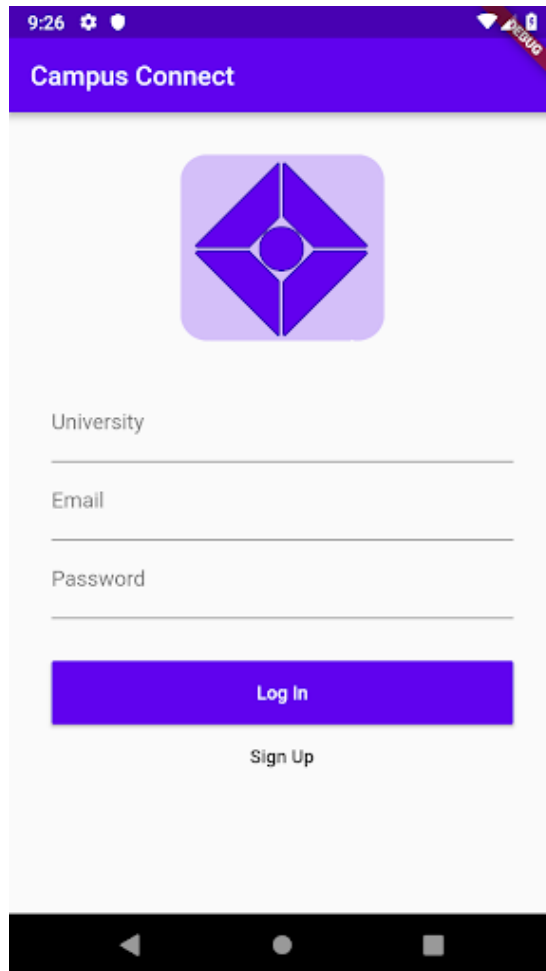


Figure 4. Mobile Login Screen

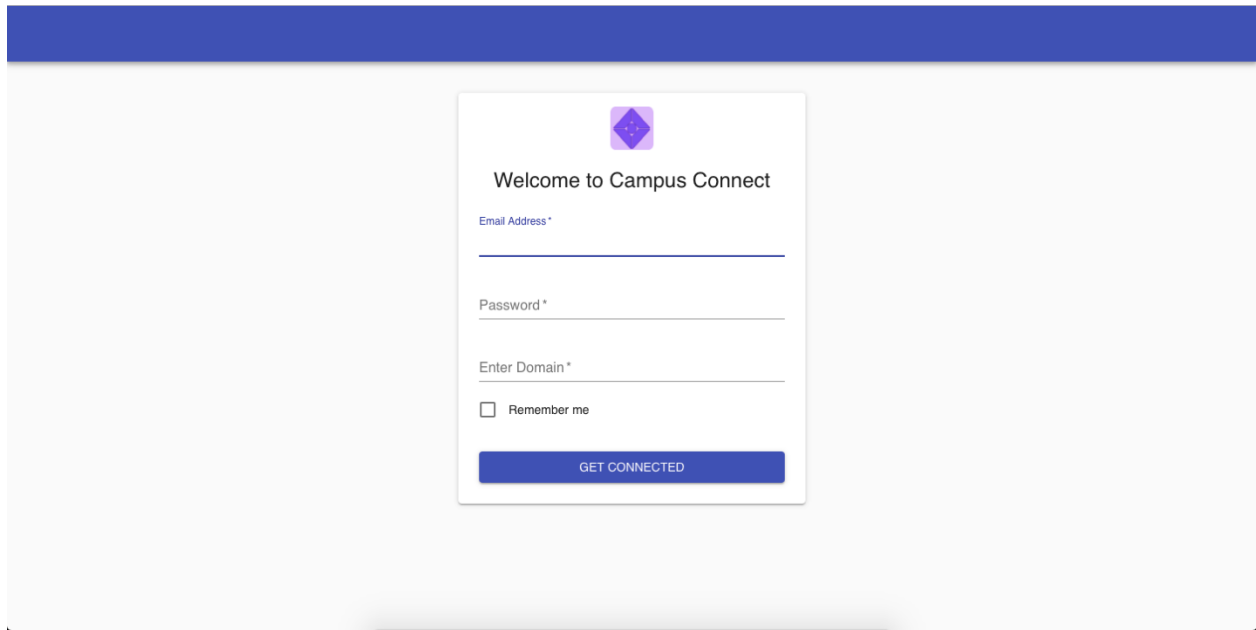
The image shows a web login screen for 'Campus Connect'. At the top, there is a solid blue horizontal bar. Below this, the login form is centered on a light gray background. The form has a white background and a thin gray border. At the top of the form is a purple square icon with a white geometric pattern. Below the icon, the text 'Welcome to Campus Connect' is displayed in a black, sans-serif font. The form contains three input fields: 'Email Address *', 'Password *', and 'Enter Domain *'. Each field has a thin blue underline. Below the 'Enter Domain *' field is a checkbox labeled 'Remember me'. At the bottom of the form is a solid blue button with the text 'GET CONNECTED' in white, uppercase, sans-serif font.

Figure 5. Web Login Screen

4.2 User Profile Screen

Figure 5: User Profile Screen: This is the screen in which student users will see when searching for a specific organization. Two of the most important features on this page are the “Join” and the “Message” functions. These features allow the student users to easily connect with the organization they are searching for.

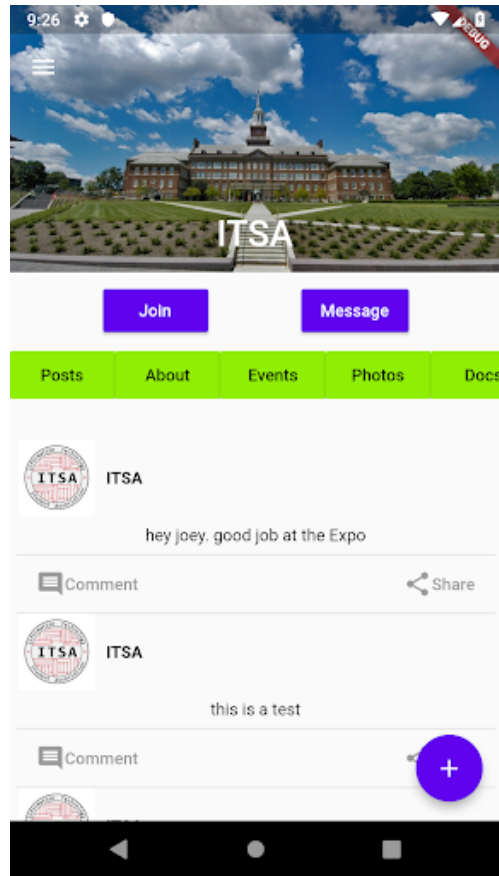


Figure 6. User Profile Screen

4.3 Feed Page

Figure 6: User Feed Page: This is the home page for the user. The feed page will consist of the post created by the different organizations they have joined. The posts will be in the order in which they were posted, creating a timeline of which the posts were made.

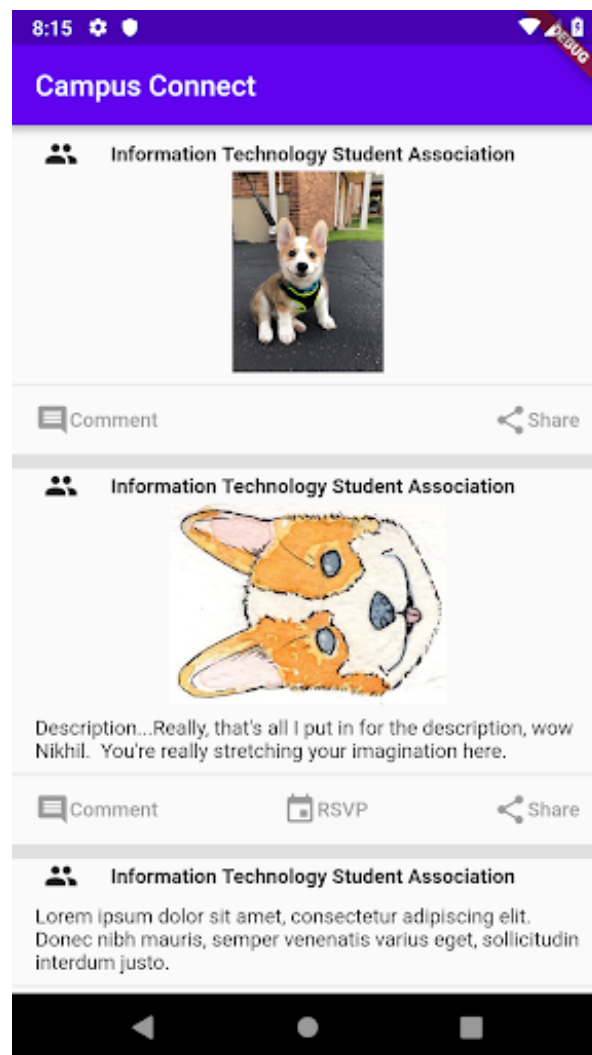


Figure 7: User Feed Page

4. Test Plan

5.1 Testing

The initial Fall testing for campus connect will be done in two different rounds of surveys.

Campus Connect is about applying features that students will want to us, so naturally our surveys will be addressed around what can be improved and what other additional features students would find useful. The second round of surveys will focus on a more UI experience to make sure our product is functional for the everyday user.

5.2 Survey Results

Before the initial development phase of our project we took a small survey with a smaller sample size to gather information about what students think about the Universities solution along with additional information on what they use to gather information about organizations.

5.3 Scope

The primary purpose of testing Campus Connect is to get user feedback on the user experience. Since Campus Connect has two interfaces (web and mobile) we will need to make sure we test all the components, functionality, and widgets.

5.4 Objectives:

The testing objectives consist of making sure the components in all environments are able to function properly without issue. Along with making sure the application provides a simple user experience, the user should be able to easily accomplish their intended task.

5.5 Logging and Testing:

During the development since each team member was working on a different interface for the application, any debugging issues were logged and then resolved at a later time. These issues primarily were able to be cleared with further research. Each bug was assessed by severity and (if necessary) was brought to the other team members attention.

5.6 Testing Procedures

The creation of our testing procedures contains on the following:

- Create a scale in which we are able to diagnose any sort of issues. The higher the number an issue was given on a 1-5 scale is the higher priority.
- Create the user flow, so the user can give us feedback on the experience.
- Document any changes that were brought to our attention and see if they are available in the scope of Campus Connect.
- Fix any issues that were diagnosed by using the scale of priority.

5.7 Testing Schedule

The Testing schedule gives a summary of progress, development, and debugging of different components of our application. As we continue to test, different components will be modified and any issues will be documented.

Figure 7: Testing Schedule: This figure breaks down the timing for when each component and page's testing was completed.

Web / Mobile Test Plan Schedule				
Features/Components	Tested By:	Started	Completed	Comments
Login	Project Manager / Web Developer	11/1/18	12/2/18	
Home Page Profile Card all functionality	Project Manager / Web Developer	11/10/18	11/25/18	
Home Page Suggestions card all functionality	Project Manager / Web Developer	11/17/18	12/25/18	Last modified on 12/10
Home Page App Bar Linked Components	Project Manager / Web Developer	11/10/18	11/15/18	Last modified on 01/20
Home Page Post Types	Project Manager / Web Developer	12/1/18	12/28/18	Last modified on 02/10
Organization Pages all components	Project Manager / Web Developer	12/30/18	In Progress	
User Profile Pages all components	Project Manager / Web Developer	1/7/19	1/25/18	Last modified on 02/10
Organization Search Page	Mobile Developer	1/15/19	In Progress	
*All web pages are subject to changes due to user feedback				

Figure 8: Testing Schedule

5.8 Testing Conditions

This test was done to confirm that all working components and functions are working properly in all environments. This test will be performed multiple times during our testing phase.

Testing Conditions						
Tester	Date	Enviroment	Expected Results	Actual	Pass/Fail	Bug
Developers	1/17/19	Android	Expected to run with all functioning components	Ran as expected	Pass	No Bugs Found
Developers	1/17/19	IOS	Expected to run with all functioning components	Ran as expected	Pass	No Bugs Found
Developers	1/17/19	Web	Expected to run with all functioning components	Ran as expected	Pass	No Bugs Found

Table 3: Testing Conditions

5.9 Problem Solving Techniques

During the span of the Campus Connect project our group has been very clear on any issue being dealt as soon as possible. One of the issues that arose during the creation of the project was deciding what the application was going to be written in. Since the goal of Campus Connect is to allow students to have a versatile experience we wanted to make it accessible through mobile and web. During the research phase of this project we ended up needing to shrink to the scope of the application due to the time restraint and the amount of work between two people. The solution to this problem was sending out a survey to look for what students found the most valuable with an application such as Campus Connect. Once we got our results we were able to filter out the most important components.

Figure 8: Fall Survey Results: The figure gives some of results from our survey. This gave us an idea of what students tend to use to gather information about organizations.

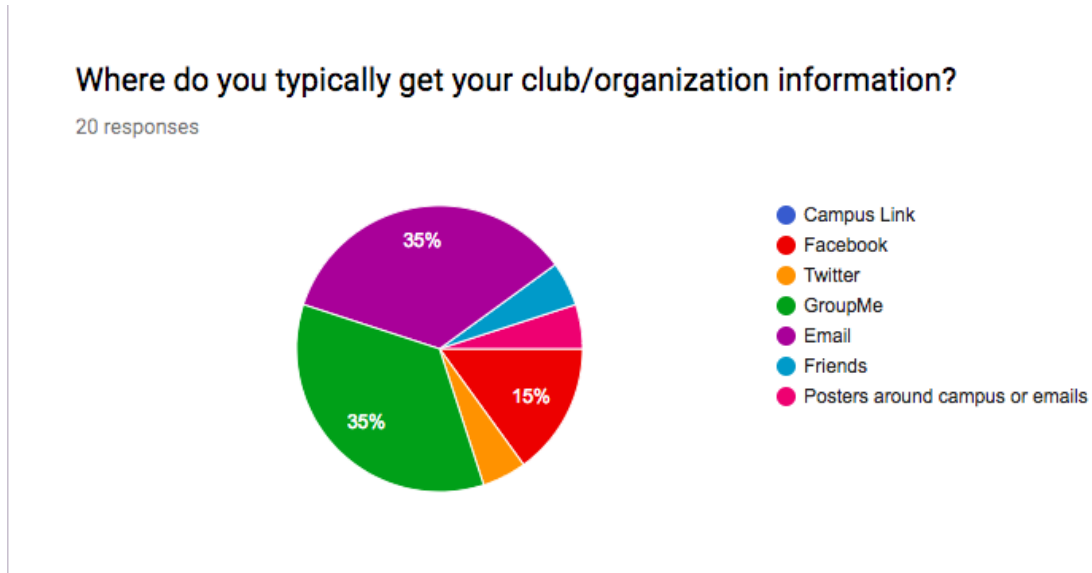


Figure 9: Fall Survey Results

5. Conclusion

Throughout the fall semester there have been many different challenges that we have had to overcome. Starting with researching for the project, we knew that creating an application that would support iOS, Android, and web would be a very strong challenge. Much of the first half of the semester was focusing on research of Flutter, a mobile framework. While Harry began working on the backend services along with making sure everything was staying on schedule, a survey was created to help understand what student users would like to see different from the current University of Cincinnati Campus Link solution. During the research phase Nikhil focused on learning Flutter and Dart 2 and began development on the front end.

The design phase of the application was very important due to the understanding that a novice user will have access to our application. Many design aspects are based around Material Design. To help the user have a better transition to using Campus Connect we looked at key design points of other popular applications users may have previously used to make the experience an easier transition. Campus Connect is about connecting students and organizations, through the feedback we receive back from student users we are dedicated to making an application that will fit their needs.

During the Spring semester of our project we made great progress and faced many new challenges along the way. The design of our application began to take shape and we were able to integrate our test results into the UI. One of the issues that we experienced was integrating the backend of our application. The original plan was integrate a MySQL database with a Raspberry Pi with a REST service. However, as we began to work on this we ran into a couple issues with connecting database to the application. Because of this issue we decided to move our database to

Firebase. This ended up being a great change for our team, due to the applications purpose of being easy to adopt for a university. Installing a Firebase database gave Campus Connect the ability to connect easily with data storing applications. The final days before expo were spent making any last-minute changes to the UI and working on groups presentation. Overall Campus Connect has been a great opportunity to learn new skills while also being confined to a strict schedule that reflects a project that we could see in the work force. Campus Connect is a true reflection of skills we have acquired over the past five years and we were excited to share it with others.

6. *Appendix and References*

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