

CASE STUDY: Wayfinding Application for Rutgers University

**Prepared for:
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App logo and page designed
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Overview

The Wayfinding Solution for Rutgers University New Brunswick, developed for the Rutgers University Division of Administration & Public Safety (APS), is an application that would allow students to quickly find and reach their on-campus destination.

Rutgers University New Brunswick includes 5 campuses interspersed within downtown New Brunswick and includes:

- Over 30,000 full and part time undergraduate students
- Over 8,000 full and part time graduate students
- Nearly 4000 student residents on campus
- 78 academic buildings
- 5 libraries
- 16 residence halls
- 68 student lounges

Many students commute via train through the train station located in downtown New Brunswick. Once on campus, the University provides an inter-campus bus and shuttle system, which serves all five campuses. Bus and shuttle stops are located throughout the five campuses.

Summary:

APS is committed to further improving the quality of safety on campus while providing administrative and business support services to multiple departments. Their goal is to work in partnership with students, faculty and staff to provide a safe, enjoyable and fulfilling university experience.

The APS received a grant to purchase iPads for the staff to be used as part of this program. Therefore the approach to the Wayfinding Solution includes the use of iPads by APS personnel into the overall solution.

Methodology:

In order to develop a solution that meets the needs of the students, as well as the goals of the APS, the following methodologies were be incorporated to ascertain a good user experience:

- Contextual inquiries
- Creation of personas
- Concepts & wireframe prototyping
- User testing
- Conclusions

Step 1 – Contextual Inquiries

Goals:

1. Investigate how students navigate the campuses
2. Define their navigation and information pain points
3. Research the information available for students to use for campus navigation.
4. Listen to the students and address their needs into the new WhereRU application

We hit the campus and interviewed and observed 11 students. During each interview we:

- Asked them about their experiences going to classes and traversing all of the campuses
- How they found the locations of their classes
- How they used buses and managed bus schedules
- What their typical day around campus was like
- What navigation needs they have or desire

Comments from student interviews included:

- “Campus is so big it is intimidating. It’s hard to get around such a big place.”
- “My classes are all over the place. I had to schedule my whole day including what buses I took. I was often late for class.”
- “I carried a map around with me all freshman year! It was so embarrassing!”
- “The buildings look alike, and it made me nervous traveling to an unfamiliar campus at night.”
- “There are so many different bus schedules... it’s confusing.”
- “The bus schedules are hard to find.”
- “All the buildings look the same, and the entrances are hard to find. Sometimes I walk around a building 2 or 3 times before I know where to go in.”
- “I didn’t know there were quiet study rooms until I was a sophomore.”
- “I had to learn where the study rooms and quiet rooms were by word of mouth.”
- “When asked how they find out information: I usually just call a friend and if they don’t know I have to ask someone on the street.”
- “Some of the building signs are hard to read.”

Additional research confirmed that although information is available for students, it is in many different, disparate places, spanning many different websites: Maps.rutgers.edu, Nextbus.com, Ruinfo.com, whereRU.rutgers.com, www.rutgers.edu/campus-life/campus-safetyom, rudots.rutgers.edu/, rudots.rutgers.edu/campusbuses.shtml

The campus bus system is the primary method for students to traverse campus, but obtaining bus information is a confusing ordeal. Students need to consult *at least* two bus schedules:

- One schedule for the bus route
- One schedule for the bus time, with a different schedule for: school year, day of the week, holidays, spring/winter exams, summer

Through the creation of personas, we concluded that a wayfinding app for use on phones and tablets would be an ideal solution for Rutgers University. The goals of the app would be to:

1. Unify campus maps, bus routes and schedules, building and parking info, and recreational information into one handy app
2. Make a big campus seem small
3. Use wayfinding to help students feel confident and safe navigating the far reaches of campus
4. Improve accessibility to Rutgers Police, campus safety escorts, and other safety information
5. Provide a tool that lets a student quickly identify his or her location

Step 2 – Creation of Personas

Persona 1 – Fiona Freshman

- From suburban southern New Jersey. Has never lived away from home. No prior urban experience.
- Feels “overwhelmed” by the “massive” campus
- Is often late for class due to bus crowding and confusion about bus stops and schedules
- Buildings appear too similar and she loses time finding entrances to buildings
- Feels unsafe traveling cross campuses at night. She would like easy access to safety escorts and campus security.
- Is heavily reliant on paper maps. She uses her GPS map but the street addresses are irrelevant for identification of buildings on the quad



Persona 2 – Ben Therey/Don Thatcher

- Ben and Don are juniors and have been roommates since freshman year.
- They feel that know the campus pretty well, but still have trouble finding available study rooms.
- They feel that they have insider information, but rely on each other and their mutual friends to find buildings and events.
- They use the buses, but find the schedules confusing. They don't want to wait more than a minute or two for any bus, especially in cold weather.



Persona 3 – Dislocated Professor

- Dislocated Professor's department was moved to another building on campus. She has spent most of her time in one specific area of the campus and is adjusting to her new route and environs.
- Dislocated Professor usually drives to campus, but will use the train and campus buses on occasion.
- Dislocated Professor has little patience for the multiple campus maps and bus schedules. She finds that sometimes she just goes to the closest campus bus stop and hopes for the best.



Persona 4 – Patricia Parent

- Patricia is Fiona's mother. Her daughter has never lived away from home.
- Patricia is concerned about her daughter's safety on an urban campus.
- A family emergency occurred, and Patricia had difficulty finding Fiona on campus because her GPS gave a street location, but did not identify campus buildings.
- Also during the emergency, Patricia had a hard time finding a place where she could park without being ticketed or towed.



Step 3 – Concepts & Wireframe Prototyping

Using the findings from the contextual interviews, our research and personas, our team planned a concept for the Rutgers Wayfinding application that we named “WhereRU”. We then created an interactive prototype using a program called Mock-Ups, a unique prototyping tool created by Balsamiq, that incorporated the following features and functionality based on our findings:

- Map: Show student location using GPS
- Virtual View: Augmented reality view of students location
- Buses: Search for bus stops, schedules, link to NextBus, directions to bus stops
- Buildings: Find building locations, entrances, hours, etc. Can search for locations by type
- Favorites: Save favorite locations for easy retrieval
- Security: Access to emergency and police numbers; ability to auto dial 911.
- Search

Prototype Screenshots –

Landing Page:

The landing page is a map showing student location using GPS. It will also show nearby points of interest and include a search.



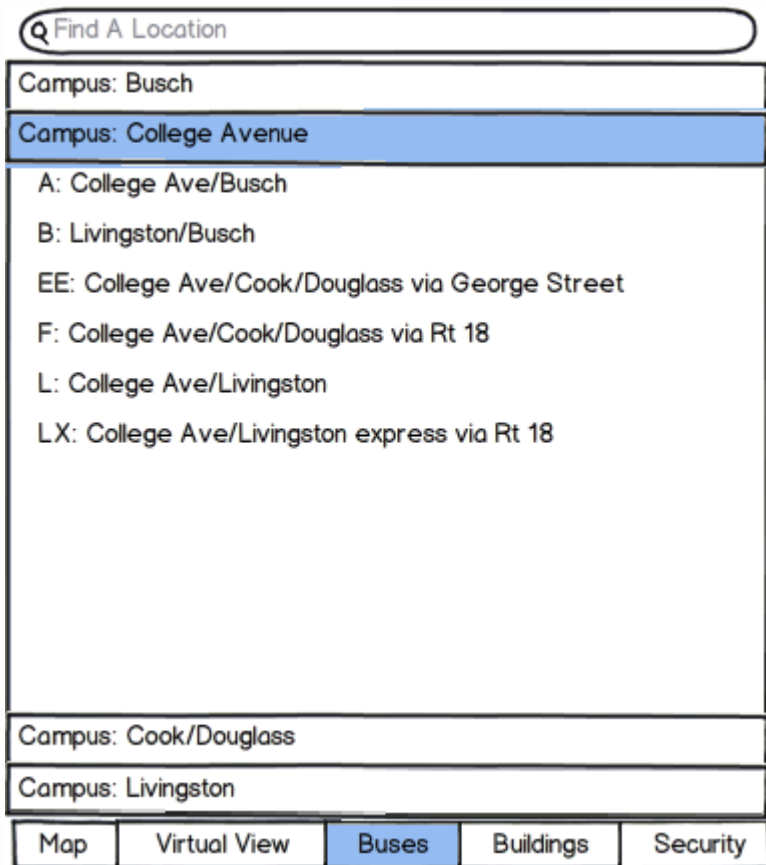
Virtual View Page:

The Virtual View feature will allow students to determine their location using their phone or tablet: using augmented reality. Augmented reality is a new phone app where you point the phone to your and it will physically show you where you are. The WhereRU app will label what the user is seeing, include iconography for easy building identification (i.e. a library) and link to building information.



Buses Page:

The Buses tab will display aggregated list of bus routes, sorted by campus. Each route will detail campuses serviced, and main roads traveled.



Buses Detail Page:

Clicking on a route will display:
Off-peak schedules, days of week, stops included, frequency of buses, NextBus link, detailed navigation to nearest serviced stop:

EE Bus Route
College Avenue / Cook / Douglass
via George Street

[Get There](#)

[NextBus](#)

2011-2012

Holiday

Spring Exam

Summer

Mon - Fri

Sat

Sun

Bus Stops	Bus Times
COLLEGE AVE CAMPUS	From RSC:
Rutgers Student Center	7:00 AM -- 10:35 AM
Scott Hall	*Every 11 - 12 min.
Train Station (Somerset)	10:36 AM -- 7:45 PM
-----	*Every 9 min.
DOWNTOWN NEW BRUNSWICK	7:45 PM -- 11:00 PM
Paterson St (Rite Aid)	*Every 15 min.
Rockoff Hall	11:00 PM -- 2:36 AM
Public Safety Bldg S.	*Every 18 min.
-----	From ROL:
COOK / DOUGLASS CAMPUSES	7:13 AM -- 10:49 AM

[Map](#)[Virtual View](#)[Buses](#)[Buildings](#)[Security](#)

Buildings Page:

The Buildings tab will pull a list of buildings sorted by type.
Iconography will match those used in the Virtual View:

My Favorites

[Class Buildings](#)

Scott Hall

Murray Hall

Dorms

Food

Study


Recreation

Parking


[Map](#)[Virtual View](#)[Buses](#)[Buildings](#)[Security](#)

Buildings Page > Details:

Clicking on a building will pull up additional information including the address, departments within the building, it's history, entrance locations, ability to add the location to favorites.

 SCOTT HALL

Get There



43 College Avenue, New Brunswick, NJ, 08901-1164.

SAS - Comparative Literature

SAS - Dean's Office

SAS - Asian Language & Cultures

SAS - German, Russian, & E. European Lang & Lit

Scott Hall was erected in 1963 and was named after Austin Scott (1848-1922). Scott was a professor of history at Rutgers College. From 1891-1906 Austin Scott was the President of Rutgers College.

ENTRANCES:
College Ave.
Via Quad to the North-NorthEast side of the Building
Via Quad to the East side of the Building

Map

Virtual View

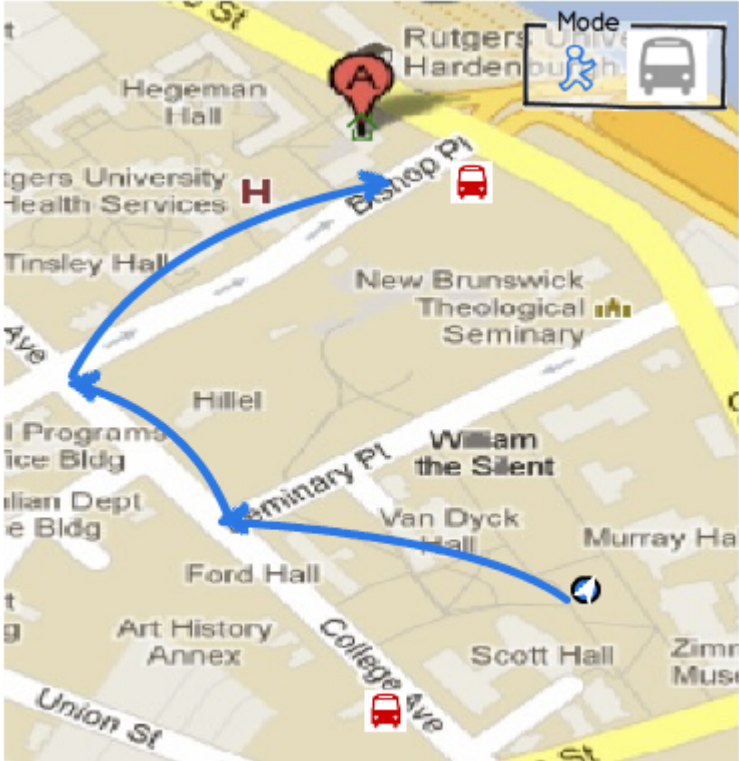
Buses

Buildings

Security

“Get There” feature:

Students will be able to select the “get there” feature for directions to any building based upon their current location. They will have a choice for walking or for using the Rutgers Nextbus.



Map

Virtual View

Buses

Buildings

Security

Search Tool:

At any time, users can use the search function to find information on any location including buildings, parking lots, bus routes and stops:

Search Options

☐ Busch

☒ College Ave

☒ Cook/Douglass

☐ Livingston

Department

▼

Building Type

▼

Results

Item One
Item Two
Item Three

Map

Virtual View

Buses

Buildings

Security

Security Page:

The Security tab provides easy access to security contact information including instant dial for 911, a phone number for the safety escort as well as locations of campus police phones:

SECURITY

For Emergencies: **Call 911**

For Non-Emergencies: **Call (732) 932-7111**
or dial 2-7111 from any Campus Phone

To request a safety escort, **Call (732) 932-7211**
or use an emergency campus phone (blue light)



Map

Virtual View

Buses

Buildings

Security

Step 4 – User Testing

Using 5 student test volunteers, our team tested our prototype for usability and experience. Predetermined questions were planned beforehand to ensure that we didn't lead the testers or make assumptions in any way and to ensure consistent testing. We also asked them to "think out loud" as they completed tasks we asked of them but also let their interests guide them. We avoided leading or "yes or no" questions and looked for signs such as frowns to indicate anything that may be confusing to them.

After brief introductions to introduce ourselves and to get to know them, and their experience at Rutgers, we presented the following context to each tester:

We'd like to show you an application our team is working on for Rutgers for a phone application to help students get around campus and for safety. This is a prototype -- a rough version of an application -- it's not a fully functioning version nor is it fully designed with pretty colors, images, etc. Feel free to take a minute and click around.

Can you easily complete the following tasks?

1. Find the next EE bus leaving College Ave.
2. You are in trouble. What do you do?
3. Use the search to find the gym on College Ave.
4. Your best friend lives in Clothier Hall. Find a route to Clothier Hall.

At the end of the task session we asked follow-up questions for additional insight and opinion. We assured them that there were no right or wrong answers.

- What is your overall impression of the app?
- Is it easy to find your way around the app? Why?
- If you could make one significant change to this app, what change would you make?
- Is there anything that was confusing or not helpful?
- Is there information you would like to see added to the app?
- If you had to give the site a grade, from A to F, where A was exemplary and F was failing, what grade would you give it, and why?
- Did you always know what was possible to do or go next?

Step 5 – Test Results & Conclusions

Our user testing concluded that a wayfinding app such as WhereRU would be well used and welcomed by new as well as veteran students at Rutgers. Some of the comments the WhereRU prototype received were:

- This is so helpful. The buses stop running sometimes and you don't even know. The schedules are always a question. You never know when they run!
- You could have fun with this for hours.
- The interface is nice. It's very concise. Clearcut. Like the use of icons; the consistency. It's cool cause it's almost like a map key w/o having a map key.
- Wow!
- This would be great for shy people and guys who don't like to ask for directions.
- My mom might not use it, but she would be happy to know I have the app.
- I particularly like how it gives all of the locations for the entrances. It would be a great timesaver. I don't necessarily know if the historical information about the buildings would be needed for the students, but the parents might be interested.

Overall, we received overwhelming enthusiasm for the WhereRU prototype. However, testing also revealed problems and issues that prevented a flawless user experience:

- Students did not click on “Virtual View” until they knew what it was. However, once they knew what it was they really enjoyed it and thought it was the feature they would use most.
- More advanced Search
- When we asked them to look for a building, they tended to “Search” for a building instead of going to the “Buildings” database.
- May be a problem with the function of the word “Buildings”, further testing needing on this taxonomy.
- Change the “Favorites” icon. Users thought the “(Heart)” icon was a status icon (heart = well-being?), particularly when it came to bus routes.
- Bus Icon on the “Map” page not identified as clickable.
- Bus Schedule could be more interactive, lots of info to sort through on each bus info page
- Trip Planning from other locations than the current.
- More information and data such as real time bus statuses are needed.
- Class announcements, building openings, campus events, etc.