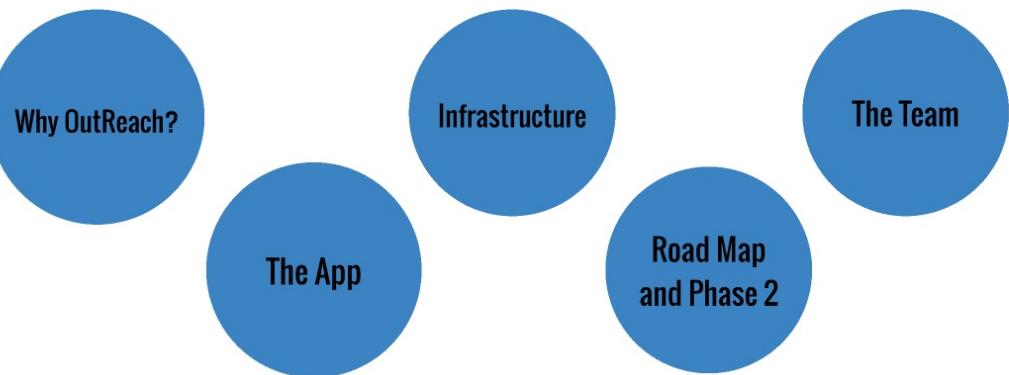


OutReach

NDNU CS Senior Project 2021



Connecting People to their Communities

Why OutReach?

OutReach is a mobile app that connects people to volunteering opportunities in their area.

Non-profits and charities are looking for motivated individuals who contribute to their communities with their time and the interest to help.

That's where OutReach comes in.



User Stories:
Janet
and Lages

User Stories:
Teresa
and Agnes

Sprints
and
Work Overflow

Prototyping -
Figma

Logical
Schema

Design Theme

User Stories and Personas

Janet

- Volunteer Coordinator for School Carnival
- Looking for volunteer that would be interested
- Previous volunteer lacked motivation and work was too hard

Lages

- High School Senior
- Looking for volunteer work that peaks his interest
- Previous volunteer work was boring to him and difficult

User Stories and Personas

Teresa

- food bank manager
- looking for people to come and donate so that she can promote the number of hours of operation and the items which are needed.
- wants the volunteers to know of what the event is about and what to expect from it.

Agnes

- community enthusiast
- would like to find an event that would be best suited for his work experience as a grocery manager.
- previous events that he volunteered were strenuous to him.

Sprints and Workflow

	Week 9 15-21MAR	Week 10 22-28MAR	Week 11 29MAR-04APR	Week 12 05-11APR	Week 13 11-18APR	Week 14 18-25APR	Week 15 26APR-02MAY	Week 16 03-09MAY
	QA and Functionality	Working Prototype	Working Prototype	QA and Functionality	Working Prototype	QA and Functionality	Working Prototype	
Frontend								
Sabrina - FE Manager	Troubleshoot Scrolling view	Create Side Menu	Troubleshoot Profile VC on Main. Create New Event VC.	Bug Report: Troubleshoot ToS VC, Feed Tab VC, New	Created Bottom Menu Bar	Presentation: Design and Layout	MOCK-PRESENTATION	FINAL PRES GoIn
James - Project Manager		Edit Organizer Interface layout	Edit layout with updated design		Complete design layout	Presentation: Design and Layout	MOCK-PRESENTATION	FINAL PRES GoIn
Josh	Storyboard and Wireframe editing	Wireframe for OutReach App using Figma: https://www.figma.com/	Create 2-Factor Authentication	Bug Report: Troubleshoot Profile VC	Bug Report: Troubleshoot Profile VC	Presentation: Wireframe and Figma	MOCK-PRESENTATION	FINAL PRES GoIn
Roberto - Release Manager	Build QA and Bug Reporting	Create Side Menu	Edit Feed Tab Bar Controller.	Bug Report: Feed Tab VC	Bug Report: Troubleshoot Feed Tab VC	Presentation: QA and Bug Reporting	MOCK-PRESENTATION	FINAL PRES GoIn
Williams	Troubleshoot Scrolling view	Edit Event date sorting	Create New Event VC. Backfill BE team.	Create New Event VC. Backfill BE team.	Create New Event VC. Backfill BE team.	Presentation: QA and Bug Reporting	MOCK-PRESENTATION	FINAL PRES GoIn
Backend								
Karina - BE Manager		Create Password Reset	Create 2-Factor Authentication		Bug Report: Sign Up VC	Presentation: Database and Back4App	MOCK-PRESENTATION	FINAL PRES GoIn
Adam						Presentation: User Stories and Epic	MOCK-PRESENTATION	FINAL PRES GoIn
Jessica					Bug Report: Sign Up VC	Presentation: Database and Back4App	MOCK-PRESENTATION	FINAL PRES GoIn
Jonah					Bug Report: Troubleshoot Event VC	Presentation: System Architecture	MOCK-PRESENTATION	FINAL PRES GoIn
Stephen					Bug Report: Troubleshoot Sign Up VC, and Parse error.	Presentation: System Architecture	MOCK-PRESENTATION	FINAL PRES GoIn

Using Slack and an in-house accountability matrix we marked successes and setbacks in our Agile development.

Agile was used to manage a project deliverables by breaking it up into several phases. This involved collaboration between our Frontend and Backend teams, continuous communication using Slack and Zoom, and continuous improvement at every stage.

Cycling through the process of planning, executing, and evaluating in each new phase of the project development.

Prototyping - Figma

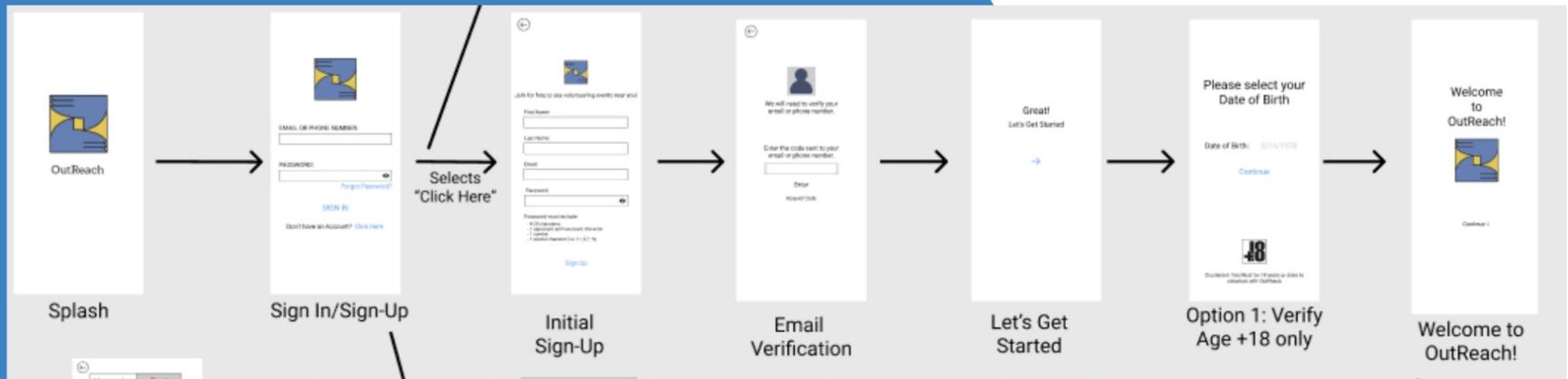
- Figma - a cloud-based software and prototyping tool
- It allows designers, programmers and engineers a way to collaborate on projects
- It is a UI and UX design application that can be used to create websites or apps, such as our volunteer app OutReach!

Link to Figma: <https://www.figma.com/file/GfnyIHd97ekcj91b6LRB1/OutReach-App?node-id=4:10>

The Design Flow of The App

Basic Layout and unique icons

Evolution of the App



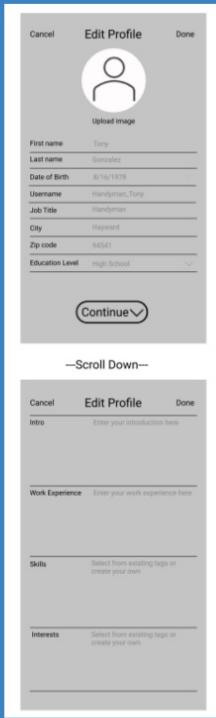
Figma helped us with the page to page flow of the app
 For Example - The Setup Process

Figma allowed us to create the basic design layout, buttons and unique icons for our app

The image displays four Figma wireframes illustrating the design process for an Outreach App:

- Drafts / App Pages**: Shows a section titled "OutReach App Icons & Logo" containing two columns of icons. The first column includes "Navigation Icons" (Side Bar Menu Button, Back Button, Edit Button, Confirm Button), "Age Range Icons" (18+, 16+, 12+), and "Difficulty Level Icons" (Easy / Fácil, Medium / El Medio, Difficult / Difícil). The second column shows a placeholder for "OutReach App Icons".
- Note: User View**: A user interface for viewing events. It features a header with "Upcoming Events" and "Past Events" tabs. Below is a list of events with details like location, type, and status. An arrow points left from this screen to the next one.
- Upcoming Events**: A detailed view of an event titled "Food Drive at NDNU". It shows the date (Sat, April, 3rd), time (9:00AM - 12:00PM PST), location (1500 Rainlton Ave, Belmont, CA 94022, United States), and spots filled (2/20). It also includes sections for "About This Event", "Volunteers Expected", and "Who to Contact". An arrow points right from this screen to the next one.
- Create a New Event**: A form for creating a new event. It includes fields for "Event title", "Select Difficulty" (Easy / Fácil, Medium / El Medio, Difficult / Difícil), "Event Date" (Feb 28, 2021), "Event Time Range" (From: [] To: []), "Total Spots for event" (2), and "About this Event" (a large text area).

There were several concepts, layouts, designs and pages.... and each one evolved over time.

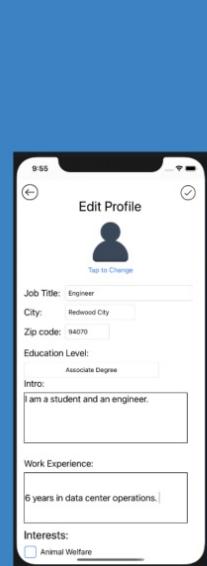


Version 1

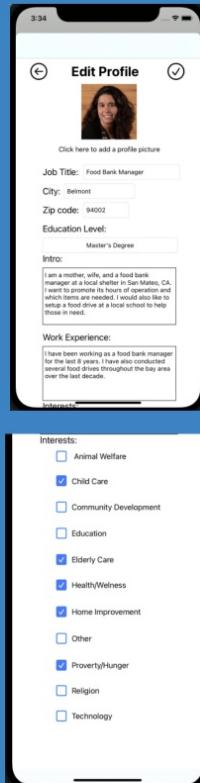


Version 2

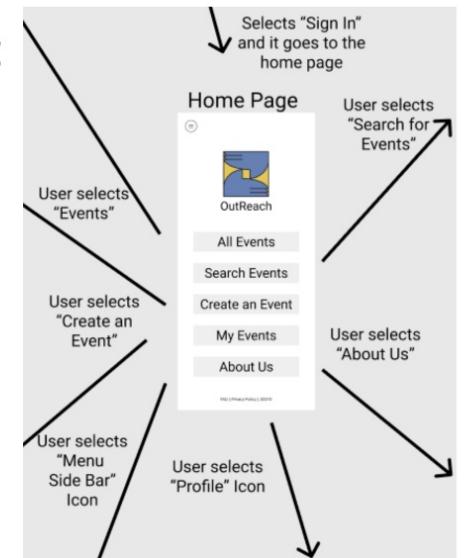
Version 3



Version 4



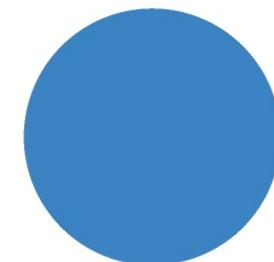
From This:

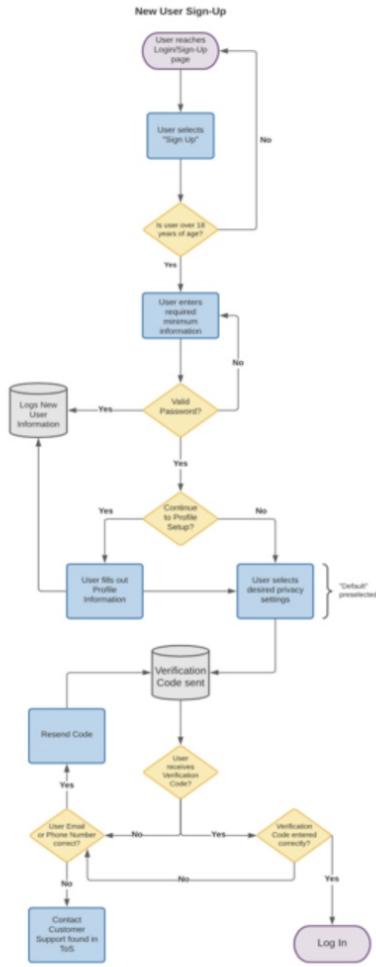


To This:



Logical Schema





App Flow

- Easy-to-Follow Steps
- Intuitive Flow
- Straightforward options

https://lucid.app/lucidchart/invitations/accept/inv_f7bbc25a-755f-4b10-9f3e-811d1a76b667?viewport_loc=-1070%2C344%2C5615%2C2762%2C0_0

Design Theme

Color
and Font

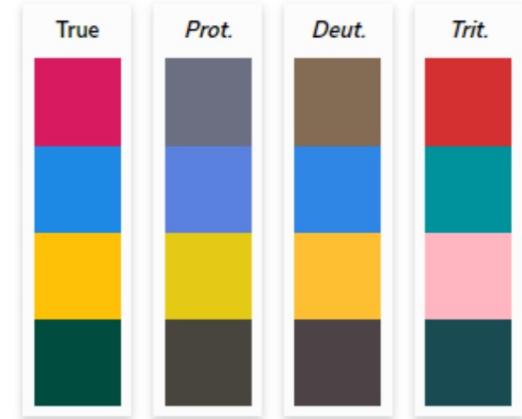
Logo and
Theme

Color and Font

We considered selecting our colors with a care for those with visual challenges such as color blindness or poor eyesight.

The font-style we utilized was bold, high contrast, and san-serif to be easily read.

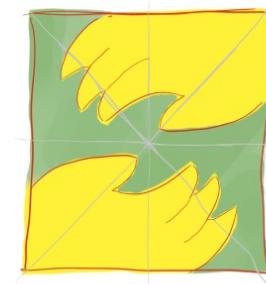
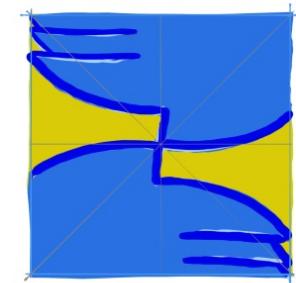
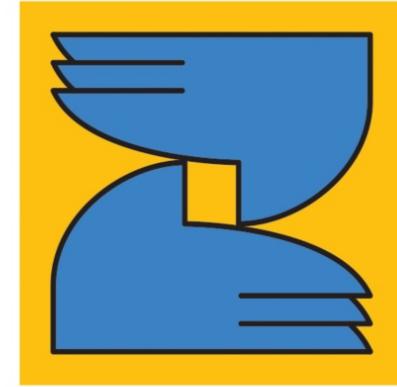
Color Palette

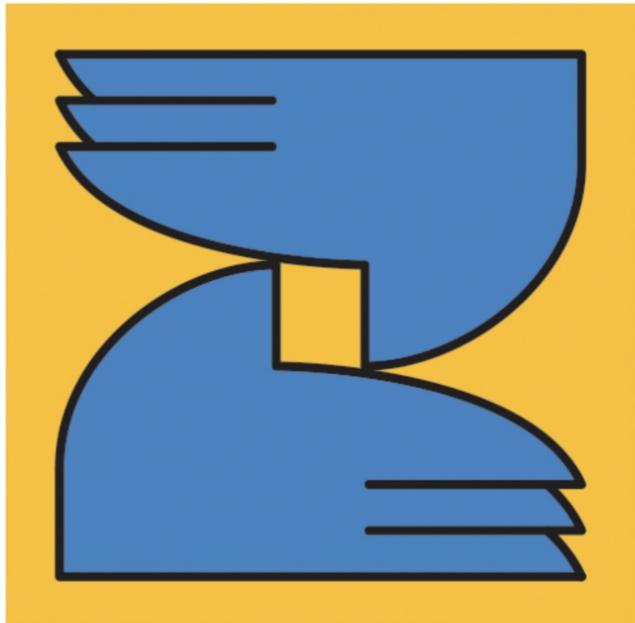


Logo and Theme

Our logo went through several iterations as we developed the app's overall style.

A pair of open and reaching hands best symbolizes the core concept of volunteering and making connection to community, which our provides.





OutReach

NDNU CS Senior Project 2021

Why OutReach?

The App

Infrastructure

Road Map
and Phase 2

The Team



The App



Sign-Up
Process

Email
Verification
Setup

Log In

All Events
and Event
Details

Event
Features

Search

Edit Profile

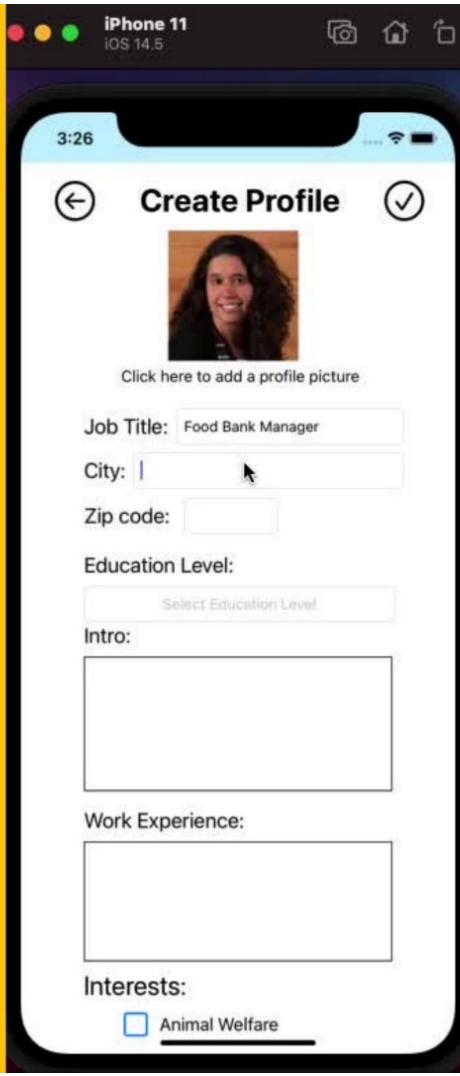
Forgot
Password

Settings and
Log Out

About Us

Sign-Up Process



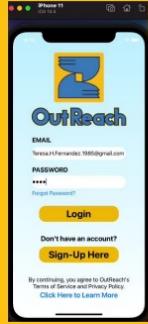


Email Verification Setup

The image consists of three parts illustrating the email verification process:

- Gmail Inbox:** A screenshot of a Gmail inbox showing an incoming email from "OutReach <no-reply@b4a.app>". The subject line is "Please verify your e-mail for OutReach". A blue arrow points from this message to the expanded view below.
- Expanded Email View:** A detailed view of the same email message. It contains a greeting "Hi," and instructions to verify the email address. It includes a URL for verification: https://parseapi.back4app.com/apps/X8lFrssxu4oJ03gstRsWL4rm3QKZVcuovoJYLZS/verify_email?token=pVH0YD3lqnB8PK9FikAUaQ4RU&username=Teresa.H.Fernandez.1985%40gmail.com. A blue arrow points from this URL to the success message above.
- Success Confirmation:** A screenshot of a web browser showing the successful verification result at the URL provided in the email. The page displays the text "Successfully verified your email!"

Login





Events and Event Details



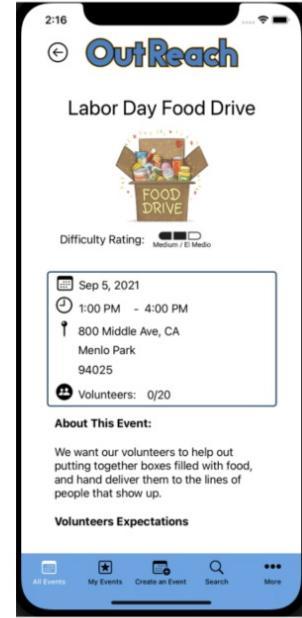


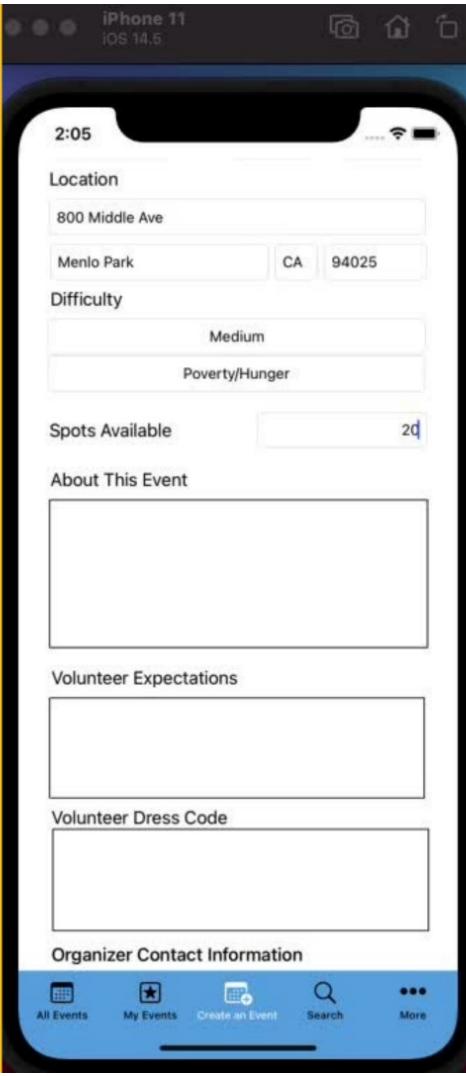
Event Features

Create an
Event

Sign-Up for
Events

Create an Event





Sign-Up for Events





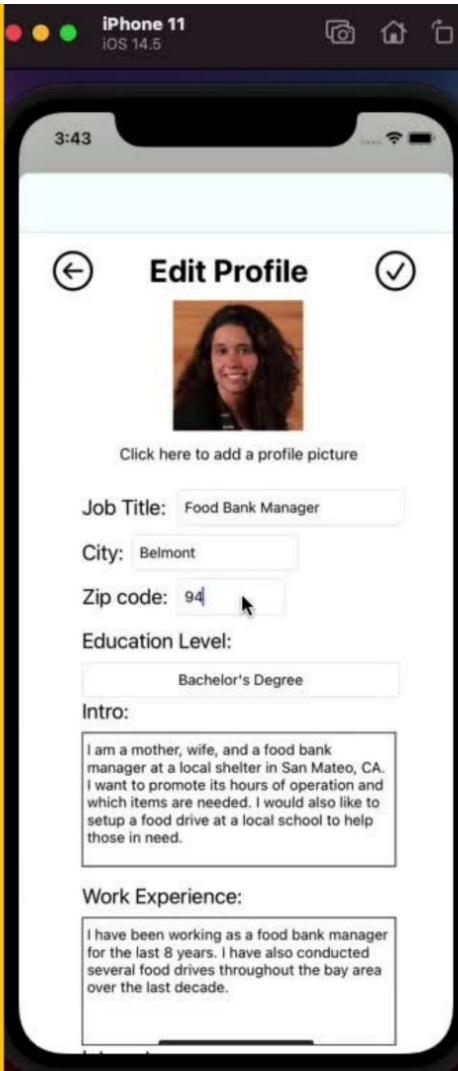
Search





Edit Profile



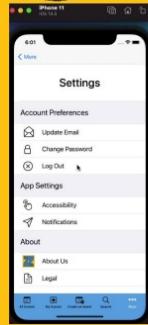


About Us



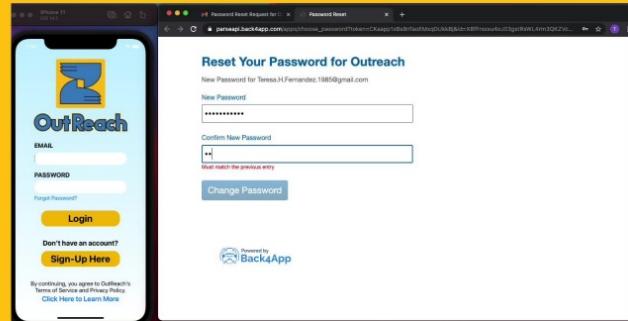


Settings and Log Out





Forgot Password



iPhone 11
iOS 14.5

OutReach

MAIL

PASSWORD

Forgot Password?

Login

Don't have an account?

Sign-Up Here

continuing, you agree to OutReach's
Terms of Service and Privacy Policy.
[Click Here to Learn More](#)

parseapi.back4app.com/apps/choose_password?token=CKaapp1xBs8nTaoEMxqDUkkBj&id=X8fFrsxxu4oJ03gstRsWL4rm3QKZVc...

Reset Your Password for Outreach

New Password for Teresa.H.Fernandez.1985@gmail.com

New Password

.....

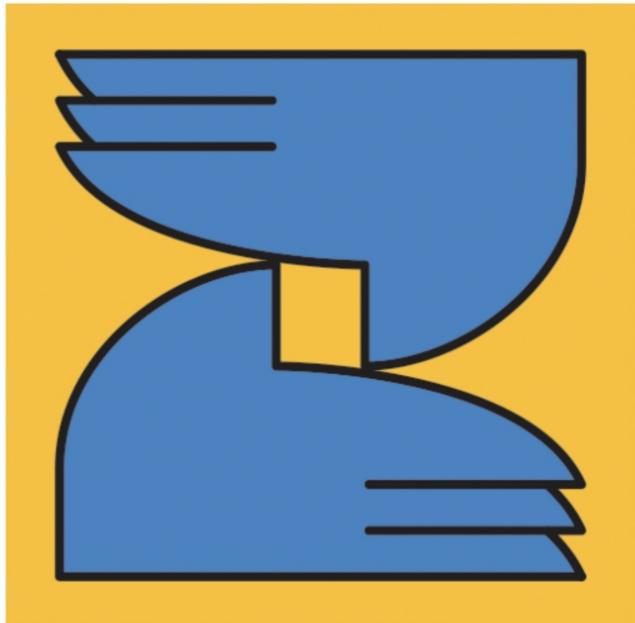
Confirm New Password

•••

Must match the previous entry

Change Password

Powered by
Back4App



OutReach

NDNU CS Senior Project 2021

Why OutReach?

The App

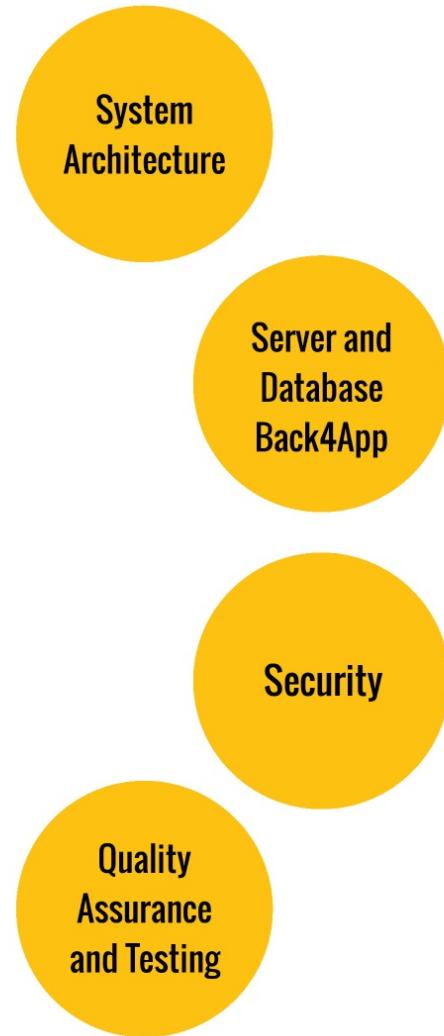
Infrastructure

Road Map
and Phase 2

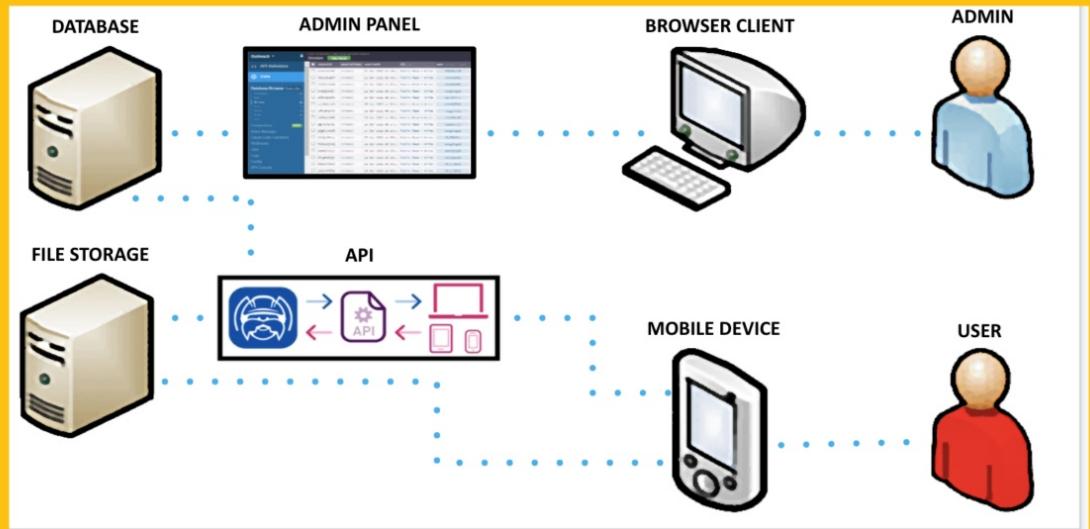
The Team



Infrastructure

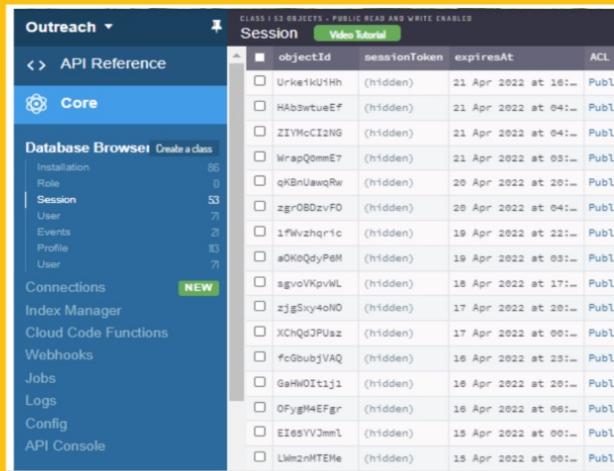


System Architecture



Server and Database

- A BaaS or Backend as a Service
- Store and query relational data on the cloud
- Parse platform
- Parse Dashboard
- Parse Server



The screenshot shows the Parse Platform interface. On the left, there's a sidebar with 'Outreach' at the top, followed by 'API Reference', 'Core', 'Database Browser' (which is highlighted in blue), 'Create a class', 'Installation' (86), 'Role' (0), 'Session' (53), 'User' (7), 'Events' (2), 'Profile' (13), 'User' (7). Below these are 'Connections', 'Index Manager', 'Cloud Code Functions', 'Webhooks', 'Jobs', 'Logs', 'Config', and 'API Console'. A 'NEW' badge is next to 'Database Browser'. On the right, there's a table titled 'Session' with columns: objectID, sessionToken, expiresAt, and ACL. The table lists 153 objects. The first few rows show object IDs like 'Urke1kUHh', 'HabswtueEf', 'ZIYMcCI2NG', etc., along with their session tokens and expiration times.

CLASS 153 OBJECTS - PUBLIC READ AND WRITE ENABLED				
	objectId	sessionToken	expiresAt	ACL
1	Urke1kUHh	(hidden)	21 Apr 2022 at 16:16	Publ
2	HabswtueEf	(hidden)	21 Apr 2022 at 04:16	Publ
3	ZIYMcCI2NG	(hidden)	21 Apr 2022 at 04:16	Publ
4	WrpQommE7	(hidden)	21 Apr 2022 at 03:16	Publ
5	qKBNUawqRw	(hidden)	20 Apr 2022 at 20:16	Publ
6	zgr0BDzvFO	(hidden)	20 Apr 2022 at 04:16	Publ
7	1fWvzhqric	(hidden)	19 Apr 2022 at 22:16	Publ
8	aOKoQdyP6M	(hidden)	19 Apr 2022 at 03:16	Publ
9	sgvoVKpvWL	(hidden)	18 Apr 2022 at 17:16	Publ
10	zjgSxky4oN0	(hidden)	17 Apr 2022 at 20:16	Publ
11	XChQdJPuaz	(hidden)	17 Apr 2022 at 00:16	Publ
12	fcGubbjVAQ	(hidden)	16 Apr 2022 at 23:16	Publ
13	GahHwOItiji	(hidden)	16 Apr 2022 at 20:16	Publ
14	OFygM4EFgr	(hidden)	16 Apr 2022 at 06:16	Publ
15	E1esVVJmml	(hidden)	15 Apr 2022 at 00:16	Publ
16	Llmn2nTMEHe	(hidden)	15 Apr 2022 at 00:16	Publ

Benefits of Parse:

- Accelerated app development
- Reduce the total cost of a software project

Drawbacks:

- Less flexible than custom development
- Limited Backend code compatibility; Node.js
- Limited Backend database compatibility; MongoDB and PostgreSQL databases

Security

Password Validation Policy

- Must include the defined parameters
- Will not allow the email address to be apart of the password
- Will not allow the new password to match any of the previous 5 passwords

Account Lock Policy

- Lock an account after 3 failed attempts
- Lock the account for 5 minutes
- Only unlock the account after a successful password reset

How it works?

- In the Back4App there is a cloud code function that lets us run Node.js functions.
- In Xcode these policies in the JavaScript file are being called.

No Plaintext or Visible passwords

- In Xcode we enabled 'Secure Text Entry'
- In Back4App the passwords are hidden

Password must include:

- 8 to 20 characters
- At least 1 uppercase letter
- At least 1 lowercase letter
- At least 1 number

Reset Password

Enter the email address associated with your account, and an email will be sent to you with instructions to reset your password.

Enter Your Email:

Send



email String	password String
Teresa.H.Fernandez.1985@gmail.com	(hidden)

Quality Assurance and Testing

What is Quality Assurance and why is it important?

- The process of testing software for:
- Functionality
- Bugs and errors
- Unexpected outcomes
- This is the basis for making sure software works as it should. The software needs to be tested to make sure that it does what is expected

How did we implement it?

- We carried out QA Testing twice a week
- In the middle of the week to test the progress so far
- At the end of the week which marked the end of each iteration
- A Track Sheet was kept to check on progress

What happened after each test?

- A meeting was held to present the results
- Bugs to be addressed were assigned



Bug Tracker

Techniques
and Future
Testing

Example

Bug Tracker

Bug Number	Date Found	Location	Description	Front/Back	Assignee	Date Fixed	Fixed
#0A1	04/06/2021	Terms of Service View Controller	Navigation buttons on top	Front	Sabrina	04/23/21	Y
#0A2	04/06/2021	Terms of Service View Controller	Scroll view needs to fill page	Front	Sabrina	04/23/21	Y
#0A3	04/06/2021	Sign Up View Controller	Password requirements	Front		NA	NA
#0A4	04/06/2021	Sign Up View Controller	Can continue with empty boxes	Back	Stephen	04/09/2021	Y
#0A5	04/06/2021	Main Profile View Controller	Distorted icons	Front	Josh/Sabrina	04/07/2021	Y
#0A6	04/06/2021	Create New Event View Controller	Text boxes don't wrap in box	Front	Williams	04/10/2021	Y
#0A7	04/06/2021	Edit Profile View Controller	Text boxes don't wrap in box	Front	Josh	04/16/2021	Y
#0A8	04/06/2021	Edit Profile View Controller	Distorted icons	Front	Josh/Sabrina	04/07/2021	Y
#0A9	04/06/2021	Events Feed Tab Bar Controller	Color scheme for text in buttons	Front	Roberto	04/19/2021	Y
#0B1	04/06/2021	Events Feed Tab Bar Controller	Fix title for view	Front	Sabrina/Roberto	NA	NA
#0B2	04/06/2021	Create New Event View Controller	Can't go back	Front	Sabrina	NA	NA
#0B3	04/06/2021	Create New Event View Controller	Menu button not working	Front	Sabrina	04/14/2021	Y
#0B4	04/12/2021	Sign Up View Controller	Can't go back from page	Front	Karina/Jessica/Ji	04/18/2021	Y
#0B5	04/12/2021	Search View Controller	Add Back Button	Front	Jonah	04/18/2021	Y
#0B6	04/12/2021	Events View Controller	Menu button crashes app	Front	Sabrina	04/14/2021	Y
#0B7	04/17/2021	Events View Controller	Events Store Old to New	Front	Williams	04/17/2021	Y
#0B8	04/17/2021	Events View Controller	Have Default Image	Back/Front	Josh	NA	NA
#0B9	04/17/2021	Home View Controller	My Events Doesn't Pull Anything Up	Front	Sabrina	NA	NA
#0C1	04/17/2021	Edit Profile View Controller	Editing "Image" Button Ambiguity	Front	Roberto	04/19/2021	Y
#0C2	04/17/2021	Home View Controller	Bottom Items Have No Functionality	Front	Sabrina	NA	NA
#0C3	04/17/2021	Home View Controller	Settings Can't Be Reached	Front	Sabrina	NA	NA
#0C4	04/17/2021	Create Event View Controller	Clicking complete With Empty Fields crashes app	Back	Jonah	04/20/2021	Y
#0C5	04/17/2021	Profile View Controller	Problem with Possible Scraping Profile	Back	Jessica	04/18/2021	Y
#0C6	04/19/2021	Events View Controller	Not All Events Are Populating		Jonah	04/20/2021	Y
#0C7	04/19/2021	Search View Controller	Search View Crashes App			NA	NA
#0C8	04/20/2020	Throughout App	Log in page remains in the background			NA	NA
#0C9	04/20/2020	Edit Profile View Controller	Edit Profile Creates Another Profile View		Josh	04/20/2021	Y
#0D1	04/20/2020	Log in View Controller	App crashes at Splash screen		Josh/Roberto/Ka	04/21/2021	Y
#0D2	04/24/2020	Buildtime Pre-App	There are a list of warnings			NA	NA
#0D3	04/24/2020	Manage My Events Controller	All events can't be edited by any user			NA	NA
#0D4	04/24/2020	Settings View Controller	Some buttons have no functionality	Front	Roberto	04/26/2021	Y

Techniques and Future Testing

What techniques were used?

- Black-box testing
 - Testing for Functionality
 - Making sure the expected outcome happened
- Boundary Value Testing
 - Making sure input fields handle only the expected values
- System testing
 - Elements tested over and over to check for failure

Future Testing

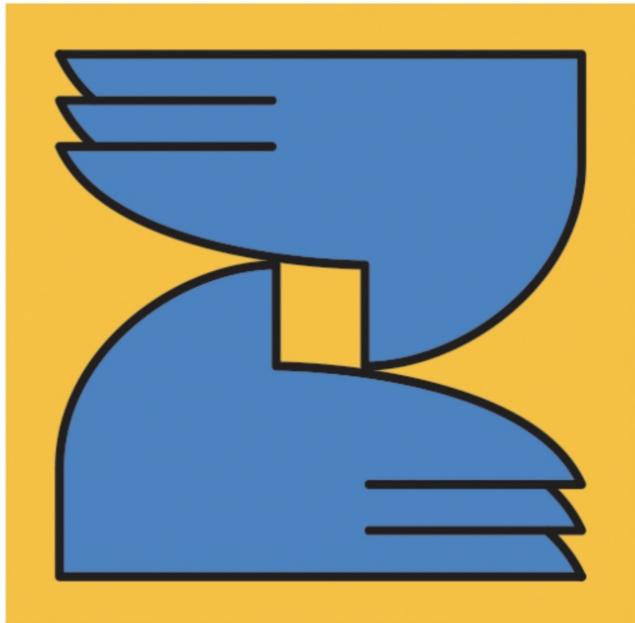
- User Acceptance Testing
 - We would like to give our app to a group of people for testing
 - The outcome will provide real life use and feedback
 - How friendly is the app with human interaction
 - Features that will make the app more useful and powerful for the user
 - Any deep hidden bugs

Example

The screenshot shows a Google Slides presentation with the title 'QA Testing #1'. The current slide is titled 'Sign Up View Controller (Bug #0A3, #0A4)' and contains the following text:

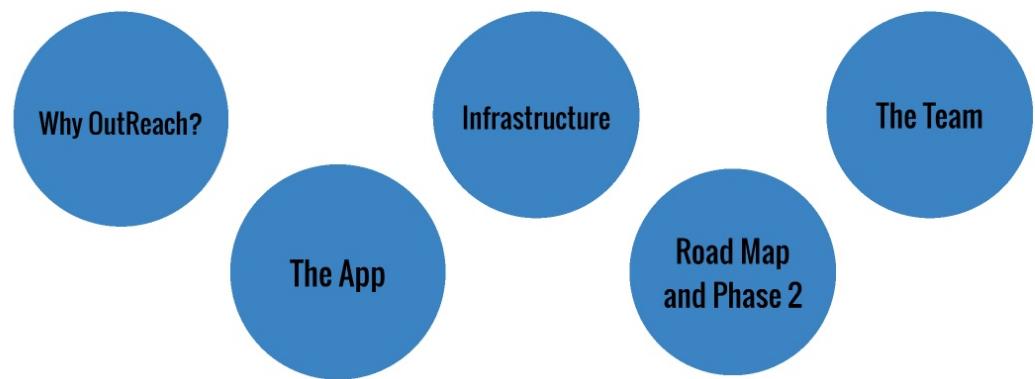
- Can enter a password that doesn't meet requirements (Bug #0A3)
- Can continue without filling up the form (Bug #0A4)

To the right of the text is an image of a smartphone displaying a sign-up form. The form has fields for First Name, Last Name, Email or Phone Number, and Password. Below the password field is a note: 'Password must include:
- 8-20 characters
- 1 uppercase and lowercase character
- 1 number
- 1 special character (% ! @ ^ _)'. At the bottom of the form is a 'Continue' button.



OutReach

NDNU CS Senior Project 2021



Road Map and Phase 2

To follow the app's journey, check out our project README:
[https://github.com/sabrinaslattery/senior-project-spring21/
blob/main/README.md](https://github.com/sabrinaslattery/senior-project-spring21/blob/main/README.md)

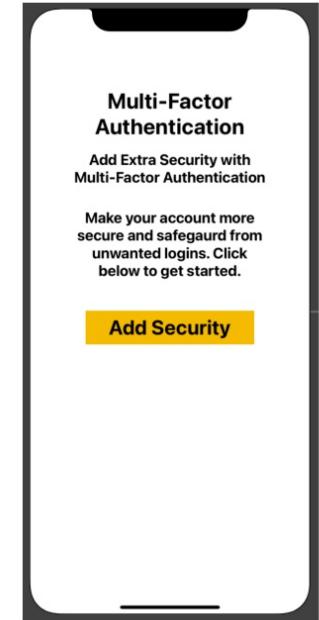


Multi-Factor Authentication

- OutReach users will be able to use email address, or Google's Authenticator app for MFA
- We will need to switch to Firebase
- Why Firebase?
 - Highly flexible security API
 - Better privacy and data security
 - Compatible with iOS and Swift



Google Authenticator

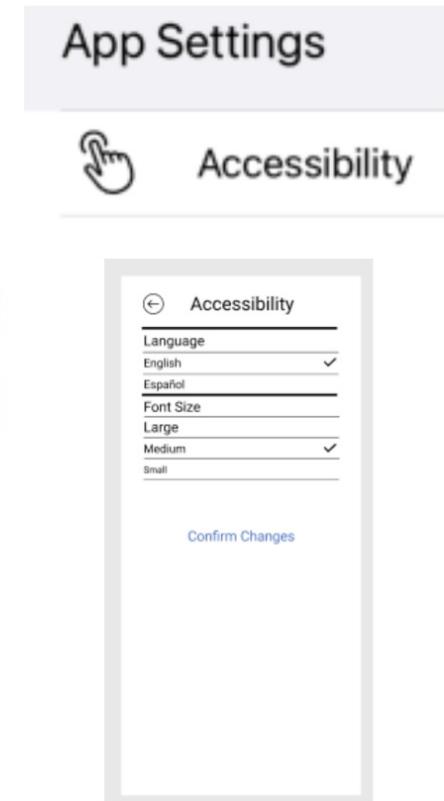


<https://cloud.google.com/identity-platform/docs/ios/mfa>

<https://firebase.google.com/docs/reference/android/com/google/firebase/auth/MultiFactor>

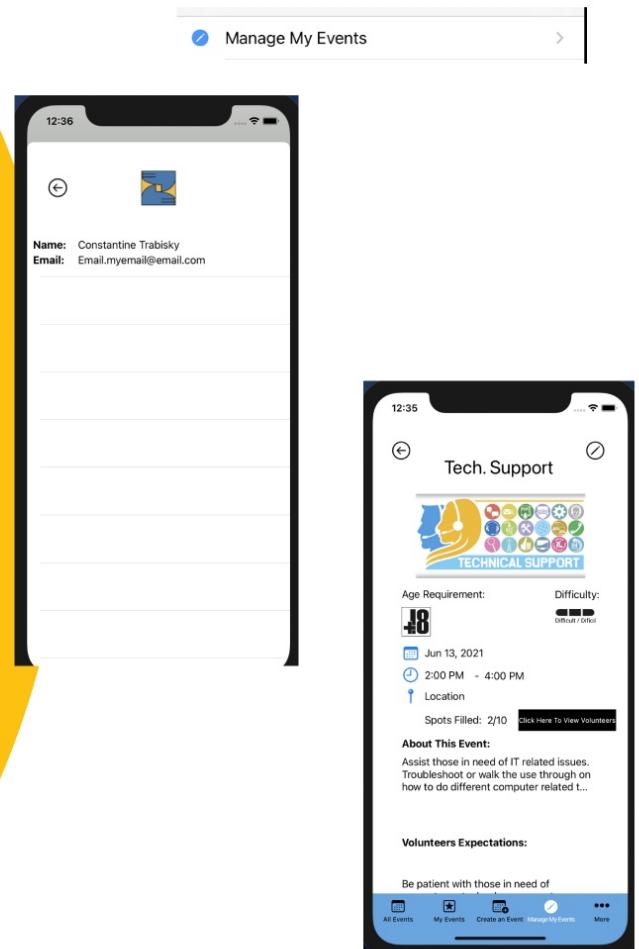
Accessibility

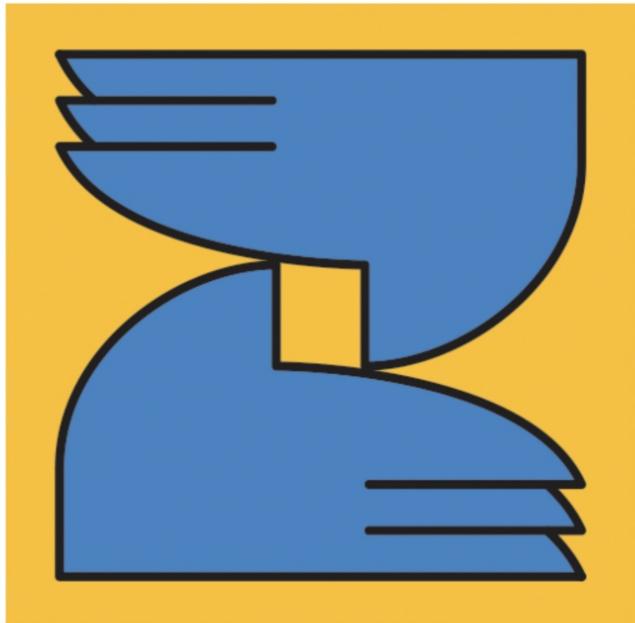
- Language translations (Spanish)
- Adjustable font sizes for the vision-impaired
- Dark mode in-line with iOS 'Night Mode'



Manage My Events

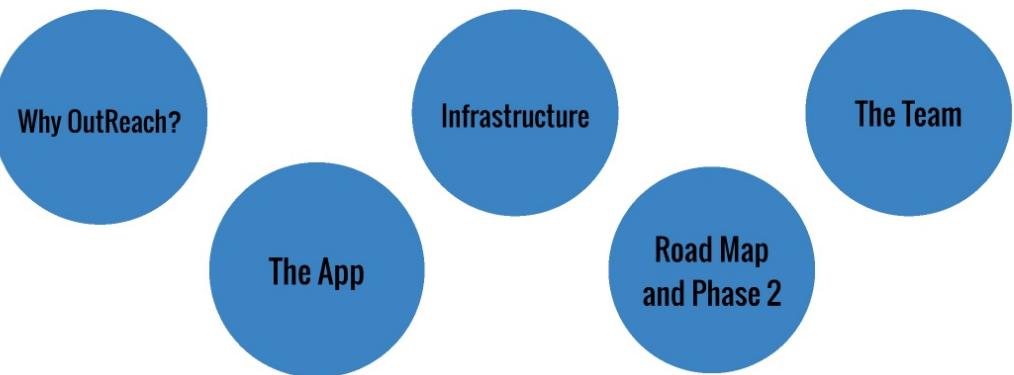
- Work-in-progress functionality for organizers to create, edit, and manage their own events
- View volunteer name, email, and phone number as well as remove volunteers





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James A. Gary - Project Manager/ Layout Designer



"It's not a faith in technology. It's faith in people." ~ Steve Jobs

Sabrina Slattery - Front-end Manager



"To quote, or not to quote." ~ Some dude

Karina Naranjo - Back-end Manager



Josh Freedman - Front-end/Security Engineer



"There are only two types of organizations: those that have been hacked and those that don't know it yet!". - Former Cisco CEO John Chambers

Jessica Alvarez - Back-end Engineer



Wiliams Ordaz - Front-end Engineer



Stephen Baity - Back-end Engineer



Roberto Sandoval - Front-end/QA Engineer



Jonah Rivera - Back-end Engineer



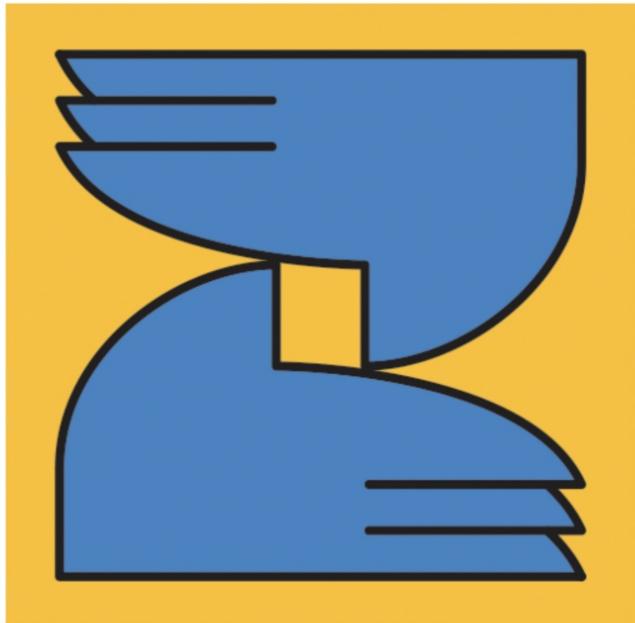
Adam Lei - Back-end Engineer



Meet the Team



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