

## ECPRE 491 - sdmay19-40

Weekly Report 2

9/19/2018 - 10/3/2018

Client: IBM Call For Code

Faculty Advisor: Diane Rover

### Team Members:

David Boschwitz - Team Lead

Caleb Nash - Lead Frontend

Justin Kaufer - Research & Testing

Austin Keen - Designer & User Experience Expert

Bobby Schedler - Lead Backend

Logan Fladung - Subject Matter Expert & Graphics

### Past Week Accomplishments:

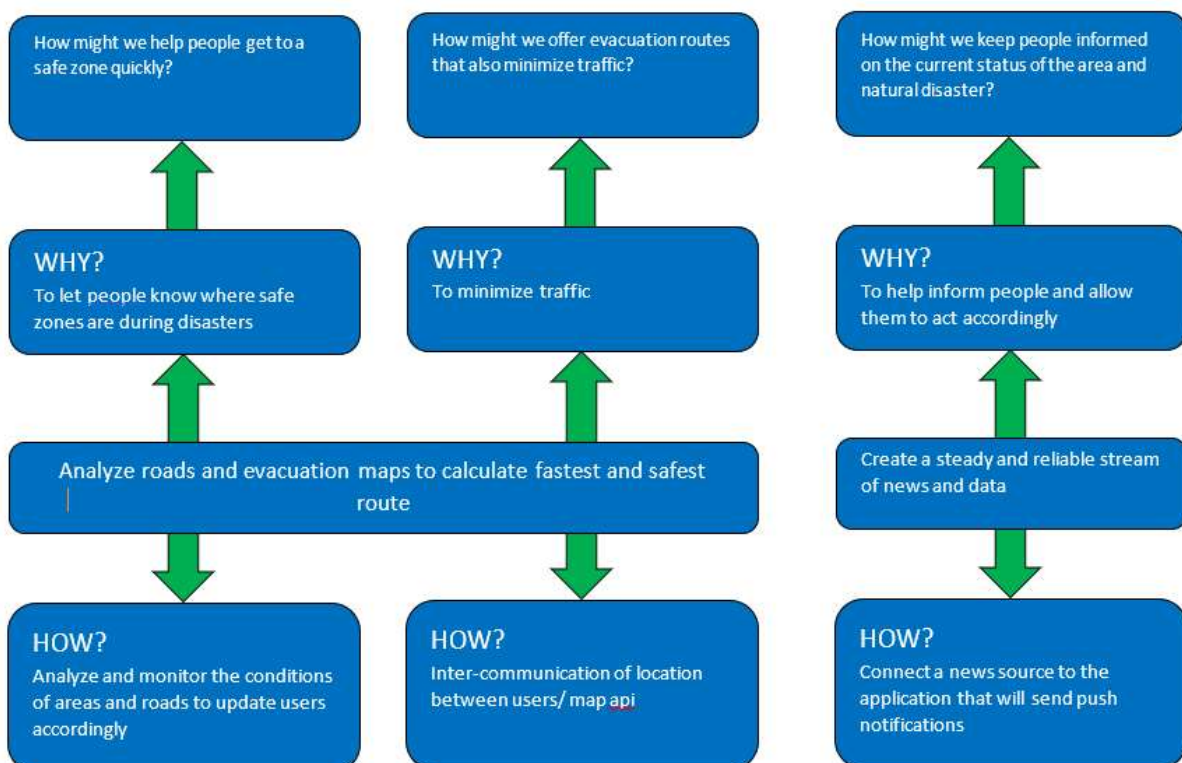
User Research

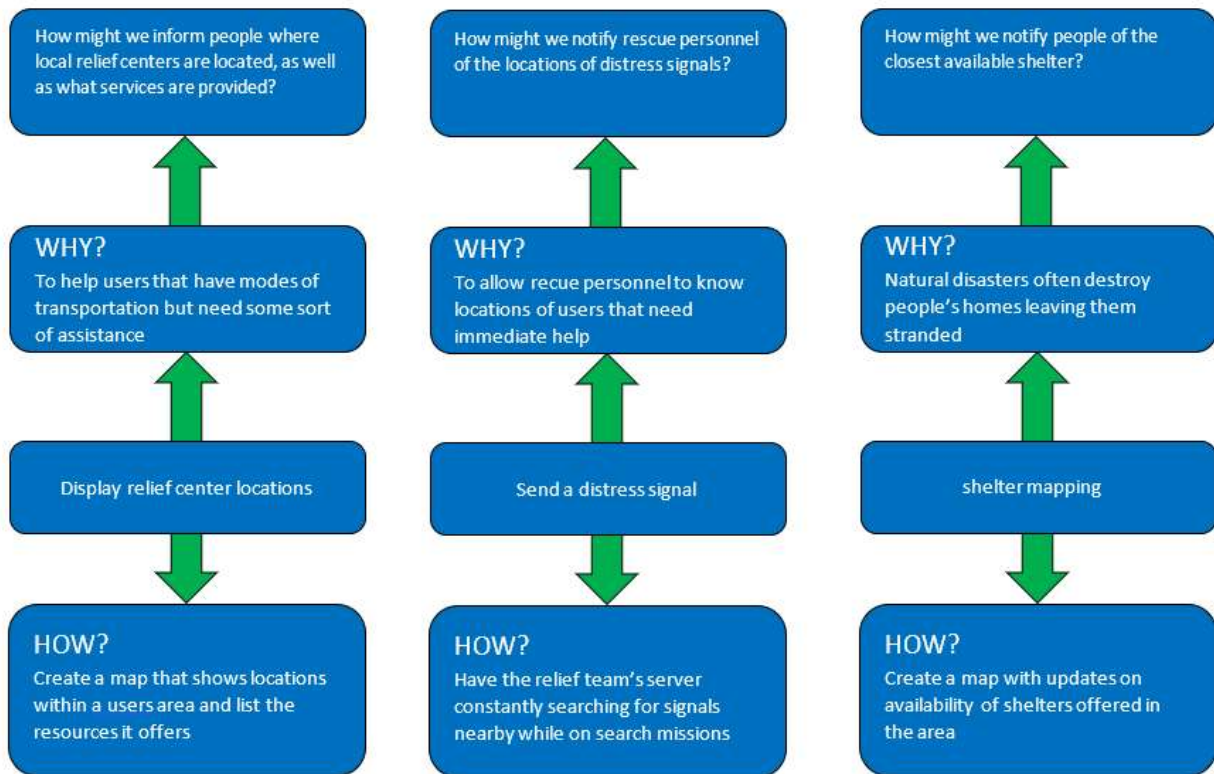
- Tsunami Research on Network Evacuation Analysis and Evacuation Behavior - Caleb Nash
  - Problems Due to Tsunamis
    - Get to high ground, away from the coast
    - Response time of when a tsunami hits to when the public is informed
  - Transportation and Evacuation
    - Try to devise an efficient way to extract data from evacuation maps from organizations like NOAA and other government organizations
    - After analyzing evacuation maps for the area, use common algorithms to calculate not only fastest route but also the safest route to a safe zone
    - Tries to minimize routes that require the user to cross bridges or other geological features that might come into harm, like landslides
    - Possibly communicate with other people to try to minimize traffic. Everyone trying to cram down one road is just as bad as everyone staying in one place



Figure 5. (a) Closest Facility analysis, (b) Service area 30 min from beach towards safe zone, (c) Service area 30 min without Bridge 1

- Evacuation Behavior
  - In general, when looking at where people obtained their sources of information, television was relied on the most
  - People that didn't evacuate from a hurricane perceived their social network to be more dependable than people that evacuated. This means that they felt they could depend on their networks. This would likely explain why they 'hunkered down' because they felt more secure with the people around them
  - Also, both parties relied heavily on their family far away to receive information which influenced their decision.
- Wildfires in California/Yosemite Research (David)
  - User has lack of ability/proper channels to communicate
    - Internet in Yosemite went down and the only people left (staff) had difficulty communicating with each other. Many took to facebook, but scoped communications with people remaining in the valley were non-existent
  - User needs better access to maps with evacuation routes
    - People involved in the wildfire areas could've used a better resource for sharing evacuation routes as many routes out of the park were cut off by wildfires
- Earthquake Research and Abstract Laddering Diagram - Justin Kaufer
  - Constructed an Abstract Laddering Diagram based on user needs
    - The diagrams help layout what the user needs in the scenario of various natural disasters using an abstract laddering method
    - Abstract laddering asks the question of why do users need this feature, along with how does one go about solving this issue





- Earthquake research
  - Kaikoura Earthquake in New Zealand
    - Transportation was a huge issue with the main road in and out being destroyed by the earthquake and landslides
    - Roads were not open until 4 days after
    - Helicopters flew over rural areas dispersing relief items
    - Red cross went door to door offering help and psychological support
    - No phone or internet access for next few days
  - Nepal Earthquake
    - Nearly 84% of damaged health facilities are in 14 most affected areas
    - A lot of similarities between Kaikoura
  - Possible features based off research
    - Maps - damaged roads, heavily trafficked areas
    - News updates
    - Location of relief and supplies
    - SOS ping signal
    - Admin powers to allocate medical areas
- Hurricanes Relief and Evacuation Procedures - Austin Keen
  - Evacuation Procedures

- Evacuation zones are set up for those leaving their homes to escape the path of the hurricane
    - Designated routes are set up to guide the people to the evacuation zones
  - Medical Assistance
    - A major necessity for those both caught in the path of the hurricane and those who have evacuated
    - Besides those caught in the hurricane, the elderly and those with mental health issues need access to the medical care that they need
    - A lot of injuries and medical problems occur from hurricanes, and some have the utmost urgency for being addressed
  - Food and Clean Water
    - Sources of clean water can become contaminated/compromised during hurricanes
    - Fresh water is very important to acquire in disaster situations
    - Keeping people fed helps prevent violent breakouts
  - Shelter
    - Shelter is the number-one, most important resource to acquire during survival situations
    - Red Cross sets up shelters for those displaced from natural disasters
  - Hygiene
    - Having proper hygiene is very crucial to keeping medical risks down
    - Diapers, feminine products, and other toiletries are provided to those at the shelter to keep unnecessary ills from arising



Served over  
**1.6 million** meals  
and snacks with our  
partners



Provided over  
**555,300** overnight  
stays in shelters with  
our partners



Distributed over **1.8**  
**million** relief items  
like diapers, cleaning  
supplies, coolers and  
comfort kits

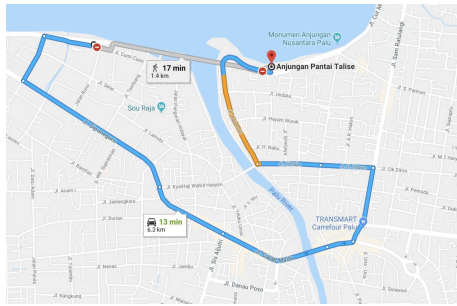


Over **62,500** health  
and mental health  
contacts made

- Tornado Recovery Process - Logan Fladung
  - Property damage
    - If able, make repairs to prevent further rain damage.
  - Hazardous areas
    - Be wary of downed power lines.
    - Tornadoes often come with a storm so be aware of potential flooding.

- Potential Features
  - Our application could provide locations of supplies and allow residents to report hazardous areas. Additionally the app could have a downloaded list of advice for people affected in case internet access is unavailable.
- Displacement during disasters - [Link](#)
  - One feature the app will have deals with finding shelter. Every natural disaster has the potential of displacing people and that is a key issue that needs to be handled.
  - People who are displaced go through a traumatic experience where they don't know what the futures hold and many times lose family members.
  - There needs to be a more concrete system for handling refugees. The longer they stay unsupported more likely they will be injured or act as an impediment to relief.

- Indonesia Tsunami - Robert Schedler



Note: 7 Days after Tsunami, roads seem clear. With exception of bridge on coast.

- Government Response - [Here](#) CNN.com
  - People are suffering from lack of organization by government. Resources are not being distributed very well. Distribution sites may be too nucleated causing overcrowding?
  - Emergency system failure  
"Mr Sutopo also said that the power outages had prevented some sirens in the affected areas from warning of the tidal waves. He posted a video on Twitter showing people in the city of Palu carrying on with their normal activities as the tsunami approached, seemingly unaware of the impending catastrophe." - [Link](#)
  - The EU Ambassador to Indonesia, Vincent Guérend, said "we will probably mainly channel this support via the Indonesian Red Cross and any other non-governmental organization which is in the capacity of delivering assistance on the ground." - [Link](#)
    - Indonesia seems to have poor government services, this hints that we shouldn't rely on government services in our app design.
  - Arifin told VOA about 130 Red Cross volunteers are in the area, but said, "We're still having trouble with access, with some volunteers unable to enter [the affected areas] because they're awaiting transport from the Indonesian military." - [Link](#)
    - Again reinforces that there is lack of organization in government.

Government can not necessarily be trusted in disaster relief situations and it seems as if disasters are much worse if they are not planned. We need to devise ways to help people without government resources, as they may not be accurate or exist at all.

## Project Plan & Miscellaneous Tasks

- Project Plan - Everyone
  - <https://sdmay19-40.sd.ece.iastate.edu/docs.html>

## Pending Issues

None at the moment

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Caleb Nash	Evacuation Analysis Research	4	8
David Boschwitz	Yosemite Wildfires Research Repository Initialization Project Plan Contributions Team Photos	5	9
Logan Fladung	Analyze team member research and study tornado relief strategies	3	7
Austin Keen	Hurricane Relief & Evacuation Research	4	8
Robert Schedler	Indonesia Tsunami aid Research	3	7

## Plans for Coming Week

- User Needs
  - Create lotus blossoms for all needs
  - Focus more on needs than solutions
  - find any experts on natural disaster response teams
- Website needs content
- Next week meeting
  - Dev team discusses Admin/Communication/Expectations
  - Short presentation with Team lead's ideas
- Come up with code name
- Reach out to Nick about getting his help with user requirements
- Research App Designs