CSC 648/848 SW Engineering Fall 2020

SurgeHut

Section 02

Team 03

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Milestone 1

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Milestone 1, Version 1			

1. Executive Summary

California is suffering from one of the largest Wildfire breakouts in history, while also dealing with the coronavirus that has left millions of residents devastated. The main purpose of our application is to bring awareness to the public of the safety measures surrounding COVID-19 and the Wildfires across the state of California. The SurgeHut application will update users of recent information regarding the Wildfires and notify users of hotspot cases of COVID-19 encompassing their local community. This app is meant to captivate the pragmatic catastrophes that are happening in our state and promulgate the seriousness of the events to the citizens of California. Due to the massive increase of wildfires throughout the West Coast and the ongoing pandemic, it's important for residents of California to stay informed of the health risks that affect their life and their loved ones while reinforcing public safety. Recent events have proven that climate change does exist and can no longer be overlooked.

As a result of the Wildfires, cases of the coronavirus are increasing in the western region of the United States of America. Fire Department and Health Care Department directors will be allowed to enter new data in regards to the Wildfires and the coronavirus. The SurgeHut app alerts the user to evacuate if there is any ongoing fire nearby and provides help-tips on how to respond when the fire approaches. This will notify residents in nearby counties of the level of evacuations and inform the public of red zone areas with poor air quality for high risk groups. SurgeHut will also notify people which highways are closed and how much of the fire has been contained or if any new fire has erupted. As for the coronavirus, the public will be updated of increased cases and will be able to find nearby testing around their neighborhood. The public will also receive new information such as when the vaccines are available and what new guidelines to follow in order to stay safe and everyone around protected. One of the unique features this app offers is directing people to safe zones and a help-line for counseling and support.

The SurgeHut application was designed by San Francisco State University students start-up Team 03. Team 03 is passionate about helping their community and helping government officials track any outbreaks and the fires across California. Their mission is to conduct analysis and stay updated with current events to improve the application in order to deliver high quality service to the community. Their research focuses on the 58 counties residing in California and for government officials from fire and health departments to communicate their metrics with the public as cases increase and wildfires continue to erupt. The team is devoted to making the user experience of this application as user-friendly as possible so the audience can navigate through our app without any frustration.

2. Personas and Main Use Cases

Persona 1

Jeff is in his late forties and lives in Pleasanton, CA along with his wife and three children. He has a long history of firefighters in his family so it's no surprise that he finds wildfires interesting. He studies pyrography, which is the study of previous and current distribution of wildfires. Jeff loves his family and he believes his work will have a huge contribution to his children's future. He believes climate change does exist and thinks his children should be aware of what is happening near their home. In his spare time, he likes to write books on his research and discuss strategies with his colleagues on what they can do for their community.

Persona 2

Mandy is a recent college graduate from UCLA majoring in Epidemiology, the study that investigates the science of disease exposure among society. They collect data to view the causes and risk factors that diseases reveal. She lives in downtown LA with her boyfriend and her eight-year-old dog, Benji. She is in her early thirties and enjoys jogging in the early morning before getting ready to start her day. During this

unprecedented pandemic, she has experienced an overwhelming responsibility to devote her time in informing the public of the health risk.

Persona 3

Antonio has been a Geologist for the last twenty years and enjoys every minute of his job. Not only does his job pays for his travels, he also gets to participate in adventures he loves. Antonio was born in the Bay Area and loves learning about the California mountains and hills. He is familiar with earthquakes and has always been exploring the science behind the hazardous events that happen in the state of California. His job has trained him to be prepared for any catastrophic event such as an earthquake. During an earthquake he has been prepared to have extra water and food supply, however recently Antonio had to evacuate his home due to a nearby wildfire. Although he was able to find safety, he did not have quick access to guidelines or helpful suggestions of what to do in cases of evacuation.

Persona 4

Leticia has been a college professor in the health department for the last 28 years. She is passionate about educating her students of health risk and empowering her students to live a healthier lifestyle. She loves to stay updated with new guidelines the top world health experts advise the public to do and promotes healthy suggestions to her students in order to stay healthy. Leticia lives with her parents who suffer from comorbidity, so she has to stay informed and practice social distancing.

Uses Case 1

- Jeff, who is a concerned father, will be able to educate his children with live information from our app-SurgeHut. He can use the data to let his kids know exactly what is happening around the world because of climate change. He can also help prepare his kids, in case there is ever a wildfire in their area by sharing his knowledge or get notified of instructions, if they need to evacuate. The data can also be used for

his own research as well. The data could be used to discuss strategies with his colleagues and know exactly which areas might be in need of help.

Use Case 2

- Mandy, who is majoring in Epidemiology, will be able to use live data information and do more research on Covid through SurgeHut. She can use this data, to provide more information on how to prevent the spread of Covid and which communities are at most risk. She can share this information too, with her friends and families and help them get informed too. Being in the public health industry, Mandy has the responsibility to share her findings with the public.

Use Case 3

- Antonio and other people who might be trained in case of an earthquake or other catastrophic events that happen in California, might not know what to do in case of wildfire. Using the app, they can search areas that are impacted by wildfire and they will be notified in case, if a wildfire happens near them. Details will be provided of the area under fire, evacuation routes and also a list of important emergency items that they must carry, would be sent through email or phone. Weather warnings can help Antonio prepare to pack important belongings within a convenient time frame and check for safe zone areas for aid.

Use Case 4

- Leticia, a college professor, can educate her students with ways to prevent diseases and the importance of washing hands, and regular cleaning. She can stay updated with new guidelines posted on the app, as more information is provided on ways to prevent Covid. She can then share those new guidelines with her students and also let them know about the app. Leticia can also prevent getting her parents sick by learning of any outbreaks around her neighborhood.

3. List of main data items and entities

Types of users

- Admin
- Basic user

Data structures

- Map data:
- Covid data:
    - Table: key: county, value: numTotalCases, numCurrentCases, numDeaths
- Fire data:
    - Table: AQI: key: coordinates, value: AQI
    - Table: Fires: key: fireID, value: name, containment, size (in square mileage), location

    Items/entities

4. Initial list of functional requirements

- Map of California displayed properly with ability to zoom in/out and move around
- Integration of Covid-19 case data into the website, displays amount of active cases in state
- Integration of basic fire data (square mileage burning, active fires etc)
- Template/skeleton of all pages completed
- Functioning navigation between each page
- Functioning coordinate system with map
- Fires given IDs and the ability to search by ID
- Tables for fire, Covid cases and AQI created with some test cases added

5. List of non-functional requirements

- System shall respond visually within 5 seconds.
- Every image on the WWW shall be royalty free.
- Application shall be developed using responsive UI implementation.

- Application shall not use any mail clients.
- No cost for services transaction shall be addressed, nor simulated in user interface.
- Application should use email confirmation to verify a proper email address from the public.
- Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0.
- Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers.
- Selected application functions must render well on mobile devices.
- Data shall be stored in the team's chosen database technology on the team's deployment server.
- No more than 1000 concurrent users shall be accessing the application at any time.
- Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
- The language used shall be English.
- Application shall be very easy to use and intuitive.
- Google maps and analytics shall be added.
- Site security: basic best practices shall be applied.
- Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
- The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Fall 2020. For Demonstration Only" at the top of the WWW page.

6. Competitive analysis

List of competitive products:

	Search for nearby wildfires and Covid hotspots	Use users location	Indicate safe zones/resources/relief centers
Wildfire Alert	Y	N	N
Ready for Wildfire App by CalFire	Y	N	N
ReportFires	Y	N	N
SurgeHut	Y	Y	Y

*Will be adding more to the list

7. High-level system architecture and technologies used

SERVER HOST: AWS 1GB RAM

OPERATING SYSTEM: UBUNTU v. 18.04

SERVER DATABASE: MySQL v. 8.0.21

WEB SERVER: NGINX 1.18.0

SERVER-SIDE LANGUAGE: NodeJS

ADDITIONAL SOFTWARE:

WEB FRAMEWORK: Jest

IDE: Sublime Text, VS Code

PaaS: Docker

WEB ANALYTICS: Google Analytics

8. Team and roles

- **Josue Carreon** is our Team Lead, who has assigned us individual responsibilities for Milestone1. He was also in charge of finding 3-4 competitive products.
- **Diana Benavides** is our team's GitHub master and in charge of Milestone 1 final editing. She read and modified the final documentation before submission. She was also in charge of the Executive Summary and Personas.
- **Kevin Chen** is our Back-End Lead and has taken charge of "main items and data entities" and "functional requirements.
- **Pierre Antione** is the Front-End Lead and has worked on a list of non-functional requirements and the checklist.
- **Harsimran Nandhra** is the Front-End Assistant and worked on Use-Cases and assisting Diana with final editing.

9. Checklist:

- Team found a time slot to meet outside of the class: **DONE**
- GitHub master chosen: **DONE**
- Team decided and agreed together on using the listed SW tools and deployment server: **DONE**
- Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing: **ON TRACK**
- Team lead ensured that all team members read the final M1 and agree/understand it before submission: **DONE**
- GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.): **DONE**