**‘Surf Safari’ Senior Project Plan**

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**Problem and Motivation**

Within the surfing community, there is a lot of enthusiasm about surf science. Surfers enjoy discussing what tides work best for their favorite spots, what surf swell directions and sizes create the best waves, where sandbars form after storms, which wind directions are favorable, and more. Websites such as Surfline and Magic Seaweed largely satisfy the casual surfer’s need for surf related knowledge when it comes to well established surf spots. However, they lack the flexibility to allow surfers to explore unmapped, remote locations around the world and asses their surf potential. Additionally, they tend to present information in a processed, consumer friendly manner that is not ideal for learning the science behind surf reporting and forecasting.

There exists a subset of adventure surfers interested in studying and traveling to remote, unmapped surf locations around the world. This is evident in many surf films, from the classic ‘Endless Summer’ by Bruce Brown in 1965 (which followed a group of surfers chasing Summer around the globe and discovering new surf spots, most notably Cape Saint Francis) to the more recent film ‘Cold Water Journal’ (where a group of surfers visit surf spots that were scouted out using Google Earth and weather data) by San Luis Obispo local Chris Burkard. More evidence of this subset of surfers is evident from the Google Earth contest in 2007 by Surfing magazine which led to the discovery of the world-class surf spot ‘Skeleton Bay’ in South Africa.

**Solution**

This project, ‘Surf Safari’, aims to satisfy the need in the surf community for a tool that can be used to learn about surf science and to discover unmapped surf locations. It will incorporate several features including topology data, wind data, satellite imagery, weather data, and buoy swell data into an explorable map interface on a website.

**Assessment of Building Options for Project**

*Front end*

**Map API**

A major feature of this application will be an interactive satellite map. It is essential that I be able to overlay this map with weather and geographical data that I retrieve from other APIs.

|  |  |  |  |
| --- | --- | --- | --- |
| Interactive Map APIs Options | | | |
|  | Description | Pros | Cons |
| MapBox GL JS |  |  |  |
| Carto |  |  |  |
| Maxar |  |  |  |
| Leaflet |  |  |  |
| TomTom |  |  |  |
| NASA Earth |  | Can see satellite image on specific day |  |

This project will use \_\_[make decision]\_\_ because \_\_[make decision]\_\_ I will also use NASA Earth for a feature to obtain historical satellite images at specific date intervals.

**Framework**

I will need to decide on an appropriate frontend framework to build the UI. It should be able to integrate with the selected Map API and work well with selected backend option.

|  |  |  |  |
| --- | --- | --- | --- |
| Frontend Framework Options | | | |
|  | Description | Pros | Cons |
| Angular |  |  |  |
| React |  |  |  |
| Spring Boot |  |  |  |
| Django |  |  |  |

This project will use \_\_[make decision]\_\_because \_\_[make decision]\_\_

*Backend*

**Serverless Options**

|  |  |  |  |
| --- | --- | --- | --- |
| Backend Options | | | |
|  | Description | Pros | Cons |
| AWS Lambda |  |  |  |
| Google Cloud Functions |  |  |  |

This project will use \_\_[make decision]\_\_ because \_\_[make decision]\_\_

**Timeline**

|  |  |
| --- | --- |
| **Goal** | **Deadline** |
| Create a complete plan of what technologies I will use for the project and what basic features I need. | 1/18 |
| Build a Figma demo of the project | 1/29 |
| [Remaining steps uncertain until first goal complete] |  |
|  |  |
|  |  |