Sea It Rise Technical Implemenation

Our initial concept of creating an augmented reality application was an exciting idea but proved to be a solution looking for a problem. After consultations with Ian Miller of Washington Sea Grant, the team decided that it would be most helpful to leverage the field efforts already in place to document the impact of King Tides as a proxy for sea level rise.

This change has the added benefit of establishing a framework upon which to hang any future Augmented Reality (AR) work. The ability to crowdsource even basic photographs with geolocation and orientation, while simultaneously querying NOAA's CO-OPS API for local tide and weather information makes for a straightforward data mashup that delivers real value to coastal planners and individual users alike.

Additional in-depth conversations with Coastal Risk Consulting made clear that adding AR functionality to their product offering would be a great addition. As AR is not their technical focus, we envision the Sea It Rise app as a possible channel sales opportunity. As other risk assessment products enter the market, integrating them via API calls will be straightforward.

Finally, we had made significant progress using Unity and Vuforia to create a rudimentary augmented reality experience along the lines of our first proposal. Over the summer both Apple and Google have released plans to deliver significant AR functionality with basic smartphone offerings (e.g. no fancy hardware requirements beyond the latest iPhone and Android devices, using ARKit and ARCore, respectively). Their technical solutions far surpass anything our team can create and we are excited to leverage their technology for our use case. Unfortunately, we will be unable to do so before the August 31 deadline. Stay tuned for future developments here!

FRONTEND

- We are using a basic mobile friendly HTML5 framework, served up via BitBalloon (www.bitballoon.com/)
- Map technology provided by Mapbox (www.mapbox.com)

BACKEND

- We are using a Backend as a Service (BaaS) from Kinvey (www.kinvey.com)
- We have integrated NOAA CO-OPS data via the NOAA CO-OPS API. (https://tidesandcurrents.noaa.gov/mdapi/latest/)
- We plan to add NOAA estimated Sea Level Rise GIS layers from the NOAA office for Coastal Management (coast.noaa.gov/slrdata/)
- Additional risk assessment and visualization data will be integrated when suitable APIs can be easily incorporated.

USER FLOW

1. Point your browser to: https://sea-it-rise.bitballoon.com/
   a. Sign up for a free account with your name and email
2. Click on the "crosshair" to zoom in on your location.
3. Use the menu to explore tide stations near to you or upload a photo.