

## Product Prototype

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### **Summary**

With a goal to help users be able to visualize where there are pipes and wires underground, we created a 3D overlay. For our hover lay, we had to create 3D models that represent pipes. The pipes show where water, electric wires, and others would run underground. From there we used different background images to show what it would look like in a real-life application.

We hope to learn how accurate this device/interface is compared to what is already out on the market now. We also hope to learn what features we can add/improve our device. We want to learn what people think about the aesthetics of the device and if it is durable enough to survive the elements. Through user testing, we will gain a better understanding on whether or not the device is easy to use and if it has an intuitive design.

After creating our product prototype, a crucial next step would be to have users test the design. As aforementioned, this would provide insight on how well the device performs in the field. One such target consumer would be contractors since they need to check for underground pipes and cables when creating new developments. Exterior designers would also be someone useful to test as they may need to check for underground obstacles when designing. This device will also be super helpful for technicians who need to fix pipes or cables underground. It can even be helpful to have our competitors, such as 811 DIG to test this device out to see if it streamlines their process of checking for underground pipes. If it does, then selling this device to them would be great. Lastly, everyday people should test this device since we intend for homeowners to purchase this device. This way they can check for underground obstacles themselves without having to pay a third party for their services. Gathering this feedback from users will be helpful in creating the next iteration of our product.

We chose to create this type of prototype because this way we can see user interface and visual possibilities. These 3D models the represent pipes allows us to see what the user sees when they use they device.

## Prototype

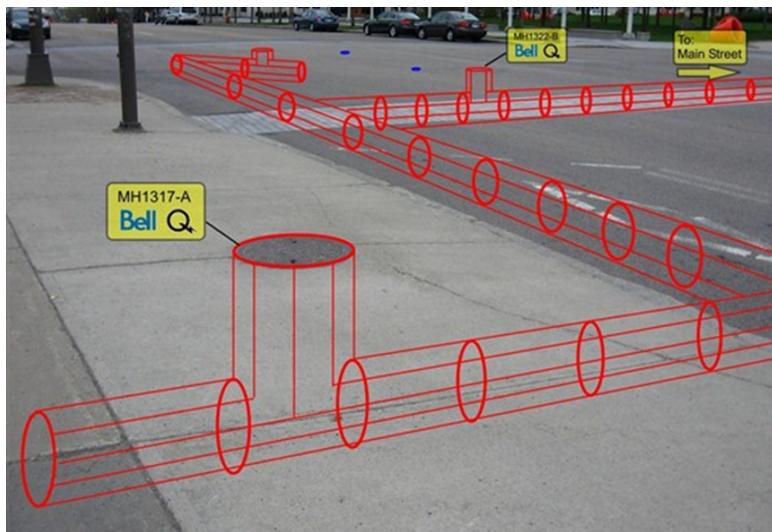


Early mock-up showing how the software would look mapping the complete pipe structure of a yard. The software would use a known location, such as the electrical lights in the image as an anchor to precisely display the layout of the pipes. These are called anchors. Below is a mock version of the software displaying the pipes in a designated dig zone.



Above is a image of the hoverlay model

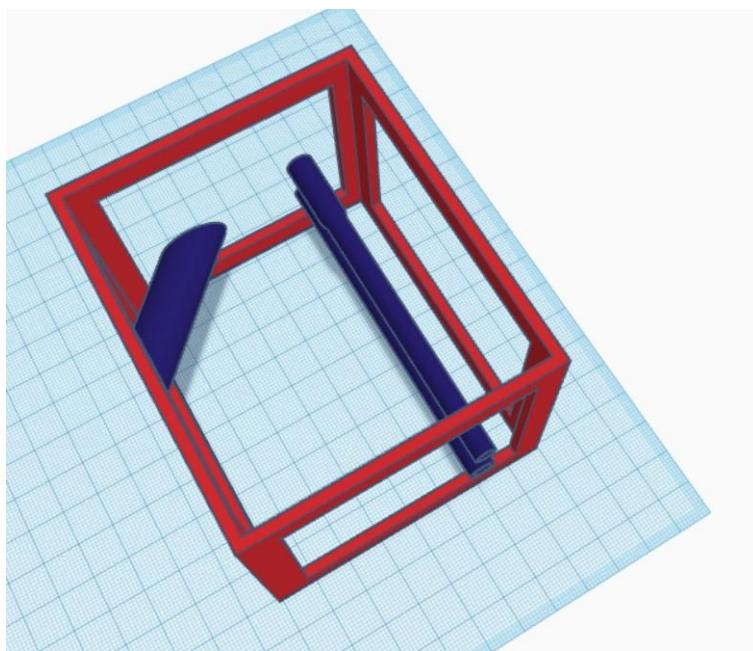
Below is an image that better demonstrates the anchors. In this case the drain cover is used as a reference to accurately lay out the underground pipes.

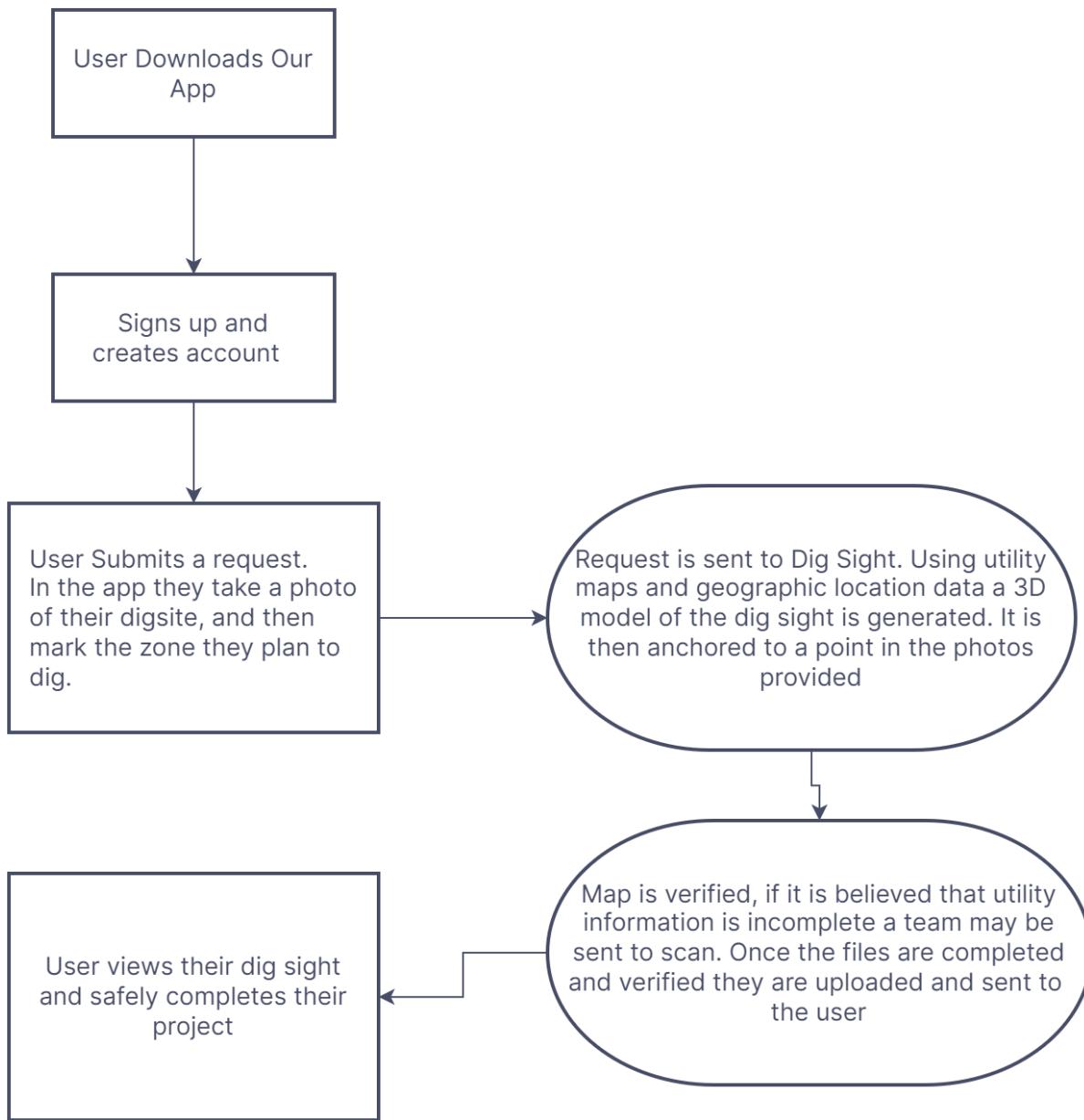


Below is a mock up of what the software would look like on an tablet

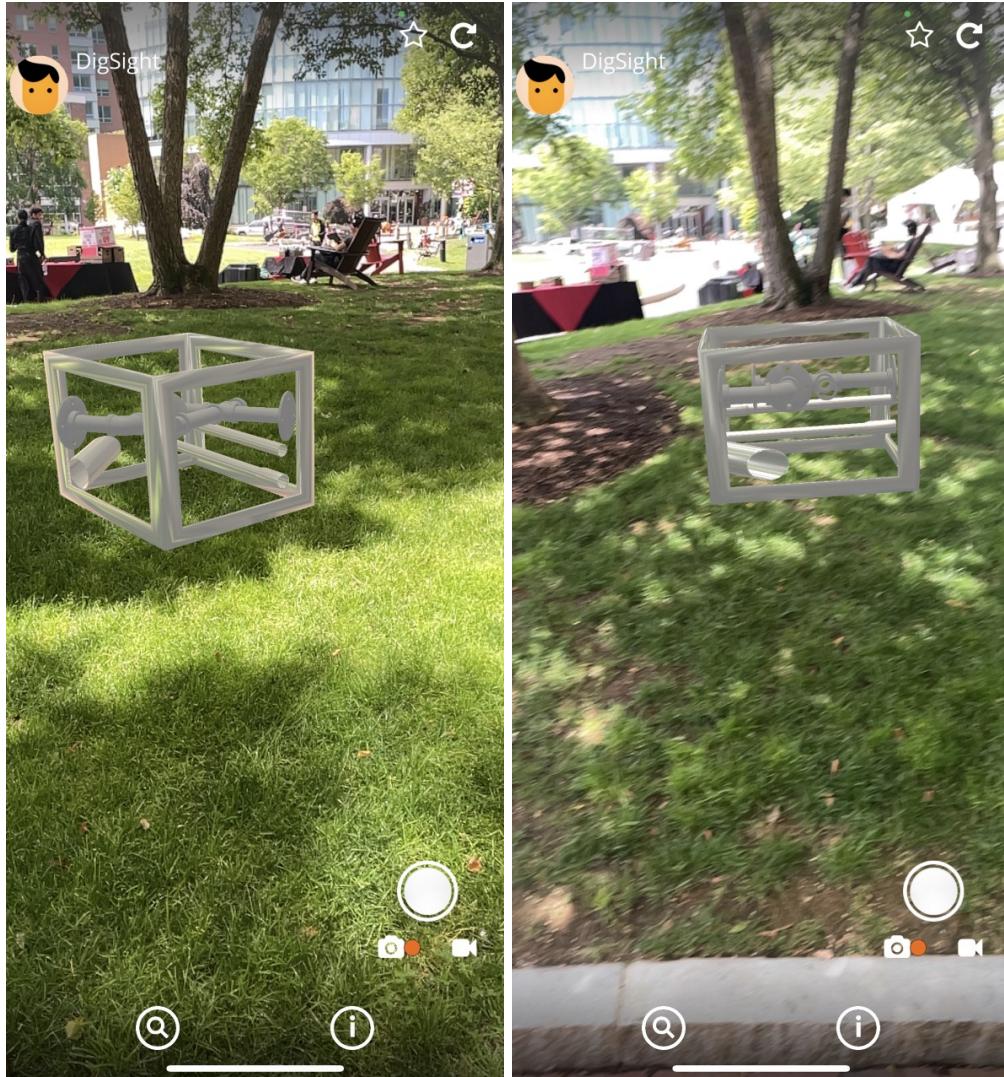


Below is the 3D model used in Hoverlay





Wire frame of App Process above.



Hoverlay Prototype depicted above. This allows us to show how a Dig Sight AR map would look, and allows us to get early feed back on the design without having the entire software built. We added color to our model but where unable to get it to translate to the Hoverlay software. We hope with more development we can get it to appear to sit in the ground better like the image below.



## Test plan

1. Have participants fill out the pre-survey
2. Collect survey results (pre-survey) to determine if participants meet the target demographic and/ or are likely to be early adopters
  - a. Looking for people who like to do home projects and live in homes with yards or work in contracting or construction
3. Briefly explain the product and its intended use cases
4. Show visual aids and mock photos (as seen above)
5. Show mock software example in Hoverlay
6. Run and collect post-survey
  - a. A brief discussion on design choices

Pre Survey:

<https://docs.google.com/forms/d/13wXLVx33JyM3j1e1EVYGs35bu6eGi1idkjO8HHPQhS4/edit?ts=62b20d7e>

Post Survey:

<https://docs.google.com/forms/d/16jA63UBGKIbh8ASqmxXD2s7KK3qoDTZ1vt8JsRNbsMc/edit>