Project Deliverable H: Prototype 3 and Customer Feedback

Mariyam Sheikh, Amélie Chénier, Michael Braimah,
Margaret Kravchenko, Luke Meintjes

November 24, 2024

Introduction:

Proper documentation is critical throughout the prototyping stage. This document will explain the third prototype of the smart glasses assistance website, which will cover another critical subsystem and contain a model. It introduces the obstacle detection subsystem. It also includes test documentation for the prototype. The feedback gathered during the testing will be reviewed and utilized to guide future changes to the target criteria or the website design.

1.

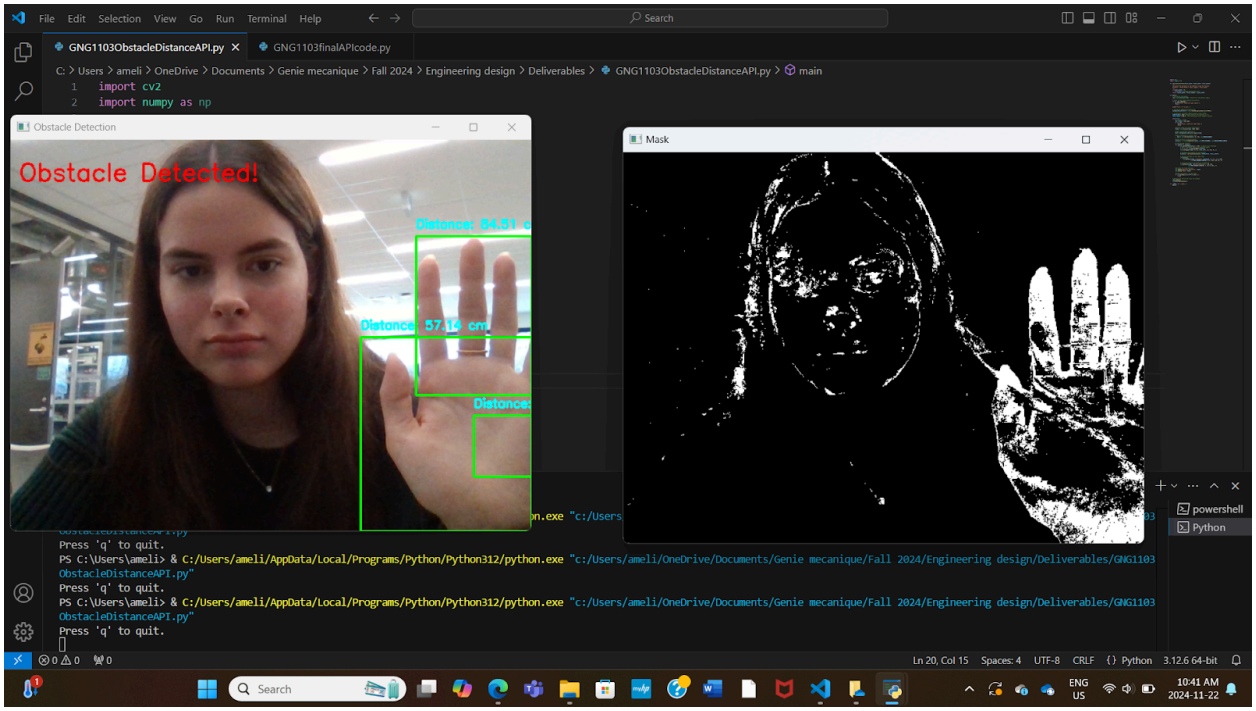
Link to prototype code:

GNG1103ObstacleDistanceAPI.py

This prototype was made to test how the obstacle detection subsystem would work on the website. Its objective was to receive feedback on this subsystem and improve it for the future product. The program opens the computer camera and detects all moving objects. If an object is moving, it detects the obstacle and sends a warning: “Obstacle detected!”. It also shows the distance of the object over the rectangle which highlights the obstacle.

Part of this code was written with Chat GPT, where the prompt was “Write a code for obstacle detection for a computer camera”, 21/11/2024.

2.



For this third and final prototype, only the functional aspects of it will be tested, so the same tests as with the last prototypes will be applied to this one as well.

- Functionality - Test to see if prototype works

- Adaptability - Test to see if the program can adapt to when the background changes or with different scenarios
-
- Easy to use and understand - Different surveys will be done with people of different backgrounds to determine the ease of use and understandability.

Test	**Result**	**Estimated time (minutes)**
Functionality	Yes	5
Adaptability	Yes	30
Easy to use and understand	Yes	60

Analysis of the results:
The results of the first test (Functionality) were positive as the prototype worked. The prototype highlights with a rectangle the moving object in front of the camera which could be obstacles and indicates the distance of each of those objects. Since that is what we were hoping for for this prototype, the testing was successful. The results of the second test (Adaptability) were also successful. For this test, we tested the program in different environments with different distances and objects sizes, the results worked in every situation which allowed us to determine that the prototype is adaptable. Finally, the results for the last test (Easy to use and understand) were also successful as a large majority of the surveys that were conducted contained positive feedback on the prototype and its ease of use.

3.

Civil Engineering Student:
“The feature is very cool and useful for different people. I like that the distance of the objects is shown at the top of each. The readability of the distance could be better, especially since it frequently changes between different numbers, there is also a lot happening on the screens which can be confusing. Also, having the option of having the camera show on full screen would be interesting.”

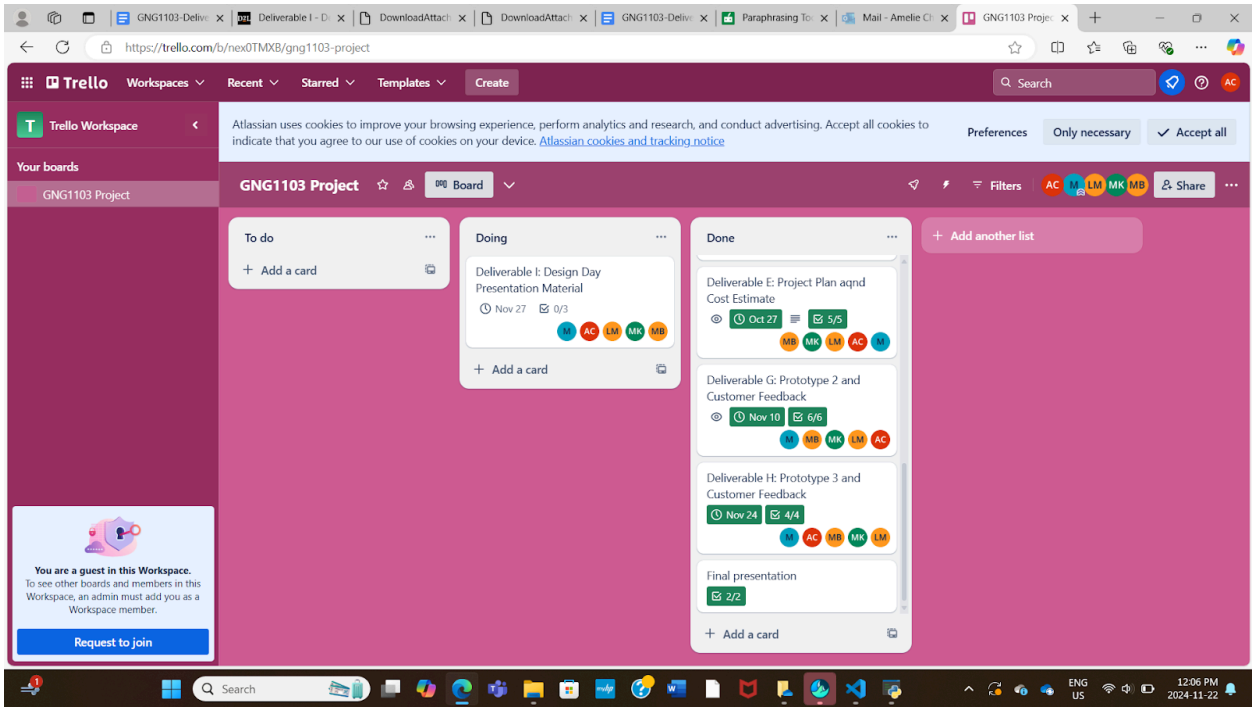
Mechanical Engineering Student:
“A feature which would allow the user to not receive a warning if the object is at a certain distance would be useful. But the program is very interesting and works well.”

UX Design Student:
“I like the grid colors because it has a strong contrast to most environments but with some environments it would not show very well. SO the option of changing the grid colors would be interesting. Having smaller rectangles around the objects would also be useful.”

4.

No updates needed.

Conclusion:

During the prototyping phase of the Smart Glasses Assistance App, we allowed customers to test our ideas and provide valuable input on different aspects of it. Although this feedback did not modify the target specifications or the app's design, it is still useful for the final product.

Trello Update: