Development of Carla Simulation Controller UI using HCI Principles

4 minutes 10 seconds [10 seconds buffer]
260 seconds

SCRIPT

[1] **[Prajeet]:** Hello Everyone, This is Prajeet shrestha back with another video where we will discuss a research project that we were working on for quite a while, Now this is something that was really important for us not because it was a semester assessment but it was something that we really wanted to work on and be able produce a significant result. I have my team members with me to discuss the project and just touch on everything that we did, however, if you want to learn more about it in detail you can email me to get the research paper which will be released after 1st Dec 2020.*[CUT..]*

[2] **[Saahil]:** Thank you so much for inviting us. *[CUT..]*

[3] **[Prajeet]:** Talking about the project, like i said it is a research based project for developing a User interface from the perspective of HCI, for a self-driving car simulator called CARLA. Now CARLA is an open source simulator where you can simulate and research self driving cars.

In this space, I would like to create an opportunity for us to discuss the journey that we took. So, before we discuss about the project, let me

- put a question to us for our audience to understand the objective of our project.

-lay a base for what were the objectives that we were trying to accomplish. *[CUT..]*

[~55 *seconds*]

Week #1

[4] **[Ayush]:** Thank you so much Prajeet, with a lovely introduction of the project, I am Ayush. Let’s talk about the objectives that we were trying to reach and about the first week of the project.

Before that We would like to explain why we are creating this UI design, To do simple things like starting the simulation, or recording the simulation or even changing weather, we need to manual call the functions, which is more like CUI, so we decided to create a Smart UI to make our task easier in term of adding or

changing few things on the simulation, so that programmer can focus on actual part of research.

So, The objective that we were trying to reach was:

1. To create a Control Panel/System UI for better usability.
2. To create a consistent UI that follows most of the UI principles.
3. Making the UI capable of fulfilling its general purpose of Simulation control.
4. To cater to the universality of the users of the product.

And Finally, we tried to justify the objective and statement with a survey, where we found that __% of the people think it is relevant research to work on. *[CUT..]*

[~50 *seconds*]

Week #2-#3

[5] **[Saahil]:** Yea! So, keeping those in mind. During the 2nd week, we created a case document and had an open discussion with some of our colleague team, <team name> , where we found the pros and cons of the project and improvised and re-documented it. Which was a huge milestone for us in terms of improvement and once we had a proper idea and supporting document, on our 3rd week, we started working on creating a paper prototype. The model that you see here was the final prototype that we created, with a lot of suggestions and feedback from people about what they liked and disliked. You can find more about the section in our research paper.*[CUT]*

[~35 *seconds*]

Week #4

[6] **[Saugat]:** And as we moved on to next week, what we had to do was to create a UI that users can interact with, So we created a Front-end interface with JavaScript and HTML/CSS. It took us almost a week to finalize the interface, but once we completed it, it was something that we really liked and loved the design.

The UI that you are looking at is what we developed after working on it for a week and we were quite happy about it.

As we progressed on to the next phase of our research, we invited a few of our colleagues to evaluate and consult the design and identify as many potential usability problems as possible. Now this space was really crucial for us because it would give us an external perspective and opportunity for improvement. The heuristic evaluation was done based on Jakob Nielsen 10

Usability Heuristics for finding any design issues associated with the user interface. *[CUT..]*

[~50 *seconds*]

Week #5

[7] **[NAME]:** Finally what we needed to find was; what kind of users with different backgrounds and knowledge would observe and react to the our UI.SO, we created a user persona for the type of user that might use the product, some of them were, an undergraduate with good knowledge of programming and CARLA Simulator, a Graduate and enthusiast of Designs and other more and we conducted an ethnographic research to understand how a certain group of customer interact and observe the UI.

For any case, we also produced a detailed summarization of each principle that we used and evaluated the UI based on Schneiderman's 8 Golden Rules Norman's 7 Principles for better understanding the product and improvising it.

[~40 *seconds*]

Week #6 and Closing

[~30 seconds Remaining]

[8] **[Prajeet]:**

Produced Parts:

- 8 audio parts