

# Materials and textures

To create textures, I used some of the photos I downloaded at the start of the semester. To create the front light, I had to find another picture with almost no reflection. I tried many pictures before finding the right one.



Figure 1 Photo of the headlight with a reflection. [https://www.caricos.com/cars/m/mazda/2016\\_mazda\\_mx-5/images/91.html](https://www.caricos.com/cars/m/mazda/2016_mazda_mx-5/images/91.html)



Figure 2 Picture of the front side of the car with almost no reflection on the left headlight  
[https://www.caricos.com/cars/m/mazda/2016\\_mazda\\_mx-5/images/198.html](https://www.caricos.com/cars/m/mazda/2016_mazda_mx-5/images/198.html)



Figure 3 Photo of the backside of the car. [https://www.caricos.com/cars/m/mazda/2016\\_mazda\\_mx-5/images/140.html](https://www.caricos.com/cars/m/mazda/2016_mazda_mx-5/images/140.html)



Figure 4 Tyre texture, darkened. <https://www.deviantart.com/lostandtaken/art/Tire-1-90613714>

At first, I created some of the materials and assigned faces to the specific material. I started with the whole body material, where I set the base color to white and played mostly with the roughness, specular and metallic properties. It was not the final result because I changed it many times during the process. I also added the environmental map.

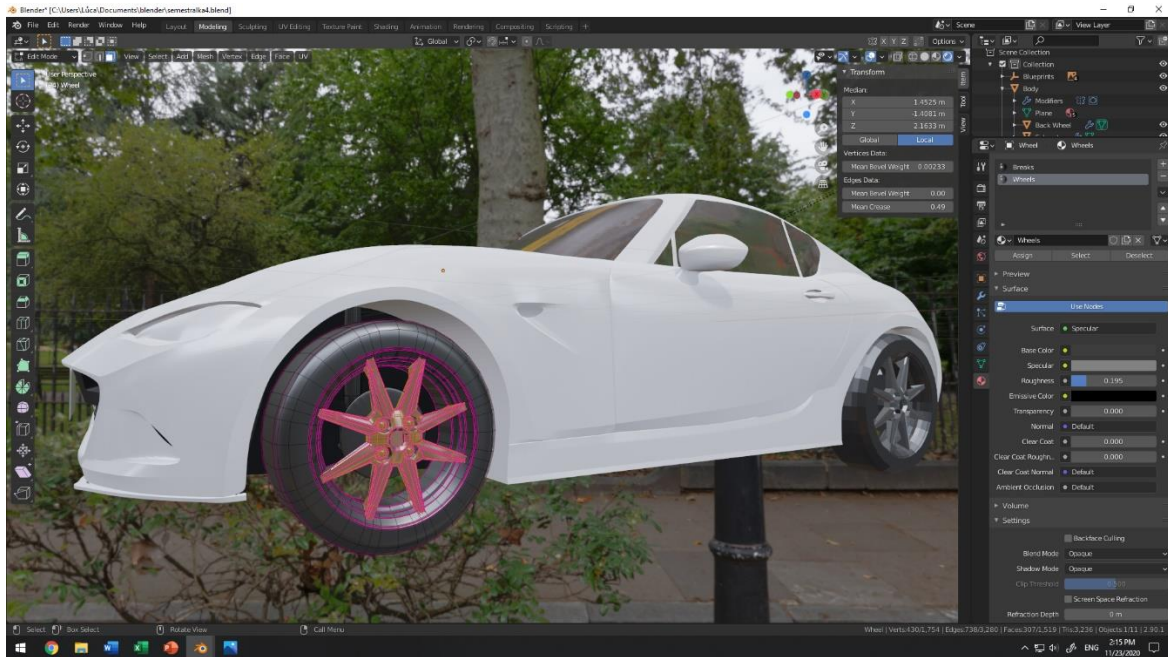


Figure 5 Wheel material setup with body and window material on



Figure 6 Wheel material



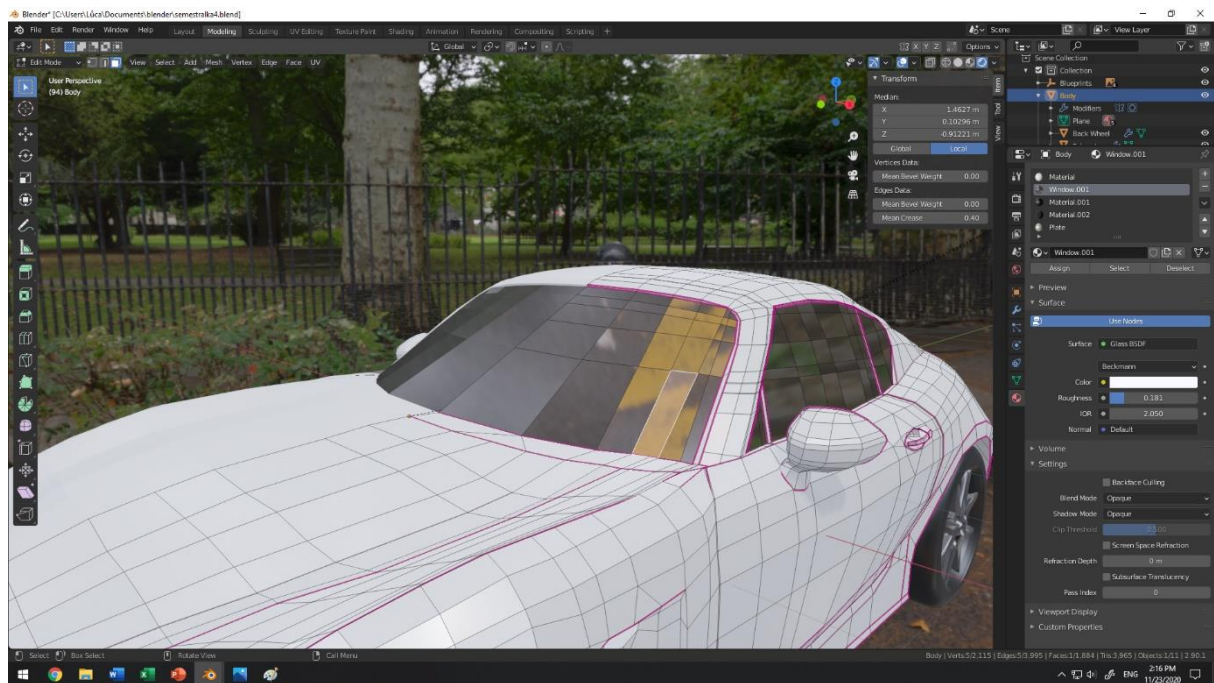


Figure 7 Window material

I set the window material as Glass BSDF, which I changed to Principled BSDF later.

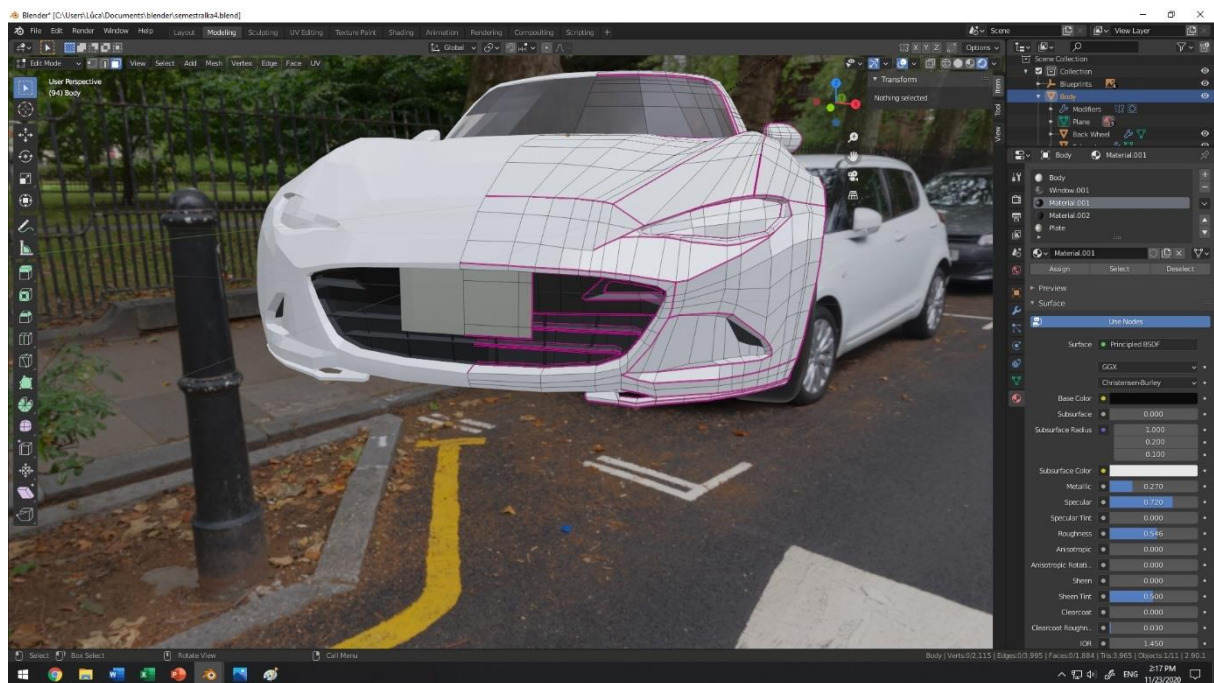


Figure 8 front kit with the license plate

Then I set the UVMaP for the back and front light. At first, I did it in the general UVMaP, which I again changed later and created UVMaP only for the backlight and UVMaP only for the front light.

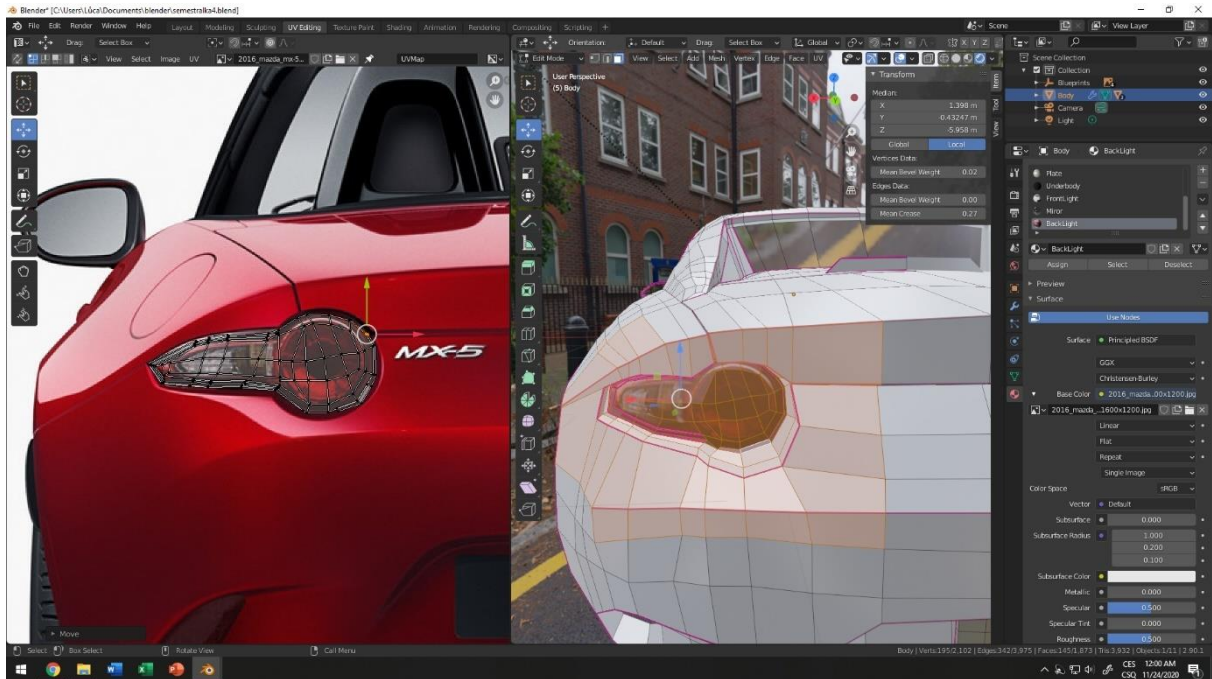


Figure 9 Backlight UV mapping



Figure 10 Backlight texture



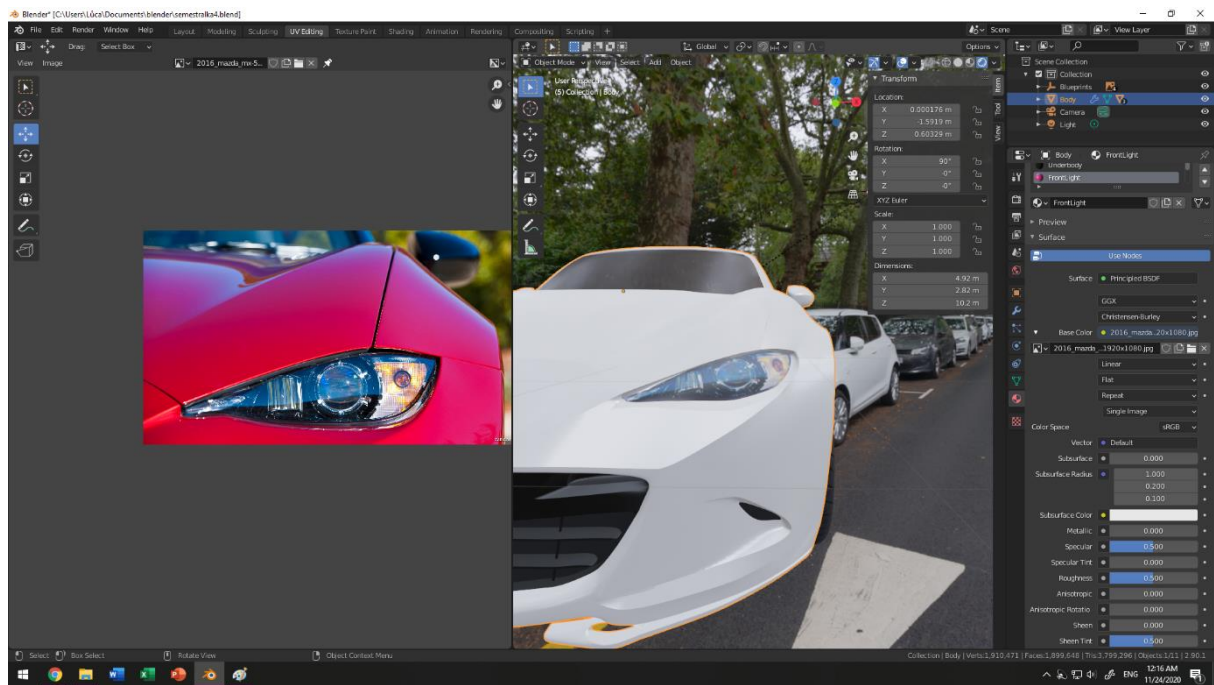


Figure 11 Headlight texture

As I said, I had to try many pictures of the headlight. As seen in Figure 11, the reflection on the headlight does not look good on the model, so I changed the reference image many times.

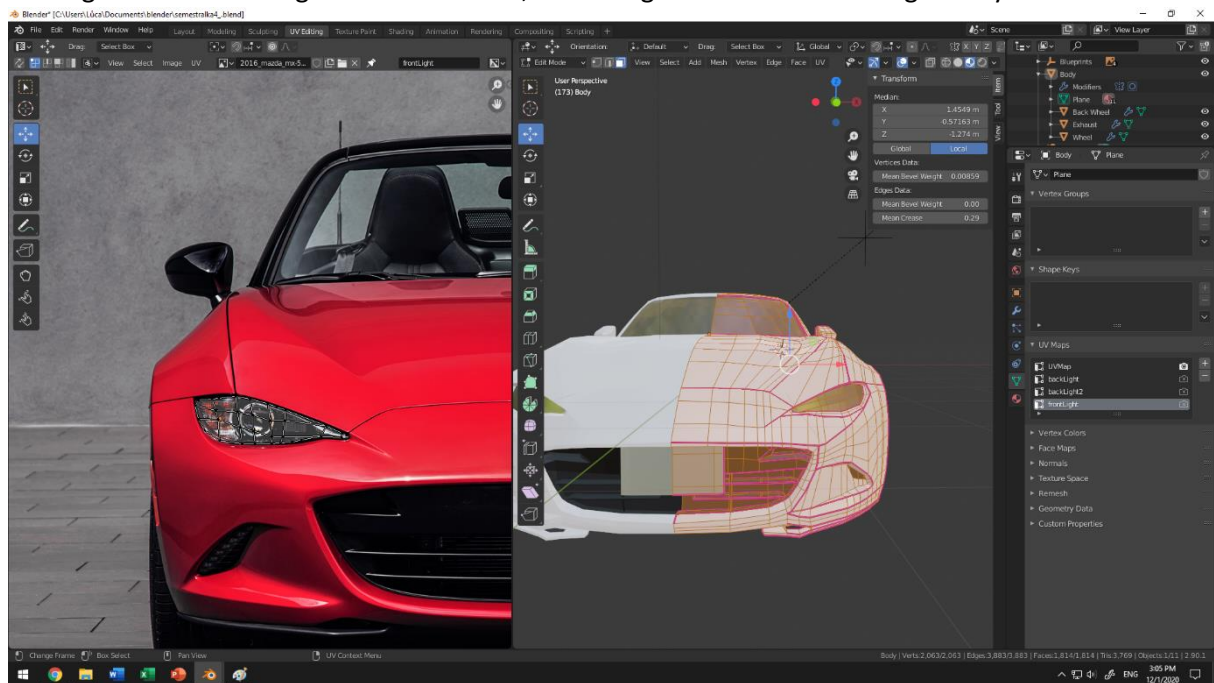


Figure 12 Front headlight with no reflection

I added texture to all the lights on the backside, like the brake light.

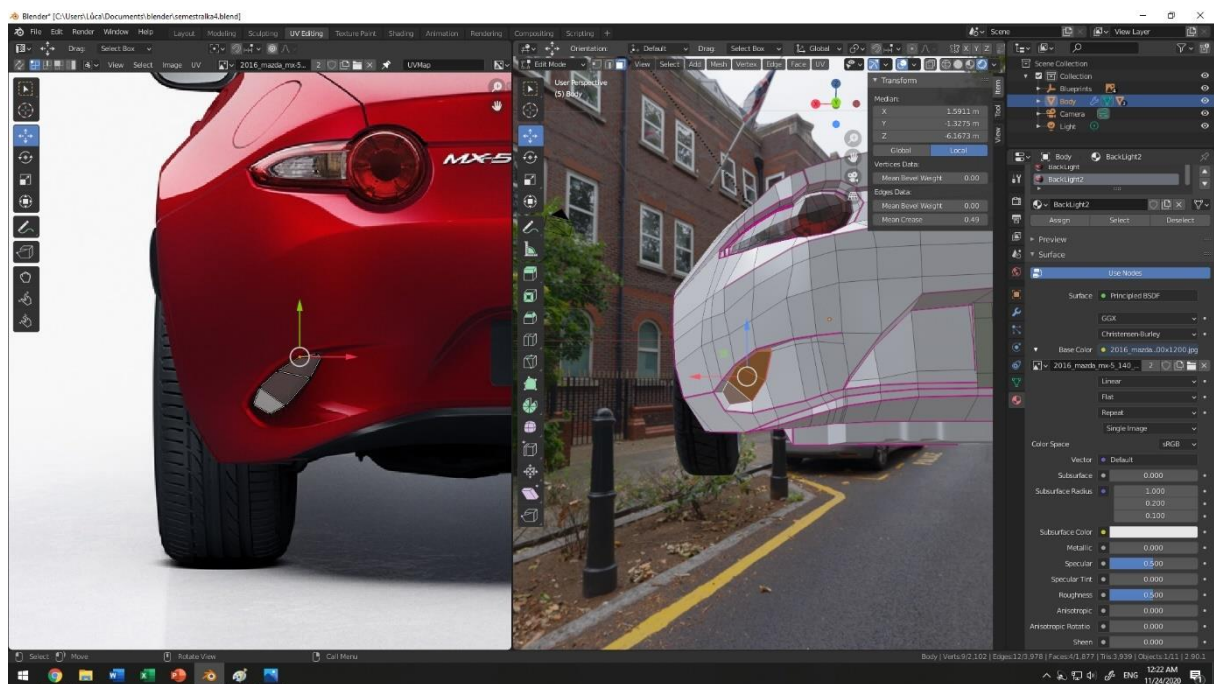


Figure 13 Back light

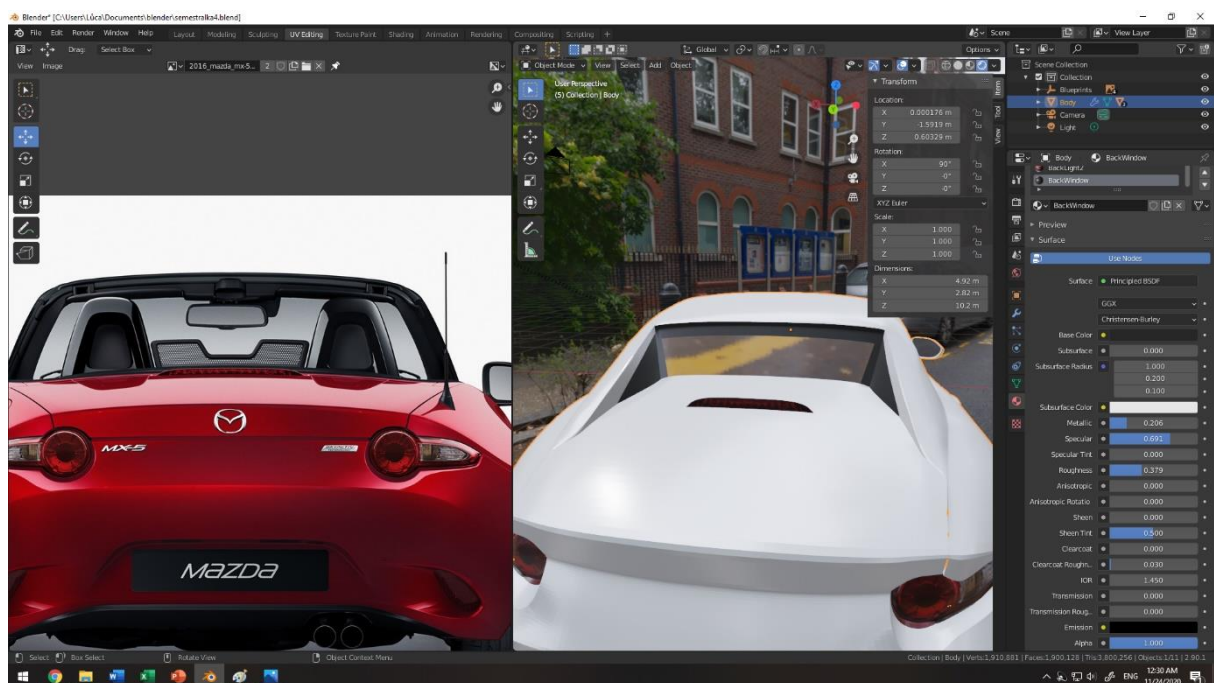


Figure 14 Brake light texture

Then I painted the lights' texture using the Clone tool on the texture of the base color.

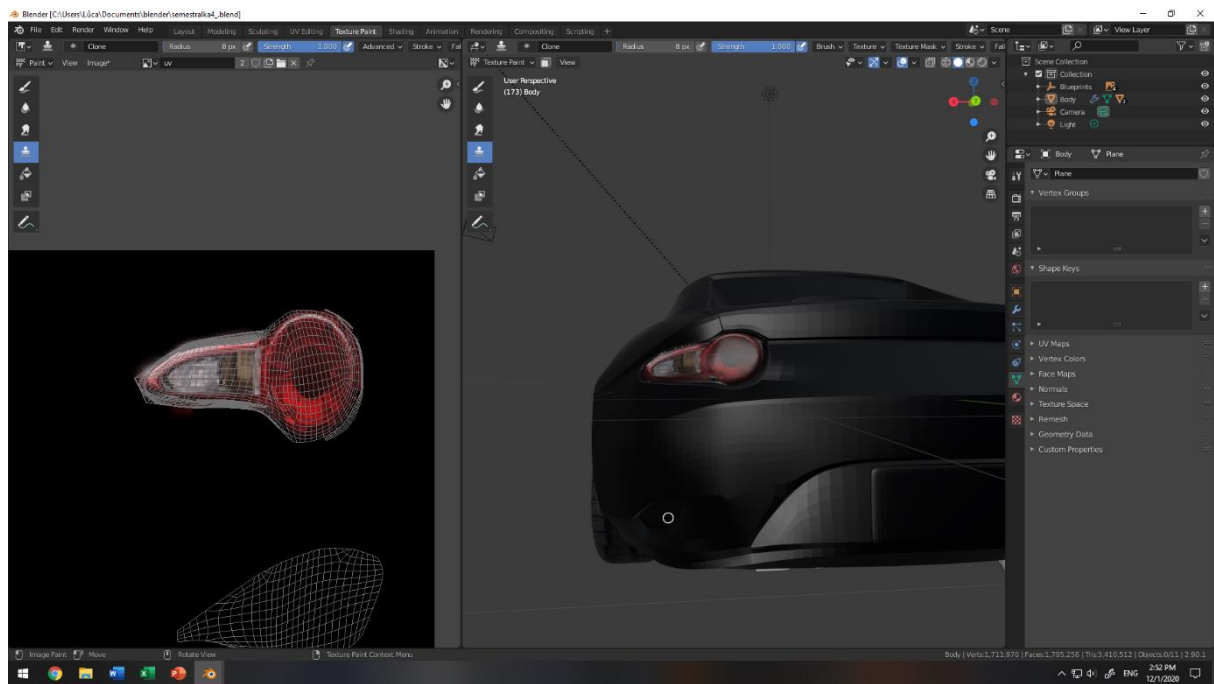


Figure 15 Texture of the back light cloned onto the base color texture

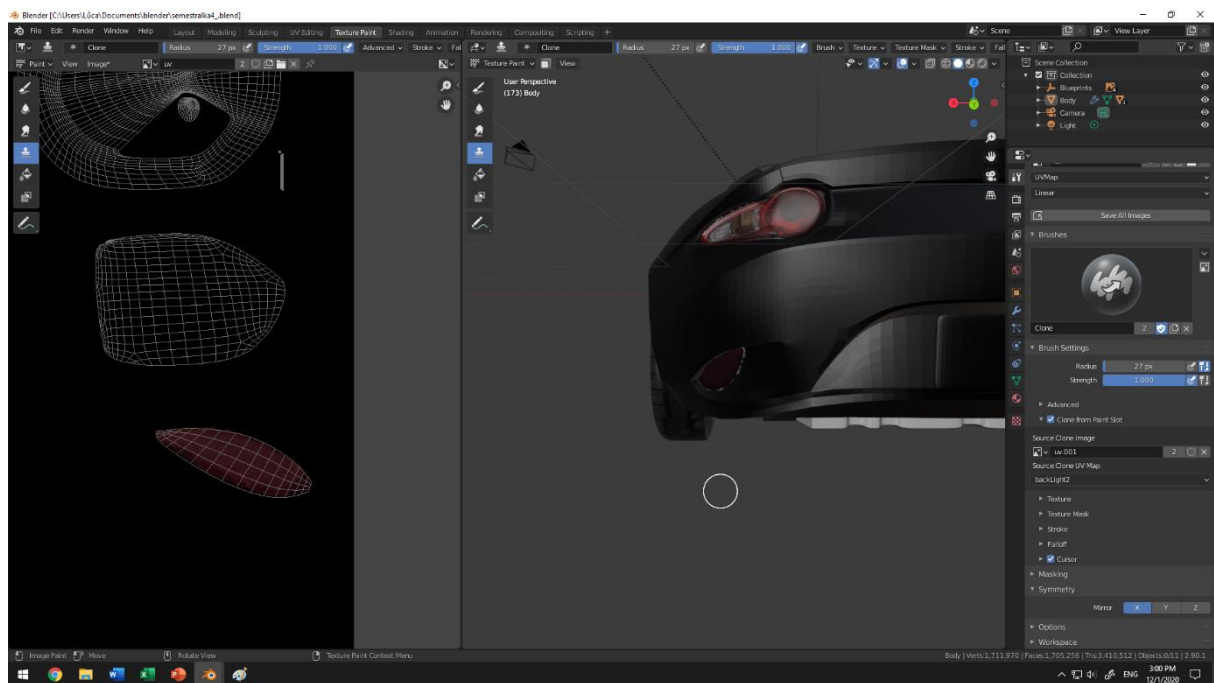


Figure 16 Texture of the back lights



In the same way, I painted the tire texture on the base color texture.



Figure 17 tire texture

I mapped the model using the Unwrap tool, Project from View tool, and if neither of those worked, I used the Smart UV Project tool to the general UV Map.

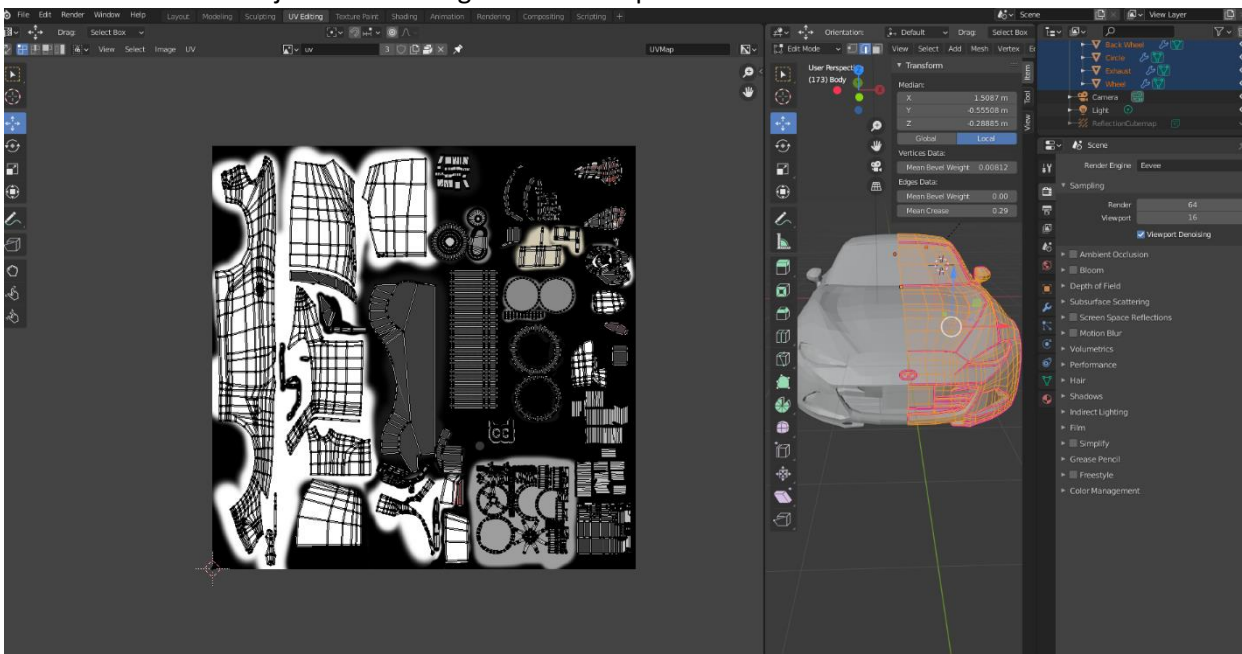


Figure 18 UV Map

I painted all the textures according to the values I set for each material using GIMP and Texture Paint in the Blender. I should've used baking, but I did not know it was possible when I did the textures. I tried to bake it later from some previous saves, but I moved some of the UV map vertices, so it would be too difficult to repair it and do it using the bake function.

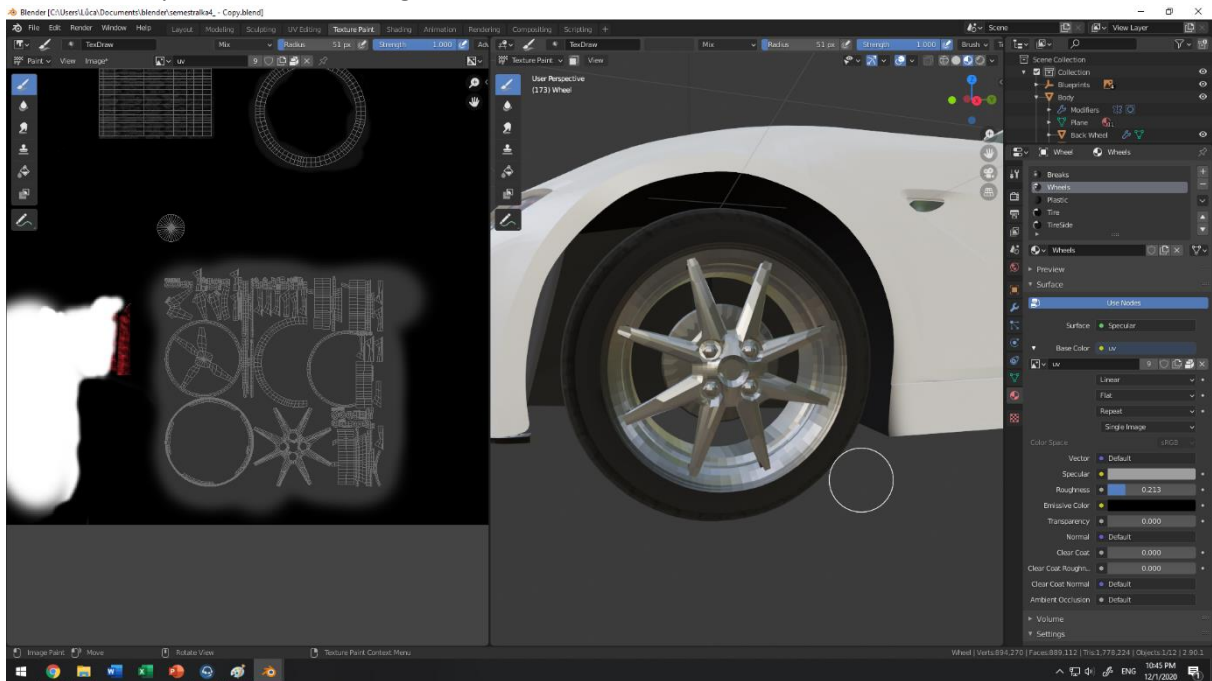


Figure 19 wheel color painted on the base color texture



Figure 20 Roughness texture



Figure 21 Base color texture



Figure 20 Base color texture created using the Bake option

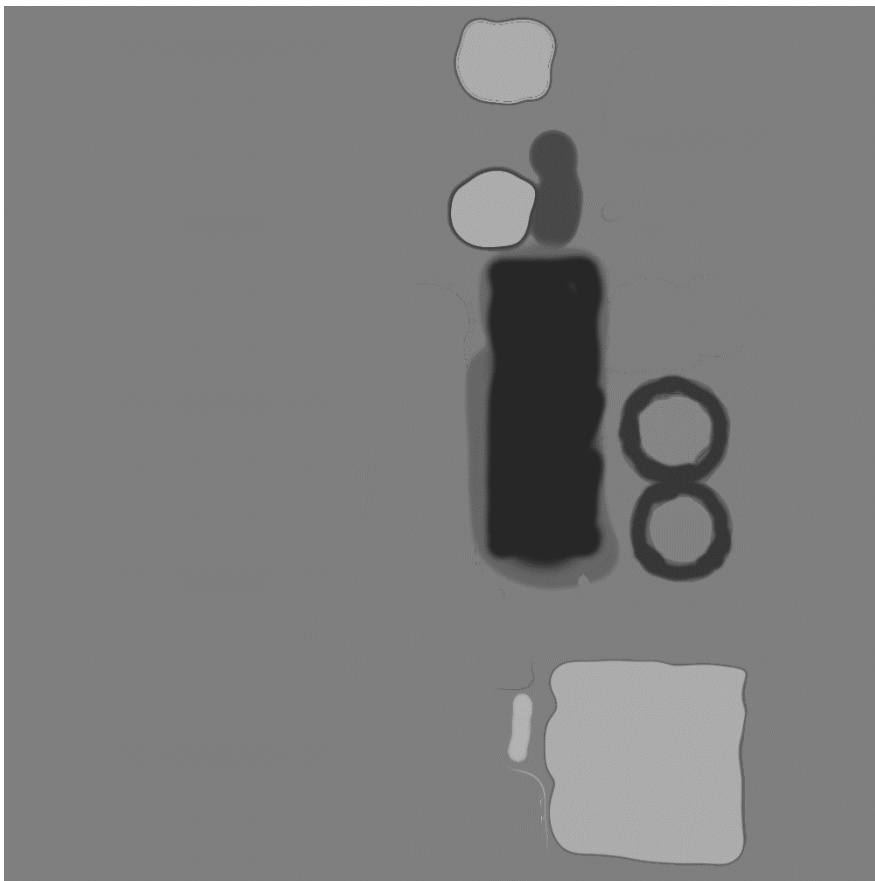


Figure 22 The specular texture



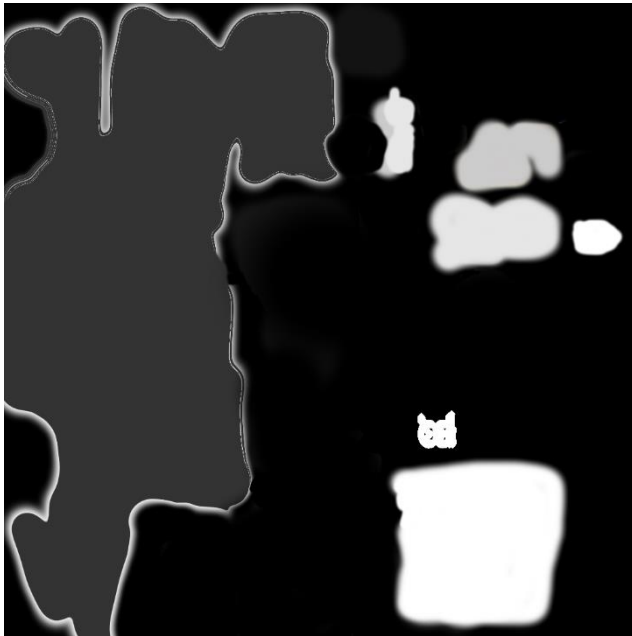


Figure 23 The metallic texture

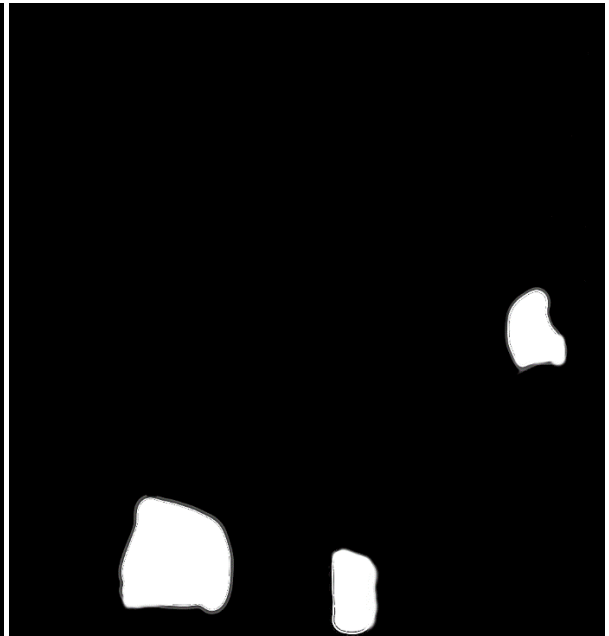


Figure 24 The transmission texture

Using the Texture paint tool on the model, I painted black color around the windows to look slightly more similar to the real version.

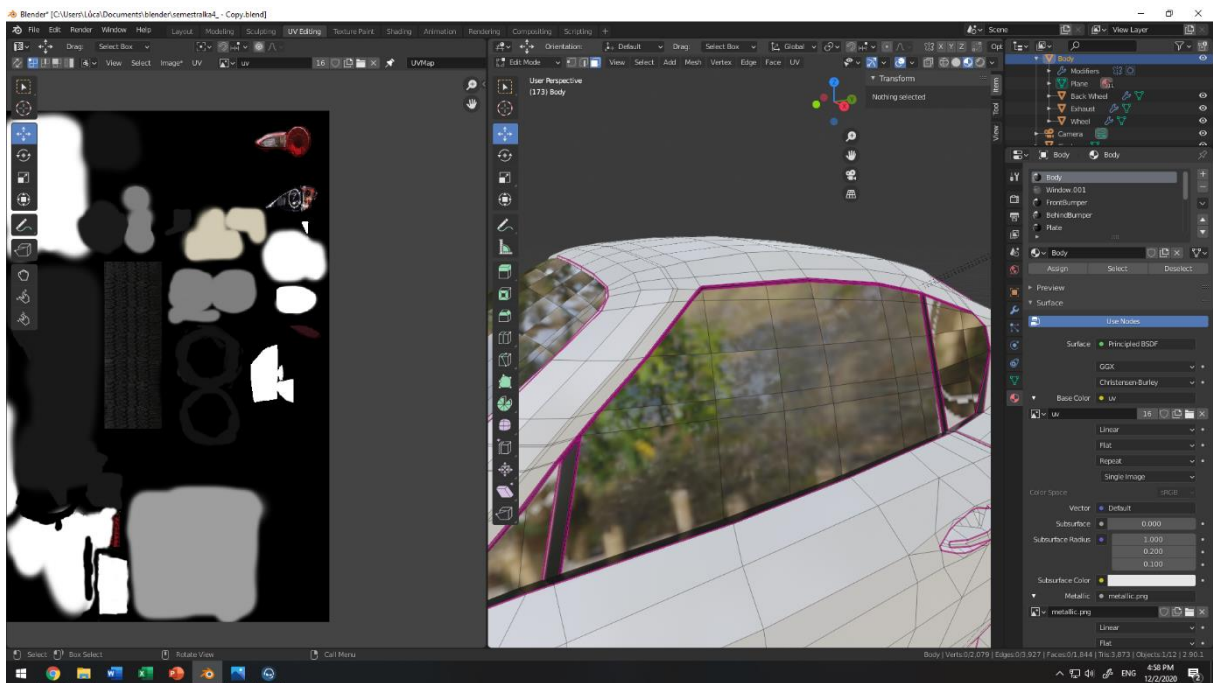


Figure 25 Black paint around the side windows

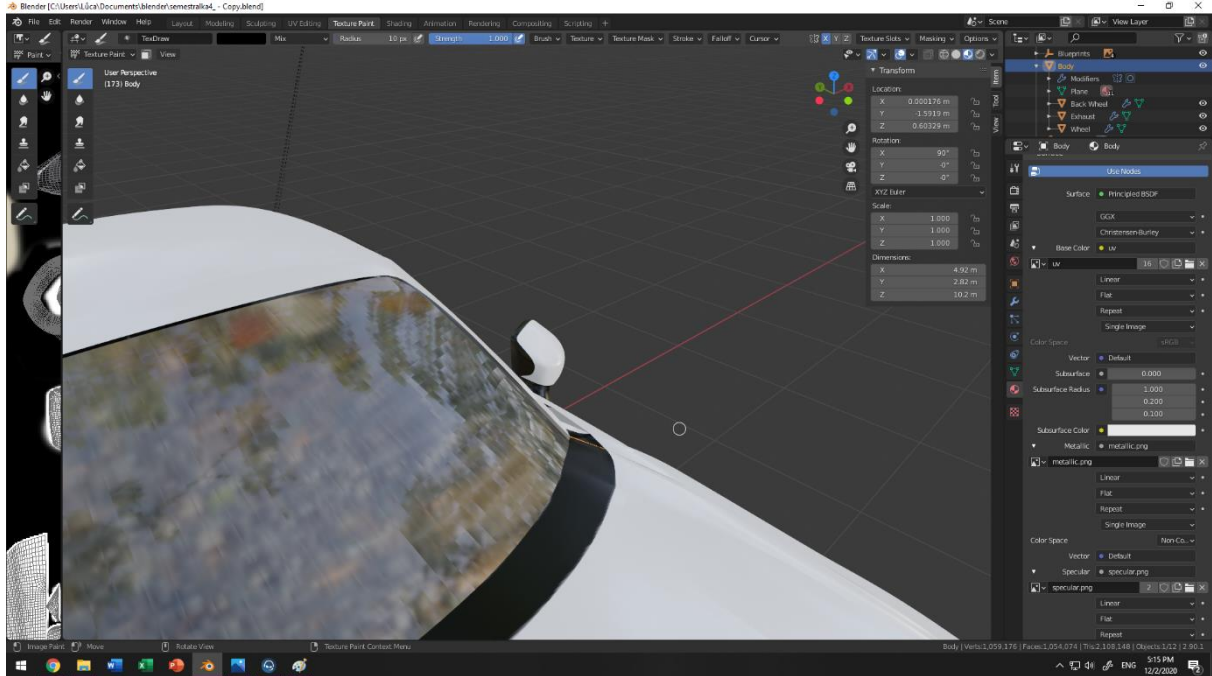


Figure 26 Black paint around the front window and the side mirror

However, I used baking to create the normal texture. I created a high-resolution model with some more details and baked the normal texture.



Figure 27 high res model



Figure 28 Normal texture

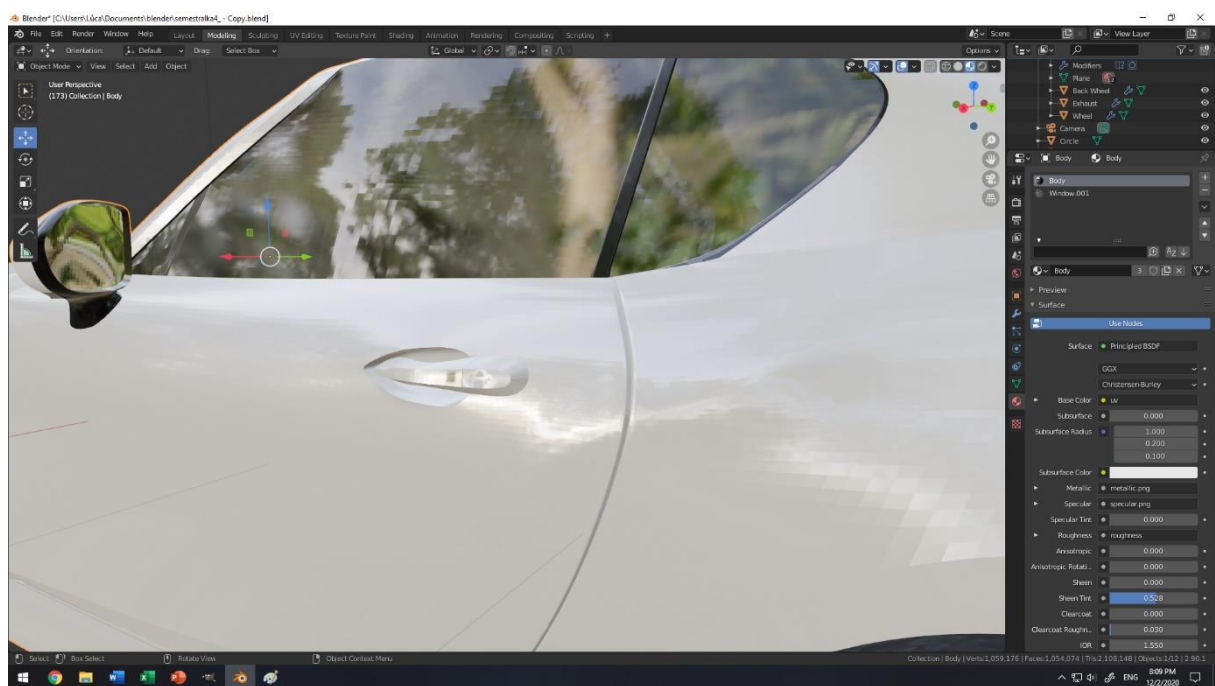


Figure 29 Normal texture applied to the model



Finally, to use the baking option, I created the Mazda logo, created material for it, and used the baking option to bake it to all of the textures.

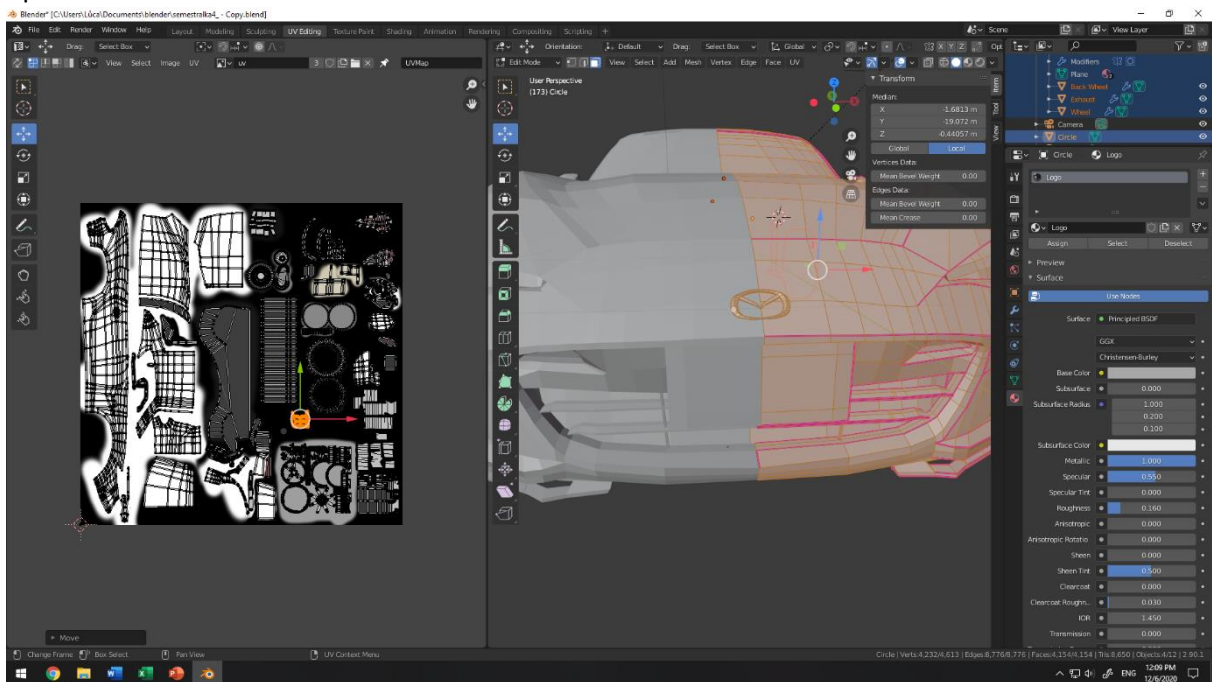


Figure 30 Mazda logo UV coordinates added to the UVMap

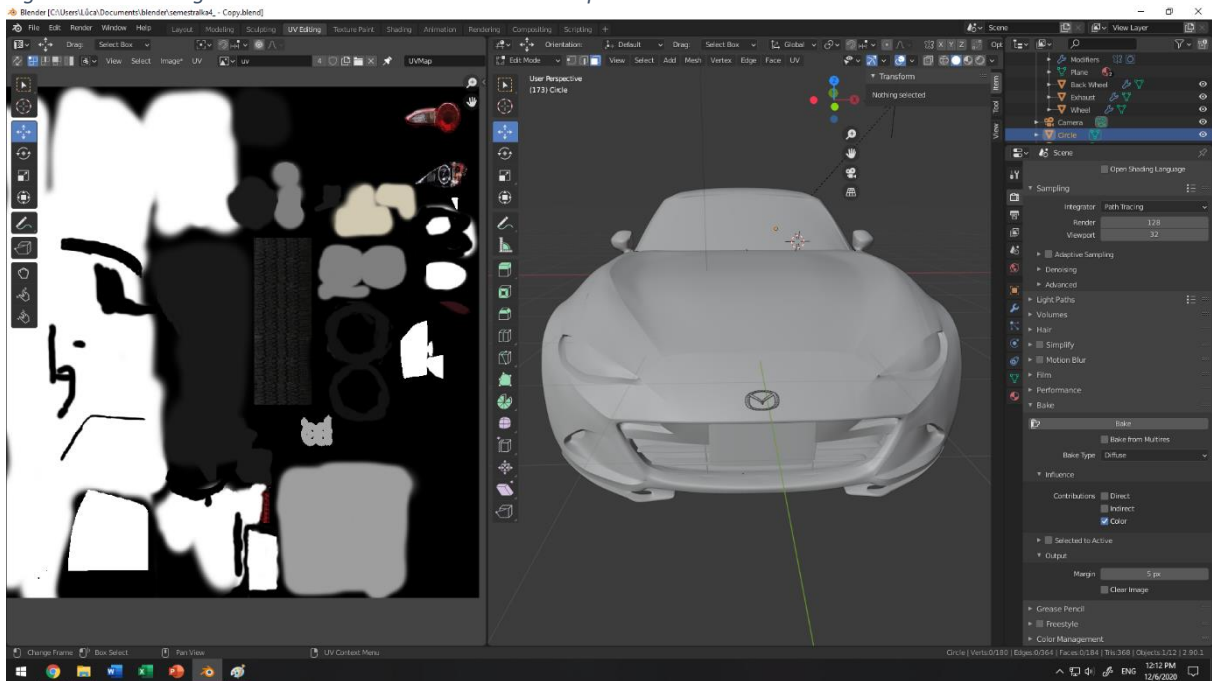


Figure 31 Mazda logo color baked to the base color texture

## The final result











### Spent time

I spent creating textures and materials for approximately 20-30 hours.