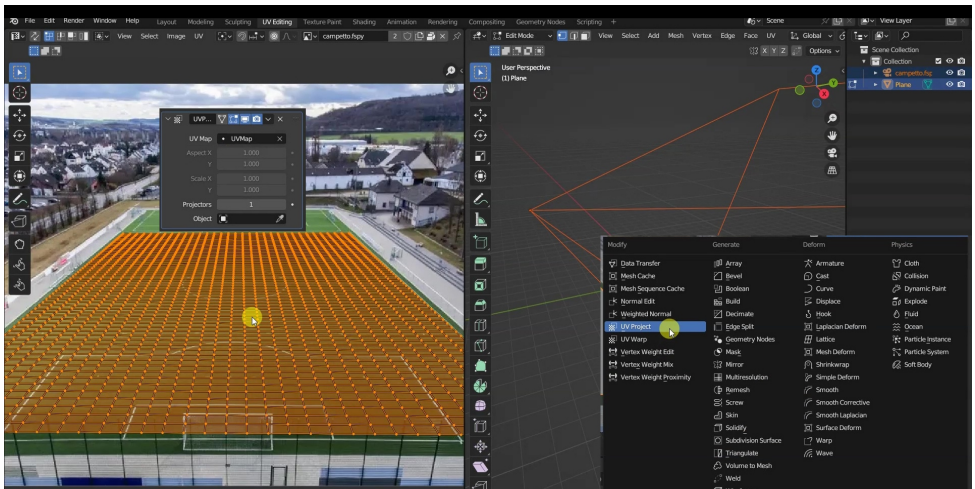


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The **UV Project** modifier allows you to **modify the UV unwrap** of the object that possesses it in reference to another object. More specifically, the modifier **generates the UV map** based on the **negative Z-axis of the external object**, which can be of any type.

Since the negative Z-axis of a virtual camera is the one that extends perpendicularly **from the camera's plane** and is directed towards the framed scene, we can precisely use the **virtual camera as a reference object** for applying UV Project to another object.

This can be particularly useful, for instance, when combined with the **fSpy add-on**, which I previously covered in a tutorial on my channel.

fSpy allows us, among other things, to model objects based on the orientation of a camera from a real-world photo. Therefore, it makes sense to try to **map a portion of the photograph onto geometry** that is precisely modeled based on that photo.

While explaining, I inserted a Plane using the information extracted from fSpy to recreate the soccer field seen in the photo. Subsequently, I added a simple Material to the Plane and used the same photograph from fSpy as an image texture for the base color. However, **it wasn't mapped correctly** since the Plane has its own UV unwrap that doesn't align with the soccer field image in the photo.



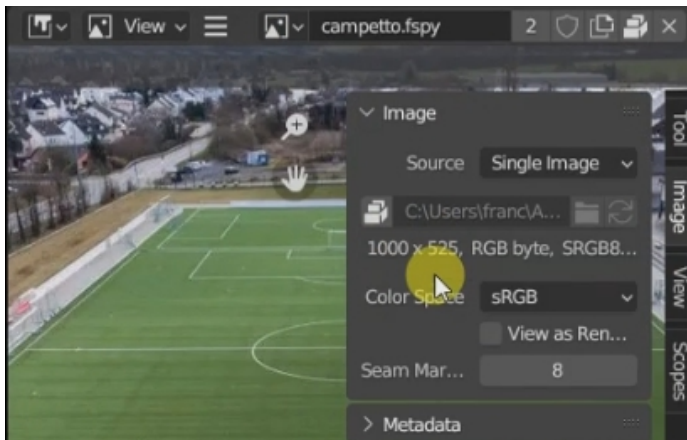
I then add a **UV Project modifier to the Plane**, specifying the **virtual camera** as the Object to use for the projection. In my case, the virtual camera was generated by the fSpy add-on, as explained in the tutorial dedicated to this add-on, so it has a different name than the usual Camera.



The projection is not accurate yet. This is primarily due to two reasons:

- **the Aspect Ratio** of the projection;
- and the **subdivisions** of the object on which the projection is applied.

The original photograph had a **width-to-height ratio** that needs to be reflected in the Aspect X and Y fields of the modifier. We can obtain these values by opening the photograph in an **Image Editor window** and finding the resolution values in the **Image tab of the Properties editor**.



The second operation to perform is to **increase the subdivisions of the Plane**. This can be done either in Edit Mode using the **Loop Cut** or **Subdivide** operators, or in Object Mode with the Subdivision Surface modifier.



In the case of using the **Subdivision Surface modifier**, we need to change the modifier's **mode to Simple** to introduce subdivisions **without smoothing** the shape. Additionally, we should place Subdivision Surface before UV Project in the modifier stack. This way, the subdivisions will be applied before the use of UV Project.

UV Project is a modifier, so after achieving a satisfactory result, we can **apply** it.

This action will make the UV mapping changes **permanent**.

Subsequently, we can freely modify the original geometry without any issues.