Task 1.2 - Thirsty Crow

Read Me

Welcome to Task 1.2 !

In Task 1.1, you have learned to detect ArUco markers using OpenCV Image processing library. In addition to that you also learned how to extract the position and orientation information of ArUco markers and overlay rudimentary shapes on them such as cube and cylinder on them.

However, when we want to draw complex shapes, OpenCV doesn't suffice. For that we would require a more sophisticated and complex graphics library such as OpenGL.

The following task will be helpful to get you familiarized with OpenGL and implement a very rudimentary form of Augmented Reality where you will overlay or project a complex 3D model over an ArUco Marker.

Disclaimer from Theme Developer

Please note that OpenGL has a pretty steep learning curve. A lot of complex terms related to OpenGL may be thrown at you while you attempt this task. A lot of OpenGL functions are not very clear to understand at the first glance. We have tried to explain in as much detail as possible in the task document, however there may be some part which may not be very clear the first time you read it.

Make sure to fully read the task document before you start attempting it. If you have difficulty in understanding any of the terms, the Almighty Google is there to help you. Feel free to ask any questions on Piazza forum if you run into problems. But most of all, don't be shy to do a lot of trial and error.

Resources

The following resources might be helpful to you for learning OpenGL.

1. Augmented Reality Tutorial using OpenCV and OpenGL by RD Milligan
2. OpenGL programming with PyOpenGL, Python and Pygame by sentdex
3. OpenGl - Drawing a Teapot
4. OpenGL-beginner tutorials
5. Understanding Matrices in OpenGL
6. OpenGL Reference
7. Texture Mapping in OpenGL