NTUST course: Computer Vision and Applications (CI5336701, 2023 Spring)

Homework#1：Draw the trajectory of a list of 3D points on an image

Date Due：2023. Mar. 27, PM11:59。 (~2 weeks)

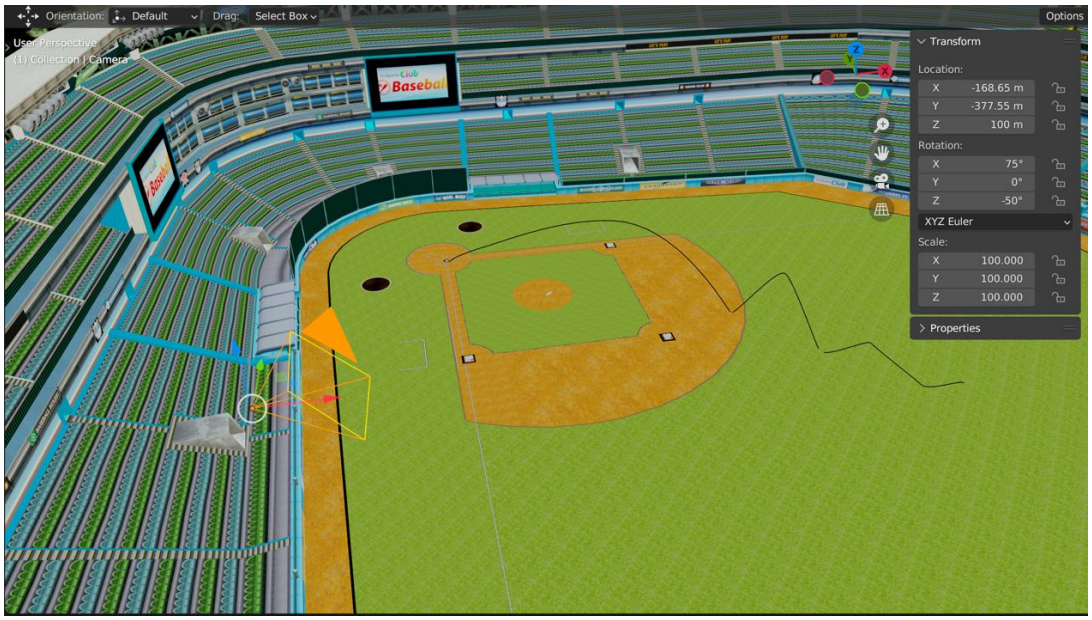
Description：

1. Writing programs for reading images, then drawing projected points on every image. A list of 3D points is given in a text file named Trajectory.xyz. And one image snapshot in virtual environment with known camera parameters (as one corresponding .txt file) is provided. (Please choose one programming language you prefer, ex. C++/C, python, Matlab).
2. Your program should have the following features:
   1) Able to read the given image, and read the text file (Trajectory.xyz)
   2) Do matrix multiplication (ex. **x**=**K**[**R**|**T**]**X**)
   3) Draw projected 2D points (and connect as a line strip) on this image.
   4) Save the image as you_student_id.jpg (ex. M11225301.jpg).

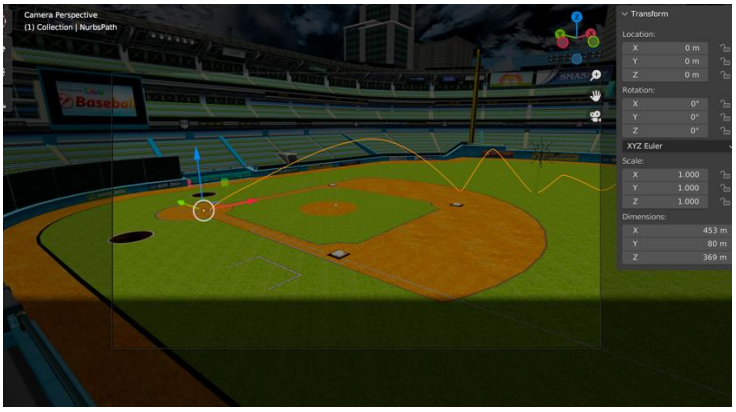
3. There are at least two types of data you should upload to https://moodle2.ntust.edu.tw by date due
   1) Source code in C++/C, Matlab, python, with simple comment.
   2) Execution file (.exe, if appliable).
   3) Result image (correct trajectory on given image)

   No need to write a report.

Hint: Overall layout of cameras and virtual 3D environment. Imagine what photo contents you should have.



Your result should look similar to center region of the following image:



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