NTUST: 2023 Advanced Computer Graphics

Midterm Project: Write a program to read obj/glb and Text (.xyz) files, then do an specific animation (a moving car on a lane) by openGL / webGL

Date Due：2023 Nov. 3rd Fri. PM11:55, and upload to Moodle. (around 2.5 weeks)

Description：

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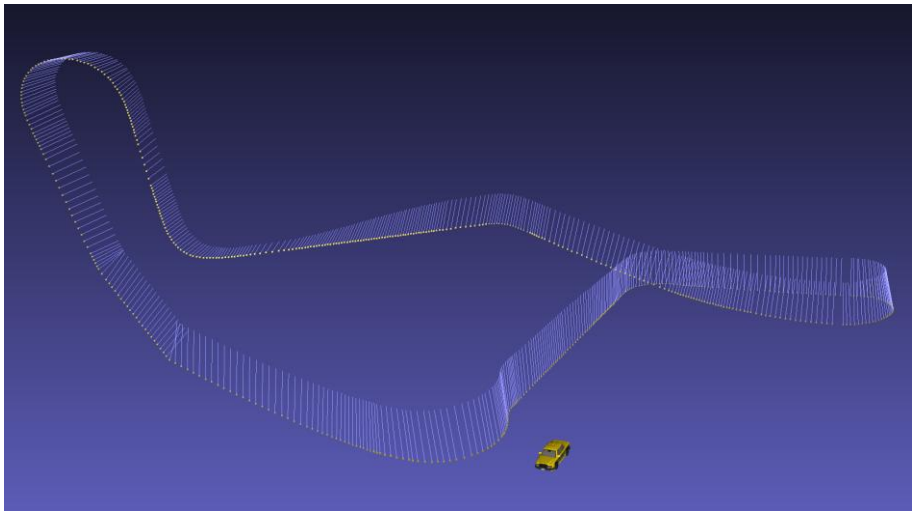
1. Write a program (prefer javascript, other languages C/C++/python are acceptable) to read two 3D files and one Text file. The function of each model is
   Car model: TaxiCar.obj (mtl, png)
   Racing Track: MarioKartStadium.glb
   Centroid Line of route: TrackCenter.xyz (3D point with normals)
2. Draw and animate the "Taxi car" on the either **right** or **left lane** of the racing track. Carefully deal with the transformation matrix for "Car" (scaling and object transformation) to have a correct animation.
3. Deliverable
   (1). Source code in javascript (python or C/C++), and execute file (including all necessary dynamic link files).
   (2). Two-page statement (in English) to describe how you achieve this scenario.
4. Reference grade: Make an animation after importing glb/obj and xyz (50%). The program can perform correct or reasonable animation (50%).

Hint:

- This project will be **25%** of the final grade in this semester. Please accomplish all necessary requirements as possible.
- Please refer to sample codes in lectures.
- Click to see reference result.

MarioKartStadium (note: after importing to blender software, model's up-direction will be reset as Y)

TaxiCar & Route:



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