# Report of Assignment 2: ISDN 5300

Siyan HU, 12217679

This is a design to reconstruct a 3D version of Google Icon, as in Fig.1. There are six letters in total. Two Gs share same generation module. E and L have overlapping functions. Two Os share one generation module.

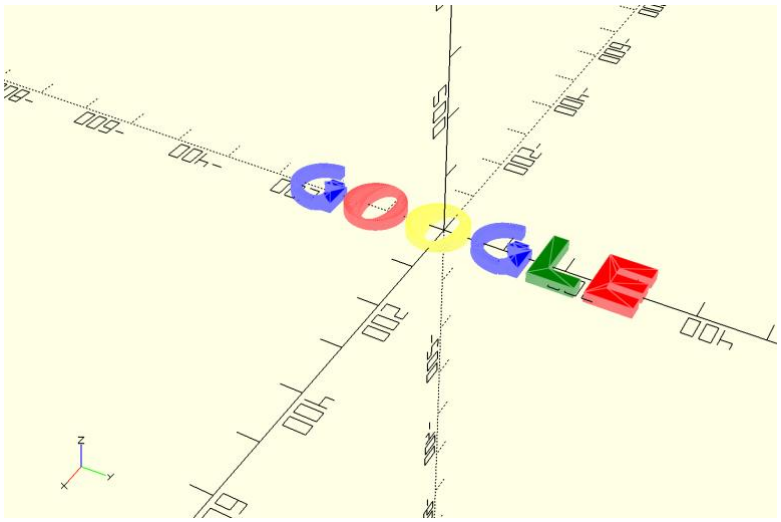

*Fig 1. Google Icon*

The letters are all created initially into a 2D polygon containing multiple polylines (curves) in x-y plane. To start with 2D polygon, it is convenient to generate Bézier curves with fixed planes (x-y plane). And then by using Linear_extrude function, the letters increase in Z direction and become 3D objects.

The model supports different preset parameters, e.g. t_step could be changed to see a smooth/jaggy Bézier curve shape of G letter (Fig 2); Thickness could be changed to update the height of the six letters on Z axis. Curve_width could be used to support the width of each wings of G, L and E. But be careful of changing the curve_width variable, shape could be twisted.

*Fig 2. Curve for Letter G of different steps.*

By default, only content under "*Display - Static Google"* tag will be shown. OpenSCAD MacOS version does not support adding Macro time variable $t. In this case, I just add a simple animation based on time series at the end of the file with comment tag *"Display - Dynamic Google"*. If reviewer has other version of OpenSCAD that support time Macro $t, it will support the running of content under tag *"Display - Dynamic Google".*

The work is finished with amount of reference from a list of OpenSCAD tutorials, manuals, books and social media, including:


[1] OpenScad beginners tutorial: https://edutechwiki.unige.ch/en/OpenScad_beginners_tutorial.

[2] OpenSCAD User Manual: https://en.wikibooks.org/wiki/OpenSCAD_User_Manual.

[3] Justin Gohde, and Marius Kintel. Programming with OpenSCAD. No Starch Press, 2021.

[4] Animating With OpenSCAD: https://www.instructables.com/Animating-with-OpenSCAD.

[5] Reddit group: https://www.reddit.com/r/openscad/.

[6] Twitter: https://twitter.com/openscad.

[7] Github: https://github.com/OskarLinde/scad-utils.

[8] Github: https://github.com/chrisspen/gears.