3D projections in Excel

This example includes an Ms. Excel file, that performs all the computation and the operations necessary to show the starships from the 1982's game "Elite" in a spreadsheet. The purpose of this worksheet, is to show that by using the appropriate math and theory seen up to this point, 3D Graphics can be obtained even in completely different environments.

Sheet "Main", contains the example given during lesson *"L08 – Projections Wrap Up"*.
Sheet "Anim", allows to select a different starship from the "Elite" game (1982), and performing simple animations using the "Start" and "Stop" buttons in cells Y1 and AB1.
In both examples, the positions and orientations of the camera can be modified with the corresponding buttons in the upper right part of the screen, or by entering the values in the corresponding fields. For the scamera, it is also possible to change the FoV, while for the enemy ships it is possible also to perform non-uniform scaling.

The spreadsheet uses the OpenGL conventions (that is, y-axis in normalized screen coordinates pointing up, and z-axis normalized between -1 and +1): since however everything is handled in Excel (even conversion to pixel coordinates), this has no effect as long as everything is consistent.

The file relies on Excel's macros for supporting animation and user controls, which must be enabled: when the worksheet loads up, please allow to enable macros as soon as the application stops and asks you to confirm.