# **SPG-Project**

Based on my EZG-project.

# Controls

|  |  |
| --- | --- |
| W | Move forward |
| A | Move left |
| S | Move backward |
| D | Move right |
| Mouse X | Control camera yaw |
| Mouse Y | Control camera pitch |
| Q | Rotate camera roll anticlockwise |
| E | Rotate camera roll clockwise |
| F1 | Reset camera roll |
| F2 | Toggle wireframe |
| F4 | Toggle free-cam/cinematic-mode |
| Comma | Reduce speed |
| Period | Enhance speed |
| Strg comma | Reduce sample count (antialiasing) |
| Strg period | Enhance sample count (antialiasing) |
| Alt comma | Steps- - |
| Alt period | Steps++ |
| Alt strg comma | Finesteps- - |
| Alt strg period | Finesteps++ |
| Shift comma | Particle Update-rate-- |
| Shift period | Particle Update-rate++ |
| Esc | Quit game |

# Important program segments

almost everything of interest is found in the Chunk-class or the ParticleSpawn-class, a little bit in the main-loop and setSamples-method. Additionally, there are 13 shader files of interest:

generateChunk\_CS.glsl : generating the density volume.

Chunk\_VS.glsl   
Chunk\_GS.glsl : rendering pipeline, containing the marching cubes algorithm.  
Chunk\_FS.glsl

Chunk\_FS.glsl : displacement mapping.

ChunkRay\_CS.glsl : parallel computation of Ray-relevant voxels.

Particle\_VS.glsl   
Particle\_GS.glsl : rendering pipeline, containing particle stuff.  
Particle\_FS.glsl

Blur\_CS.glsl : blur Depth-Map.

ShadowMap\_FS.glsl : Render Shadows.

SSAO\_VS.glsl   
SSAO\_FS.glsl : create SSAO texture, blur, render original + SSAO.  
SSAOBlur\_FS.glsl  
SSAORender\_FS.glsl