

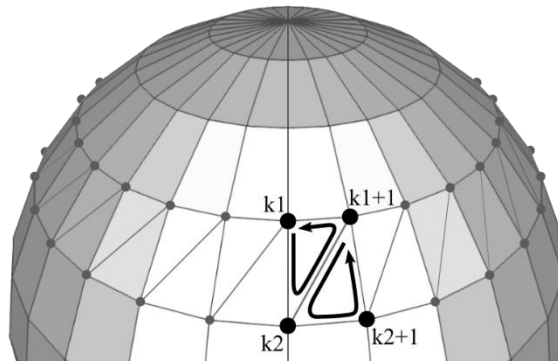
A2. Planet in space

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-How to struct sphere

1. Position - $P(x, y, z) = (r \sin \theta \cos \phi, r \sin \theta \sin \phi, r \cos \theta)$
2. Norm - $N(x, y, z) = (\sin \theta \cos \phi, \sin \theta \sin \phi, \cos \theta)$
3. Texture Coordinates - $T(x, y) = (\phi/2\pi, 1 - \theta/\pi)$

Vertex is composed of these three things. And triangle is composed of three vertices.



From the top, because theta is divided by 36, there will be 36 circles. First put all the vertices in to vector<vertex> which will be 72 vertices in every circle and next by order of counter clock wise, make index buffer by order of k1, k2, k1+1 and k1+1, k2, k2+1. When index buffer is composed by that order in every adjacent circles, all triangles are made. The radius and center of sphere are 1 and (0,0,0).

-Window Size

By ratio of 16/9. The aspect matrix is changed.

-Color

Vec4(tc.xy,1) which is color of texture coordinates is the initialized color. By press d button, the color changes in order of Vec4(tc.xy,1) -> Vec4(tc.xxx,1) -> Vec4(tc.yyy,1) -> and repeat.

-Rotation

By press r button, it rotates and stops. Whenever press r button, the Boolean component changes, and the rotation angle is updated by adding amount of some value.