Breaking a Mesh into Submeshes

Using a mesh data structure that stores connectivity information (e.g. half edge data structure), a mesh can be broken up into submeshes as follows:
1. Pick a vertex in the mesh and add the edges stemming from it to a stack. Mark the edges as seen.
2. Pop the top edge off the stack, pick the second vertex of the edge and add the edges stemming from that vertex that have not yet been seen to the stack. Mark the added edges as seen.
3. Repeat 2. till no more edges are left in the stack. On termination, the edges (and vertices, faces) marked as seen form a sub mesh. Remove them from the main mesh.
4. Repeat 1., 2. and 3.
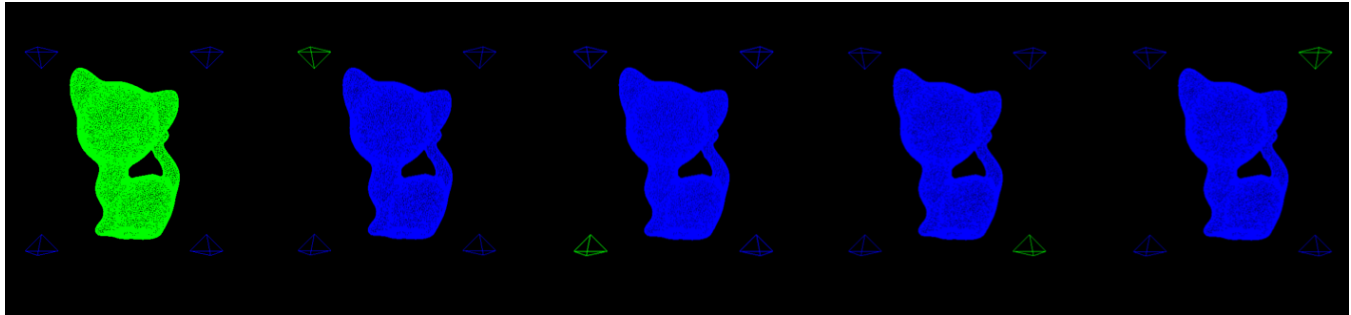
The kitten and the four pyramids in the above figure are read in as a single mesh. The algorithm breaks the mesh into sub-meshes. The green highlight represents a currently selected submesh.

Implementation: https://github.com/rohan-sawhney/submesh