Project: FaceR – Marker

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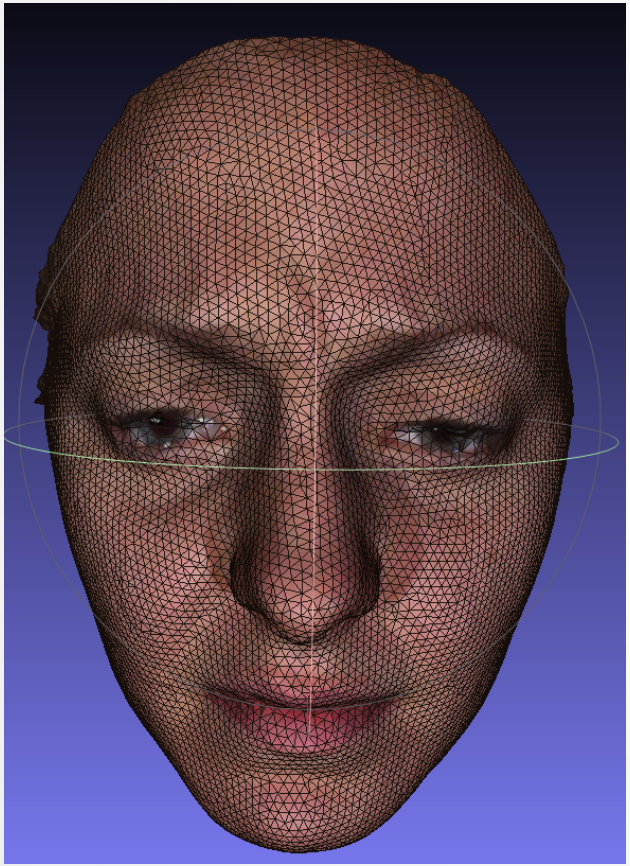
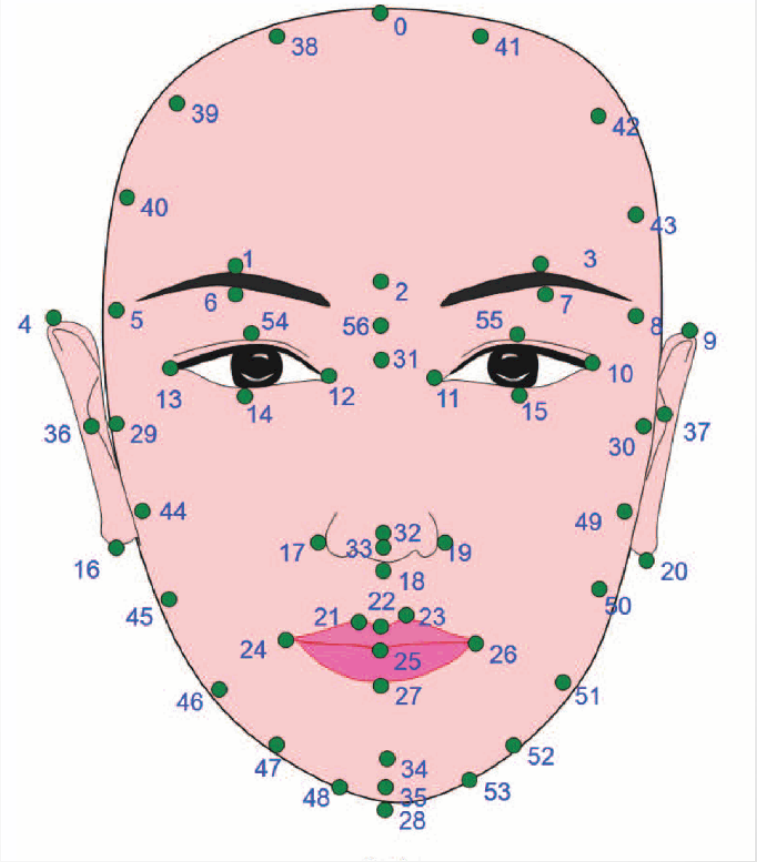
Project Overview

- Label feature points, curves, loops on human face (triangular mesh)
  - Feature Points:
    - Eyeballs
    - Near and far corners of eyes
    - Midpoint of nostrils
    - Mouth corners, and others
  - Curves:
    - Eyebrows
    - Eye & Mouth borders (upper & lower)
  - Loops: Label with given vertices

Feature Points





Project Overview

- Save the feature markers to a separate file
- Integrate this feature to GeomSE
- Use WebGL to implement the above

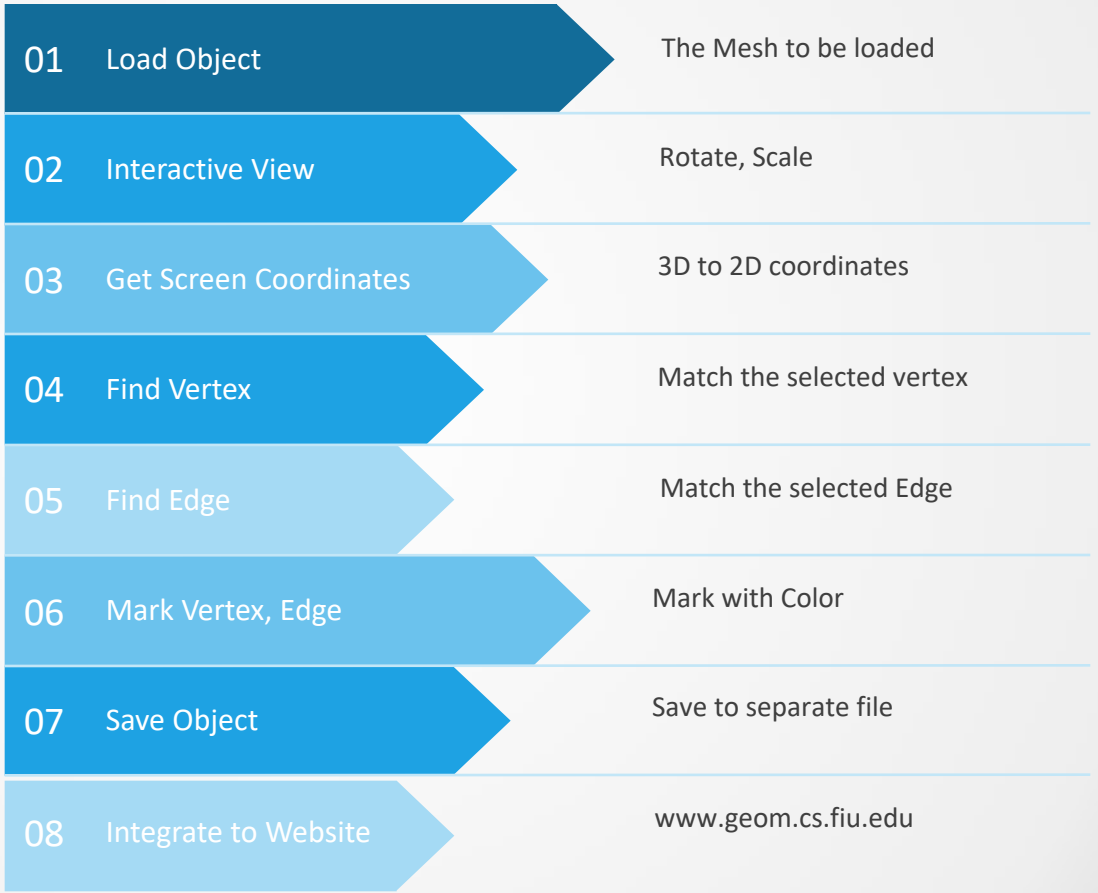
Goals

- To provide interactive features on meshes
- To learn triangular mesh data structure

Solution Modules

Modules

These 8 modules complete the project requirements



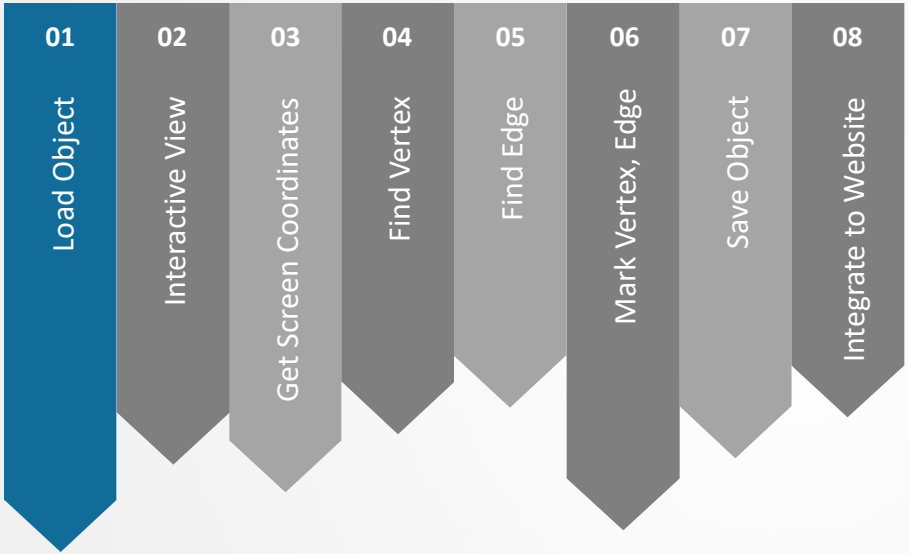
Solution Modules

Modules

These 8 modules complete the project requirements

01	Load Object	The Mesh to be loaded
02	Interactive View	Rotate, Scale
03	Add sphere for each vertex Add cylinder for each edges	Replacing the vertices and edges
04	Find Vertex/Sphere	Match the selected vertex
05	Find Edge/ Cylinder	Match the selected Edge
06	Mark Vertex, Edge	Mark with Color
07	Save Object	Save to separate file
08	Integrate to Website	www.geom.cs.fiu.edu

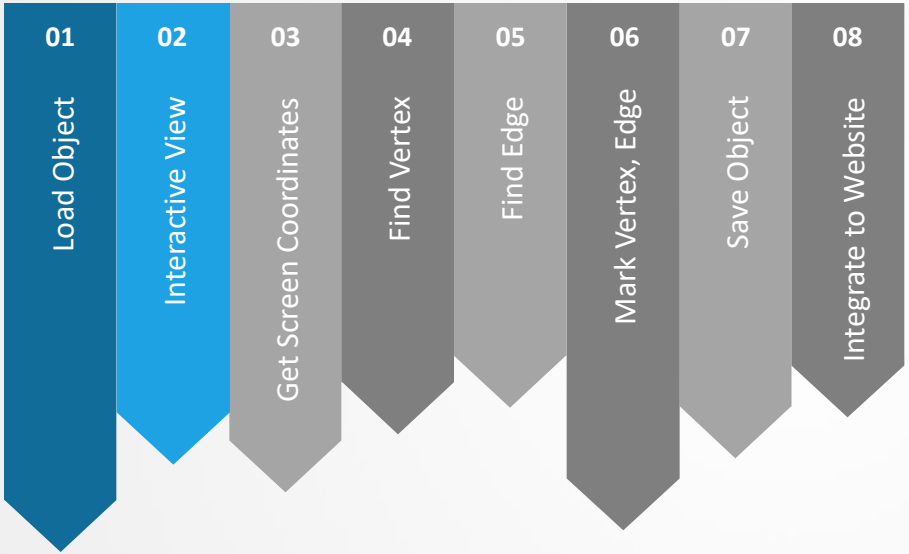
Module: 01



Load Object

The Obj File gets loaded here. User can either upload his own object file or select an object from the website.

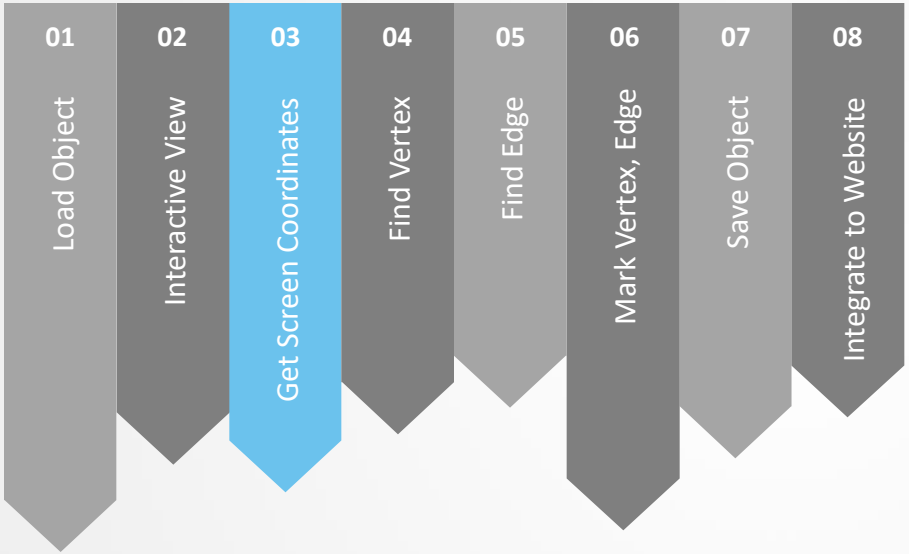
Module: 02



Interactive View

Rotate and Scale the object with mouse movement

Module: 03



Add sphere for each vertex
Add cylinder for each edges

For each vertex create a sphere
Translate the sphere to the vertex coordinate
For each edge, create a cylinder
Replace the edge with the cylinder

Module: 04

Find Vertex

Match the selected sphere using raycaster

Module: 05

Find Edge

Match the selected sphere using raycaster

Module: 06

Mark Vertex, Edge

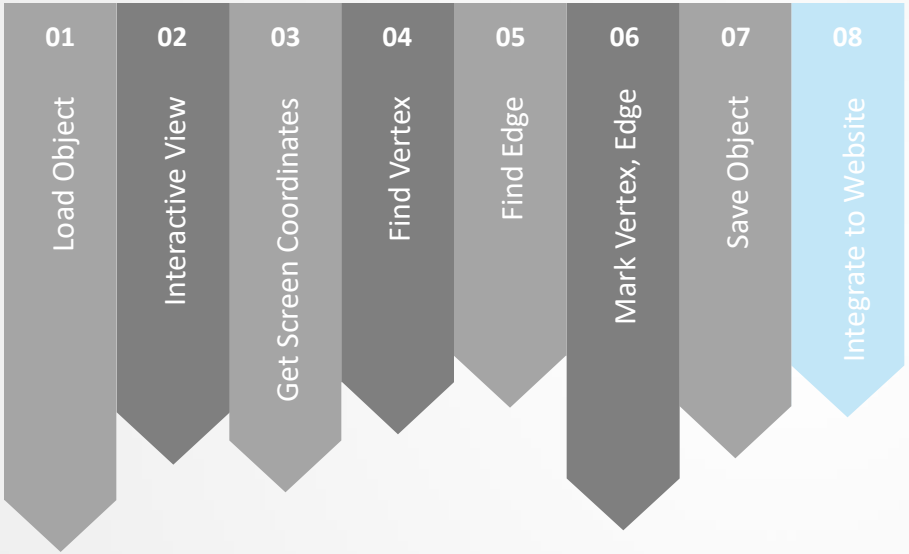
Mark the matched vertex and edge with a random color

Module: 07

Save Object

Save the modified object.
.obj and .m file.

Module: 08



Integrate to Website

Finally, Integrate the work to the geom website.

Tools

- WebGL
- Libraries: Three.js