

User Manual For Cloudy Mesh

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Home Screen

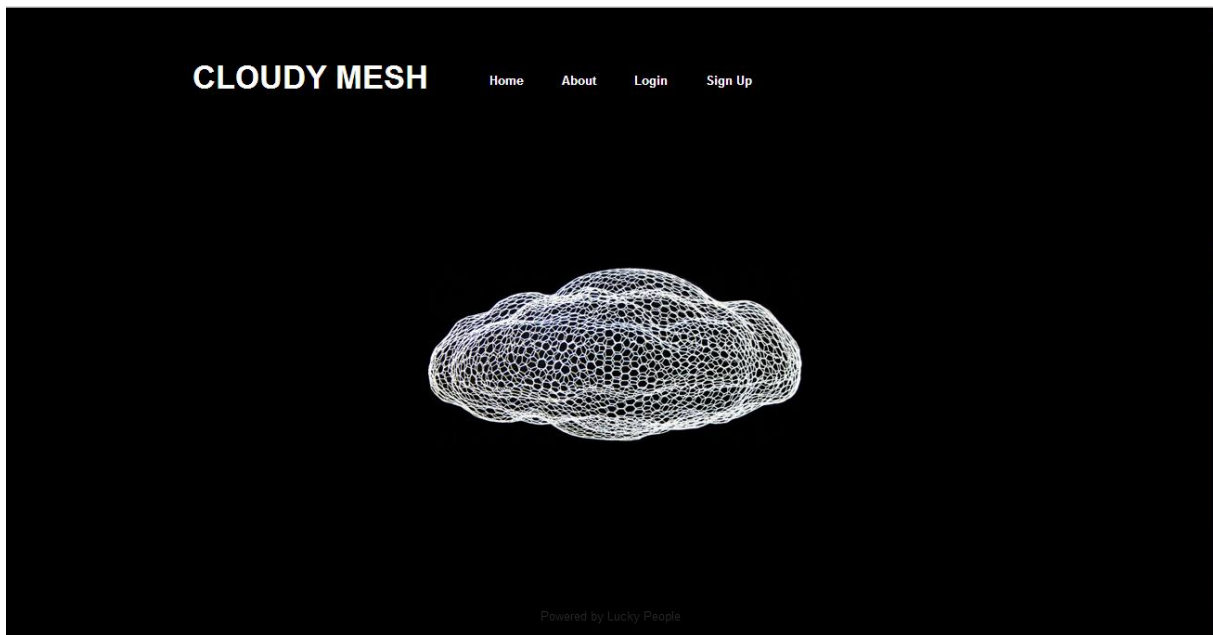


Figure 1: Home Screen

When user first enter the website of the project, s/he will see the home screen. In the home screen there are 4 tabs, Home, About, Login, Sign Up. User can create an account at Sign Up screen, or login to the project by using Login tab.

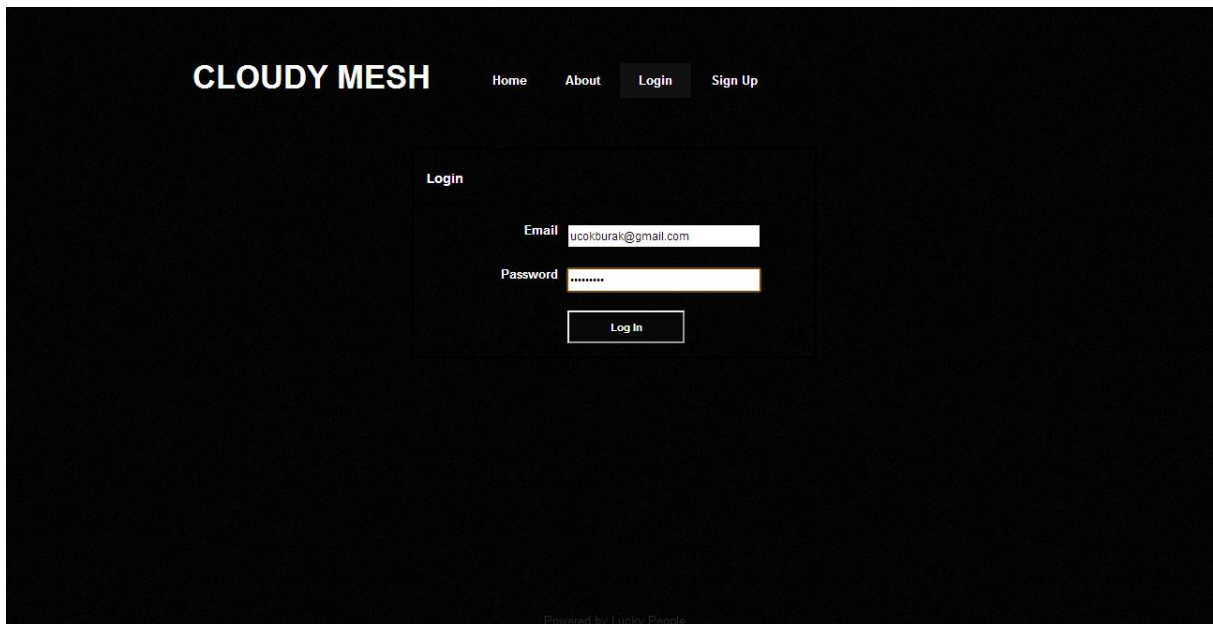
Sign Up

The image shows the sign-up screen of the 'CLOUDY MESH' website. At the top left, the text 'CLOUDY MESH' is displayed in a bold, white, sans-serif font. To its right, there are four navigation links: 'Home', 'About', 'Login', and 'Sign Up', all in a smaller white font. The 'Sign Up' link is highlighted with a white background. Below the navigation links, the text 'Sign Up' is displayed in a smaller white font. The background is a solid black. In the center of the screen, there are four input fields: 'Name' with the value 'Burak', 'Surname' with the value 'Uçok', 'Email' with the value 'ucokburak@gmail.com', and 'Password' with a series of dots. Below the input fields is a 'Sign Up' button.

Figure 2: Sign Up Screen

To use cloudy mesh, account is needed. To signup, user should click signup link on top of homepage. In signup page all fields must be filled by the user. After all the information is given, user clicks on submit button.

Login



CLOUDY MESH Home About Login Sign Up

Login

Email

Password

Powered by Lush, People

Figure 3: Login Screen

After signup user must login to system. To login user should click login link on top of homepage. In login page all fields must be filled by user. After filling fields user should click on submit button.

Logout

After signing up, user can log out by just clicking the logout button. However, if “Save Mesh” button is not clicked before logout, the modifications will not be saved.

Upload New File to Project (EDF Format)

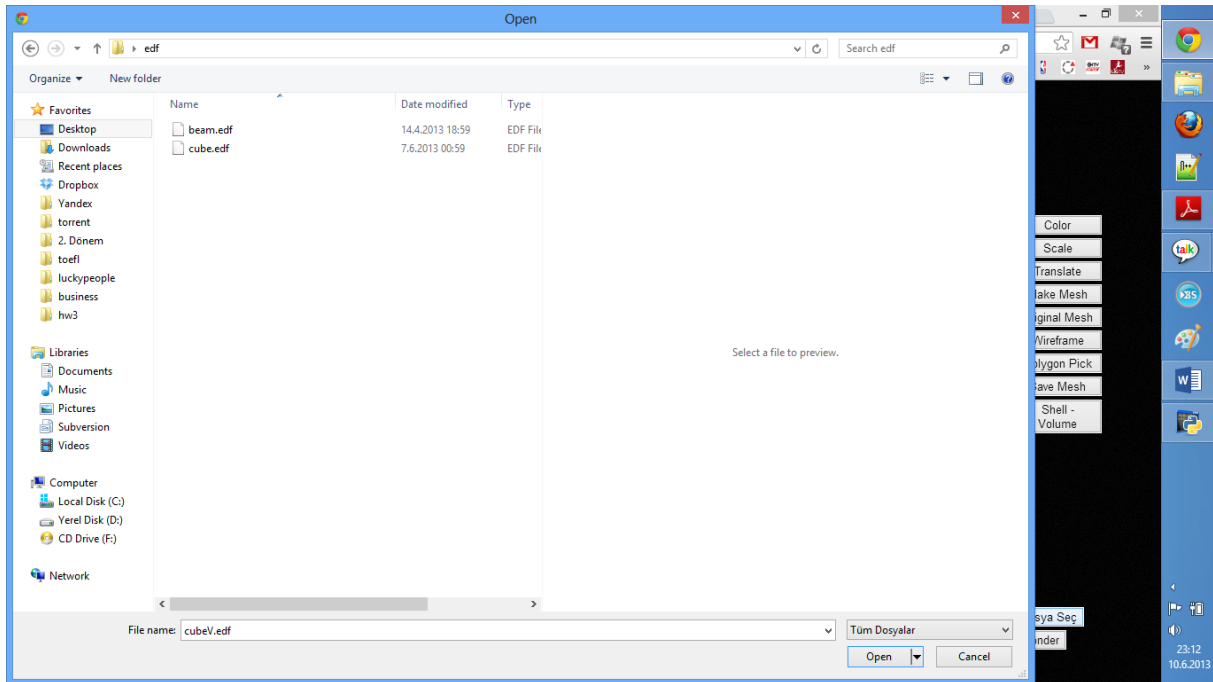


Figure 4: Upload File

While working on project, user may want to add an object by uploading edf file. Before uploading an object user should be registered in a company, department and should have a project. These can be handled in “panel” part of the webpage. To upload file user should click on select file button right bottom of page. After uploading file user can working on the object.

Choose Mesh Object from Loaded Objects List

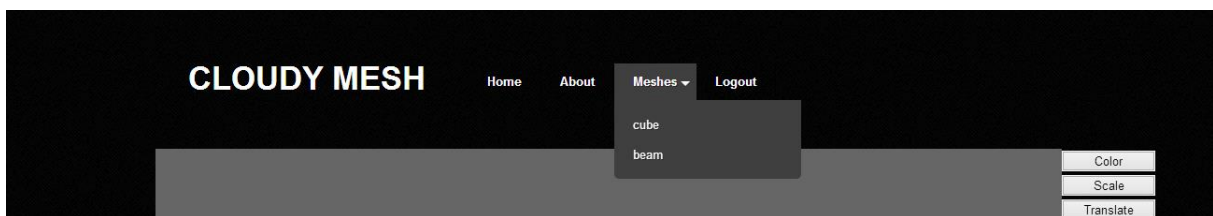


Figure 5: Choose Mesh from List

While working on project user may work with multiple meshes, To choose working mesh, user may use meshes tab on top of page.

Surface Mesh

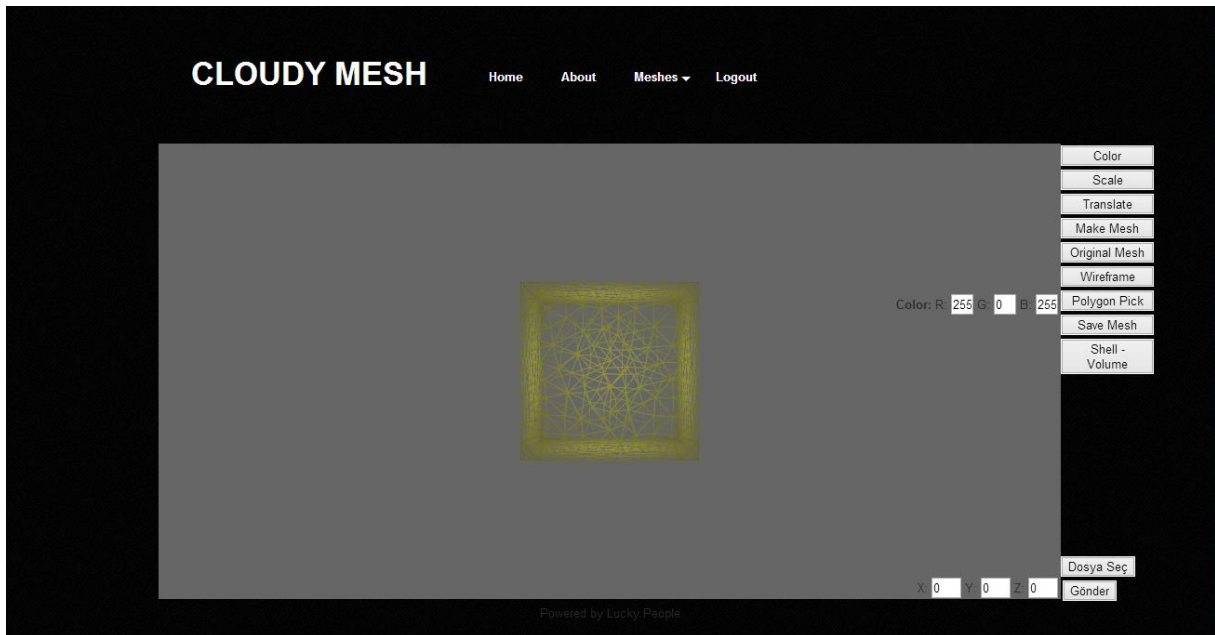


Figure 6: Surface Mesh

Cloudy Mesh shows the surface mesh of the object that is given by the user (with .edf format). This project's aim is to create a CAE system on cloud. Therefore, the surface mesh of the object is loaded. After the user makes changes to the object and clicks the "Make Mesh" button, a volume mesh is created by Tetgen.

Volume Mesh

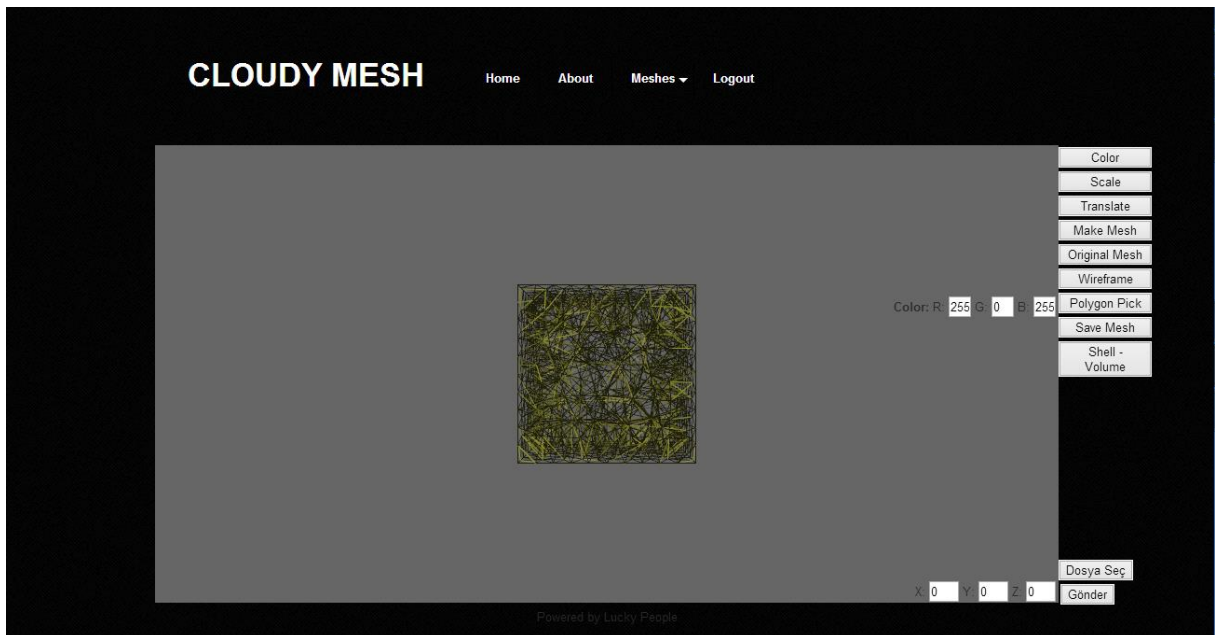


Figure 7: Volume Mesh

Volume mesh is the interior part of the mesh object. It can be visualized with 3D polygons like tetrahedral. It is computed by Tetgen in the cloud side. The output of Tetgen can be seen in the picture above.

Picking

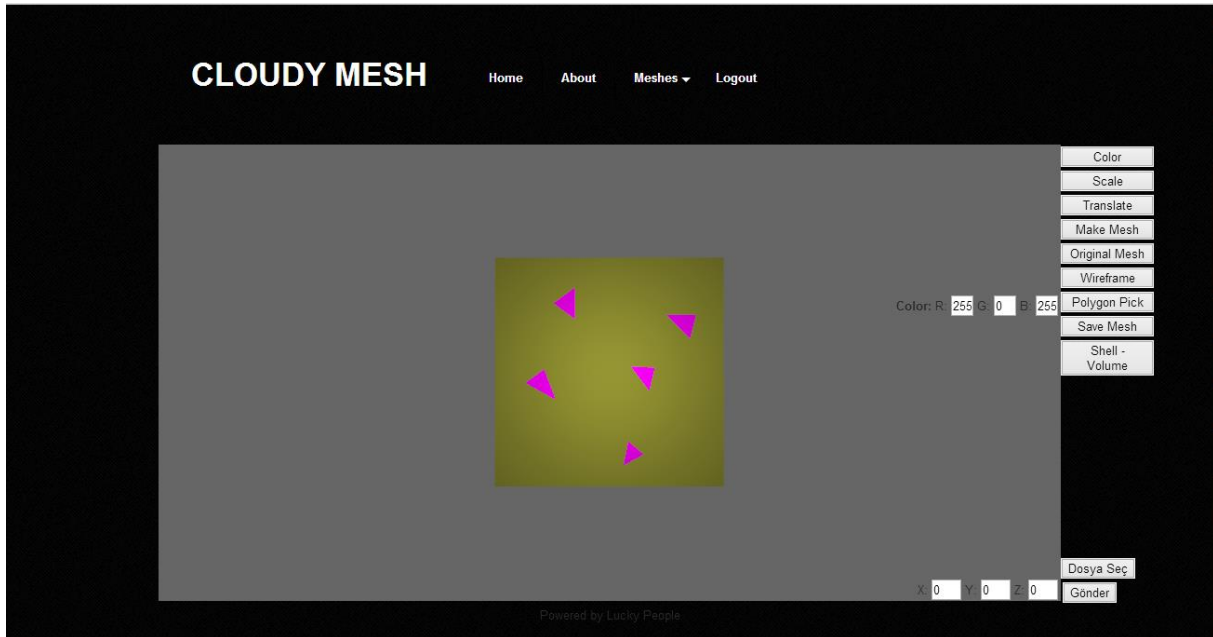


Figure 8: Triangle Picking

User can pick any triangle in the scene by just clicking with mouse. To do this, first user should enable picking by click “Polygon Pick” button. After user clicked the button, there will be a input box next to the button. In the input box, user can change the color of the picked triangles. First input box is for red, second is for green and third one is for blue hue.

Rotate

User can rotate the object on the screen in three dimension with mouse. To do this user should choose “rotate” from the switching rotate-translate button. Then clicking on the object and dragging the mouse will rotate the object.

Translate

User can translate the object on the screen in three dimension with mouse. To do this user should choose “translate” from the switching rotate-translate button. Then clicking

on the object and dragging the mouse will translate the object to the position of the mouse.

Moving the camera

User can move the camera with the arrow and “wasd” keys. Camera can move freely to forward, backward and sides in 3D space.

Rotating the camera

User can change the view direction of the camera by just clicking the right mouse button and dragging it. Dragging the mouse to right rotates the camera to right, and the same applies for other directions.

Scale

User can scale the size of the object on the screen. After clicking scale button rate of current object size to original object size appears for 3 dimensions. Then user can edit each dimension to modify the size of the object. When user writes (x:2, y:2, z:2) size of the object gets doubled.

Changing Color of the Object

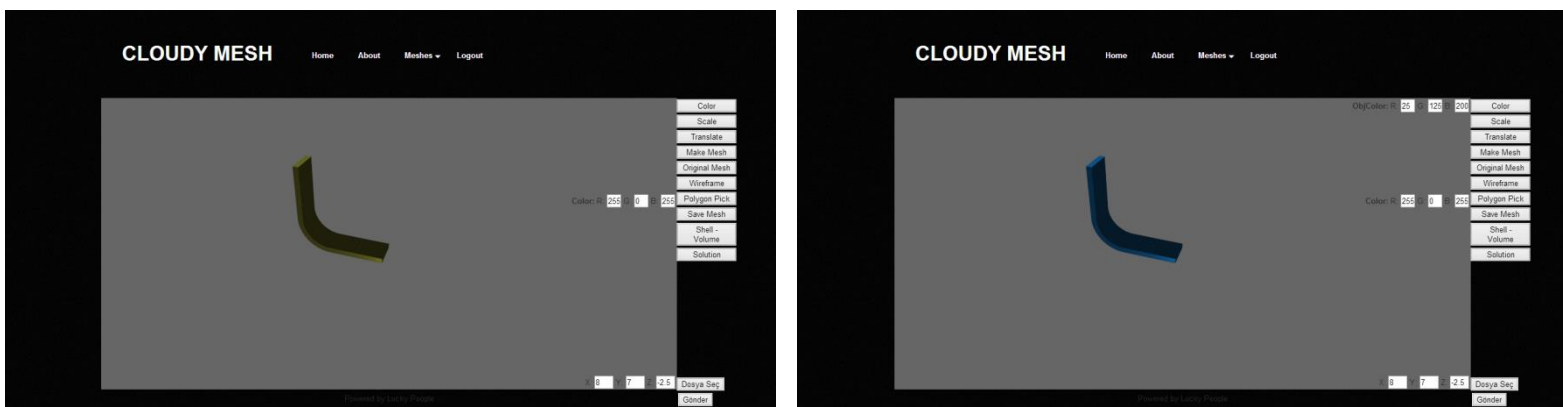


Figure 9: Changing Color of the Object

User can change the color of the whole object. To do this user should click the color button. After clicking that button 3 input boxes will appear for each of the r-g-b color values and user should enter values between 0-255 inside the boxes. Then clicking the

color button again, will close the boxes and change the color of the object. This can be seen from the picture below. However, color of the picked polygons will not change since they are now considered as a part of different group of polygons.

Original Mesh

When user wants to discard the last modifications, s/he can do it by just clicking the “original mesh” button. This action will turn the object back to its original size, place and color. Also, all the picked polygons will disappear.

Wireframe - Normal Display

User can choose how to display the object, in normal mode or in wireframe. In normal mode, the object will look like a solid object. In wireframe mode, the object will be displayed with lines which will help the user to see the polygons easily. To change display mode, user should click the “wireframe” button.

Save Mesh

User can save the current object to continue editing later. To do this, user just needs to click on the “Save Mesh” button. Then the object file will be updated with the latest condition of the object.

Admin Panel

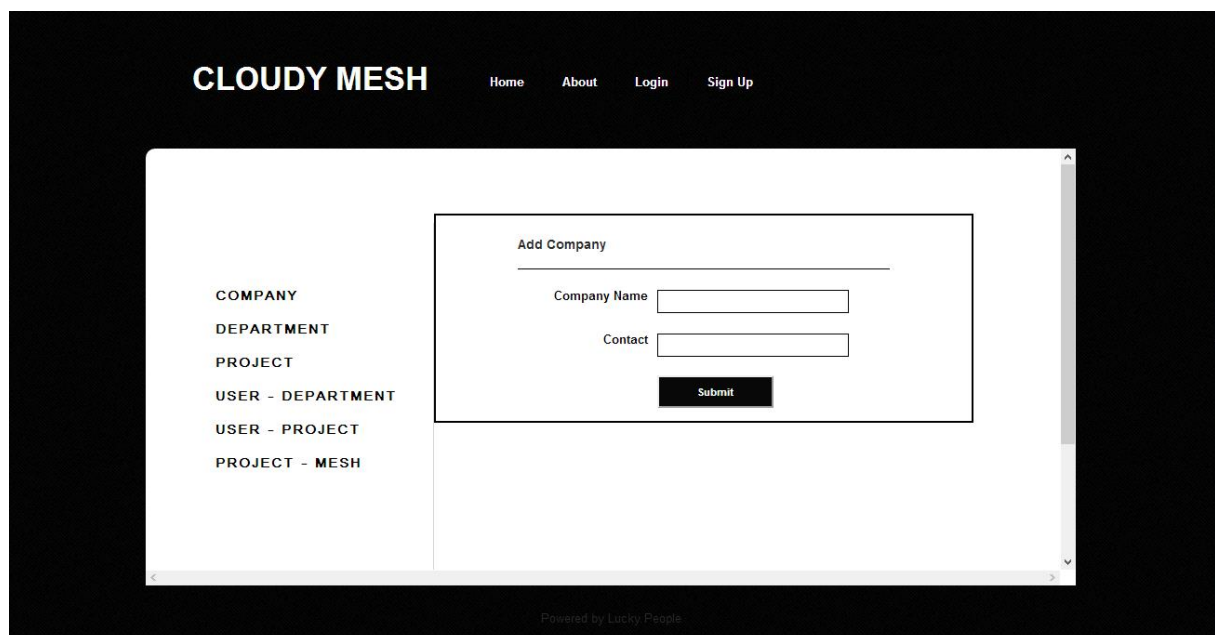


Figure 10: Admin Panel

On admin panel user can add company and its contact information to the database by filling required fields and submitting on company link on left menu.

After adding company, user can add department to the company by filling required fields and submitting on department link on left menu.

To work on a project, first user must be added to the department by filling required fields and submitting on user department link on left menu then must be assigned to the project by filling required fields and submitting on user project link on left menu. Note that, projects department and users department must match.

To work on a mesh, mesh must be assigned to the project. To do this, first user should add project to the system by filling required fields and submitting on project link on left menu, then mesh can be assigned to the project by filling required fields and submitting on project mesh link on left menu.