08.04.18

gluLookAt(—, —, —, —, —, —, —, —, —)

Up direction of camera (vector)

Fully controllable camera:
6 Moves (Front, Back, Left, Right, Up, Down)
6 Rotations

4 global variables:

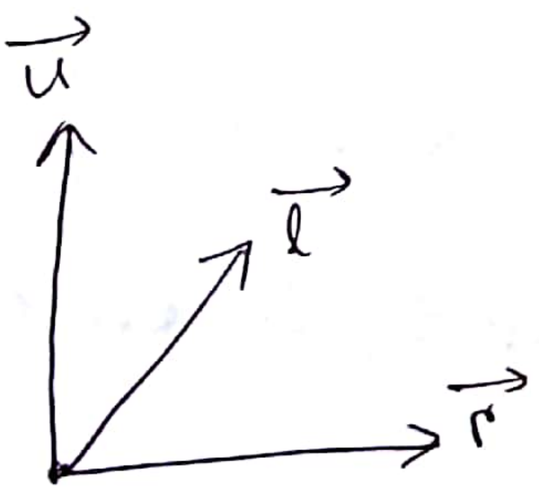
~~pos~~ pos (camera position) → 3d point } 4 variables

$\vec{l}, \vec{r}, \vec{u}$ → up vector

→ right vector

যেদিকে তাকিয়ে আছে

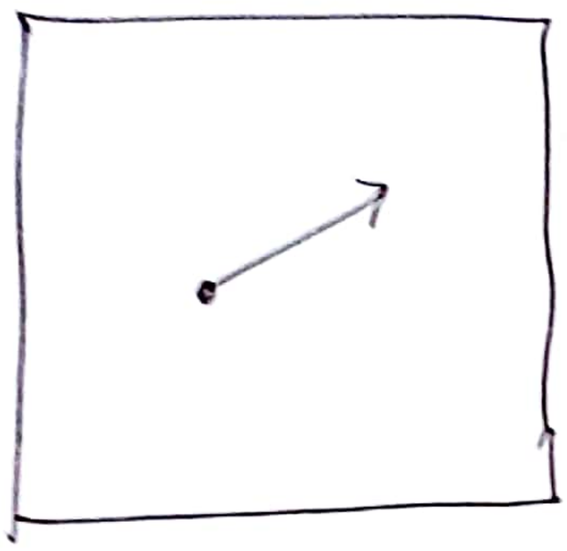
$\vec{l}, \vec{r}, \vec{u}$ are unit vectors and perpendicular to each other.



tilt → rotation w.r.to ~~$\vec{u}$~~ $\vec{l}$

* pos + $\vec{v}$ এর দিকে তাকায়ে আছে।

Right Button Click ⟶ pos = pos + $\vec{v}$



pos (x, y)

v

In Animate function:

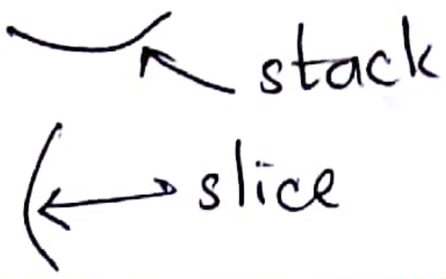
pos = pos + $\vec{v}$

(pos)

When the arrow starts to go out of the box, find the reflection of the vector $\vec{v}$.

Here the normal vectors are $\hat{i}$ and $\hat{j}$.

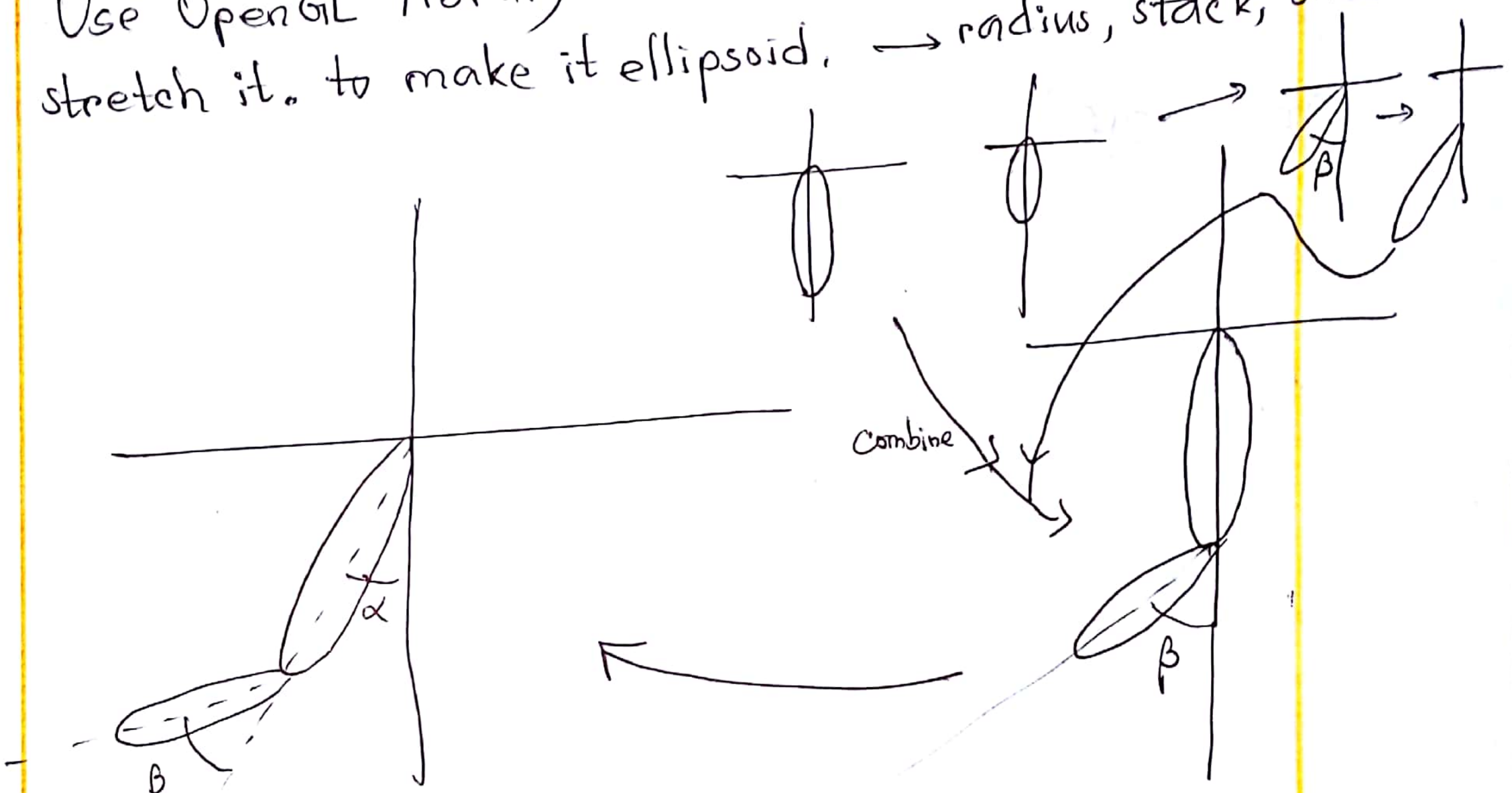
⟹ Rotate vector by 5° clockwise or anticlockwise



Robotic arms:

6 X 2 = 12 transformations

Use OpenGL library to ~~use~~ draw Sphere and then stretch it. to make it ellipsoid. → radius, stack, slice



$\alpha = -45^\circ$ to 45°

$\beta = 0$ to 90°

Fully controllable camera → Only for 3D box

For Robotic Arm, place the camera in a suitable position so that all transformations can be seen.

* All 4 assignments should be done in C++
* Always zip. Don't "rar", 10% mark for each accurate submission.

Room 216