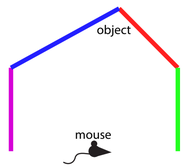
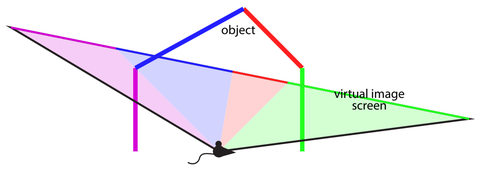
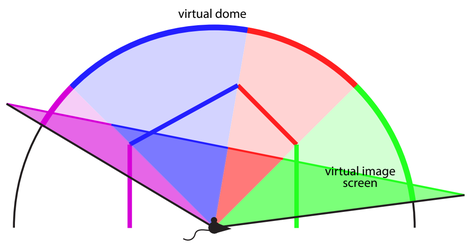


virtual world



openGL projects to
flat camera screen



()

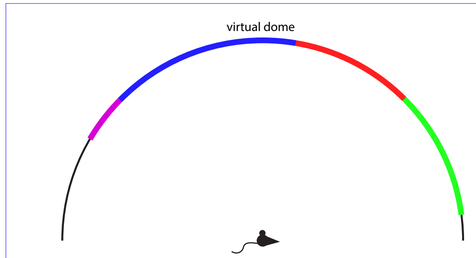
note that when mouse moves in world,
virtual sphere remains over mouse

project to virtual sphere

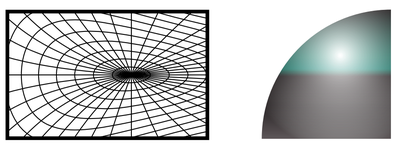
$$\text{azimuth} = \arctan\left(\frac{x}{d}\right)$$

$$\text{elevation} = \arccos\left(\frac{x}{(d^2+x^2+y^2)^{1/2}}\right)$$

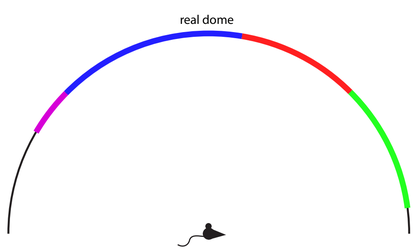
untested equations
please verify. Here:
x=horiz position on screen
y=vertic position on screen
d=viewing dist to screen



virtual sphere

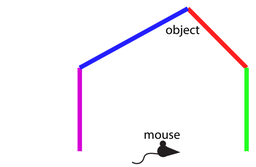


vertex mapping+mirror
(existing)

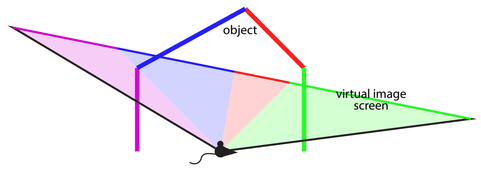


real dome projection

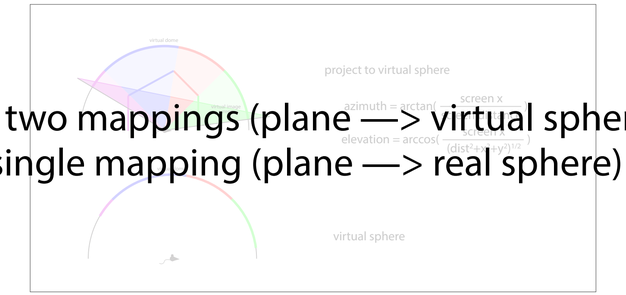
already done successfully!



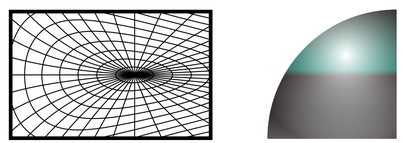
virtual world



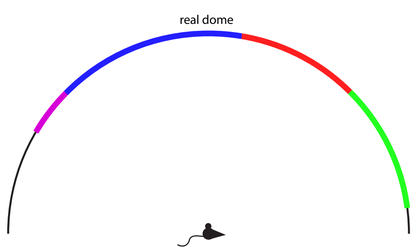
openGL projects to
flat camera screen



can replace two mappings (plane —> virtual sphere —> real sphere)
by a single mapping (plane —> real sphere)



vertex mapping+mirror
(existing)



real dome projection