

## VII. Kinematics Calculations:

After experimentation that distances were found to be for head angles:

Angle: -10, Distance: 126.11095187798668

Angle: 0, Distance: 102.40853430480155

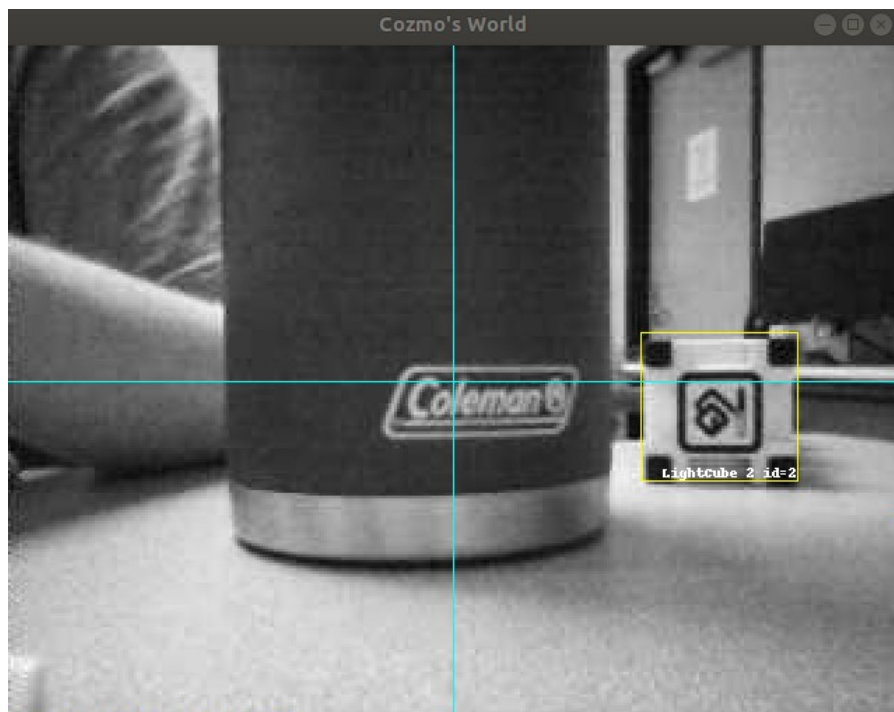
Angle: 10, Distance: 107.62498008156862

Angle: 20, Distance: 113.86024959112596

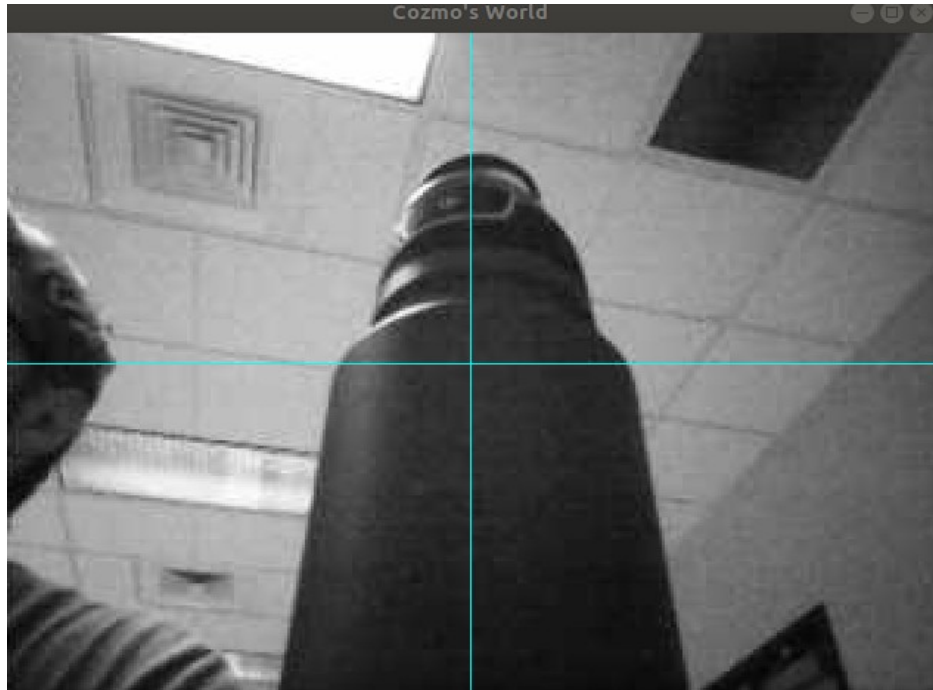
Angle: 30, Distance: 120.28811063308558

Angle: 40, Distance: 125.96237745458834

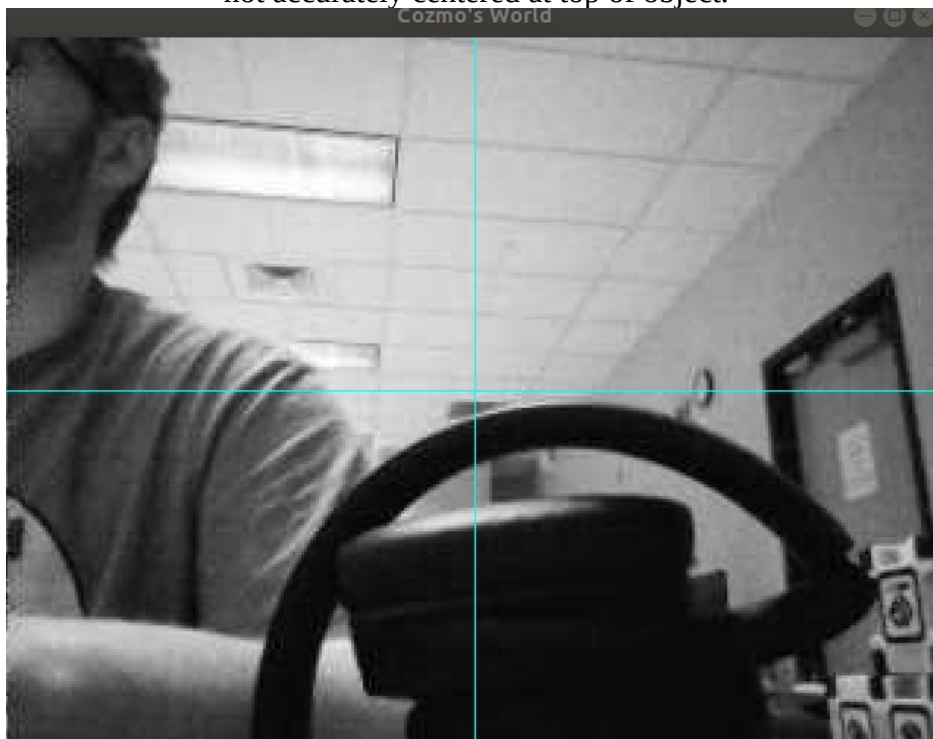
## VIII. Inverse Kinematics, Pointing Camera:



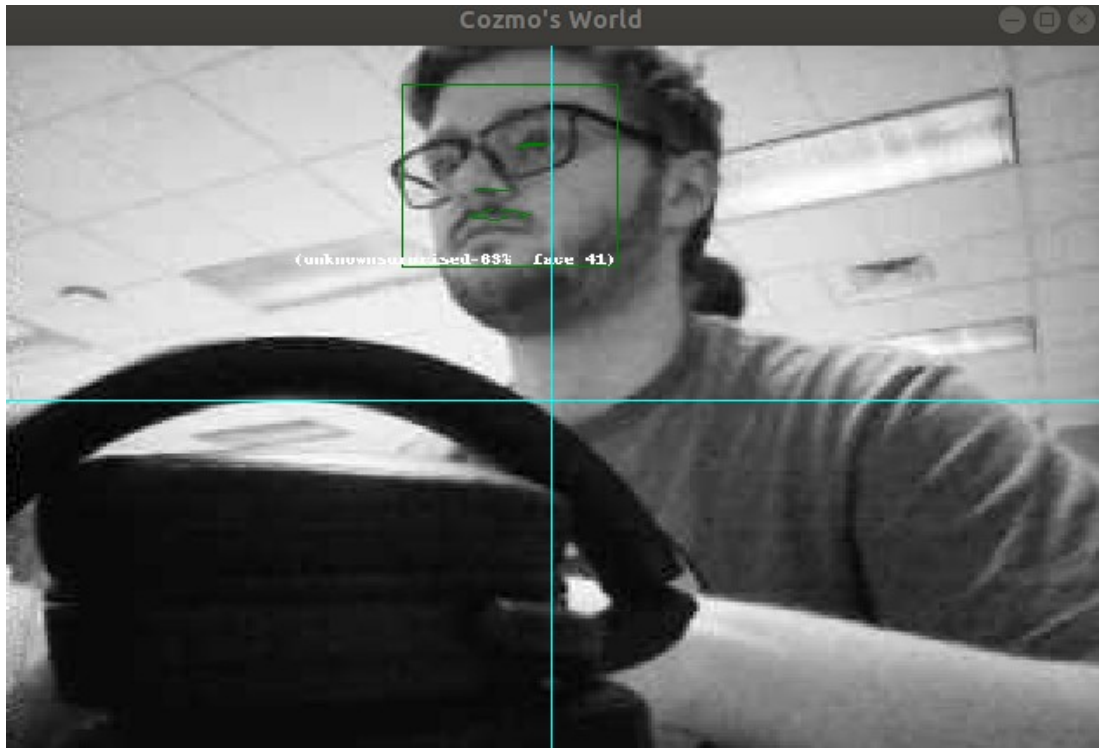
After turning toward the object



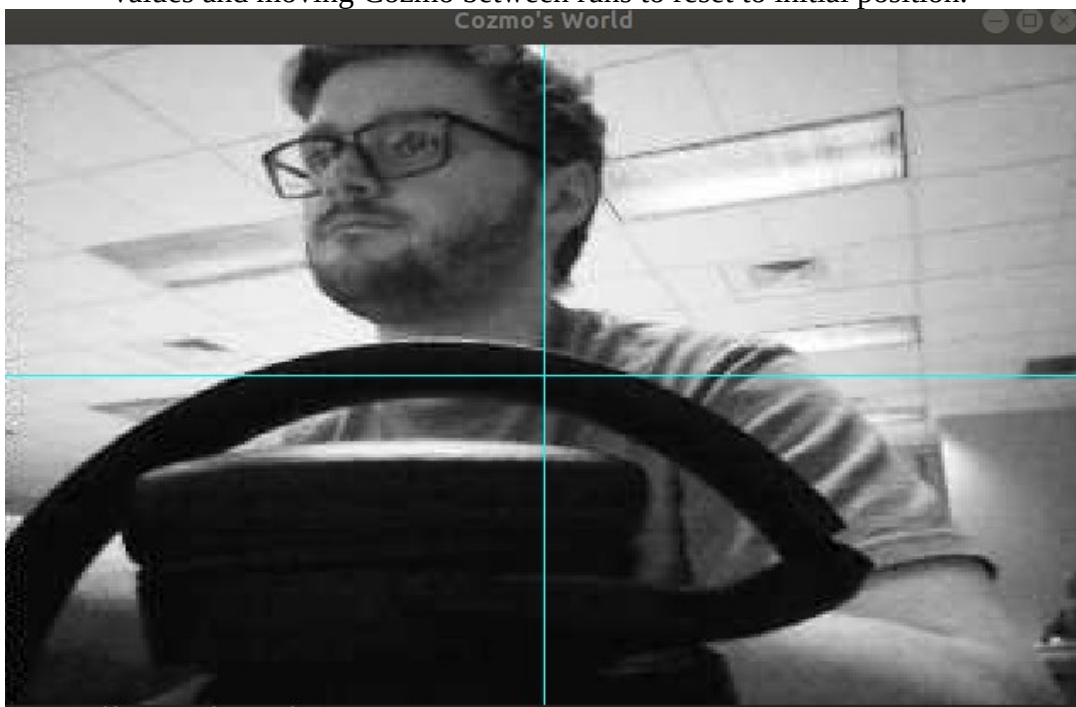
After changing head angle to needed object height, reaches max angle of head joint, not accurately centered at top of object.



Got better results after tuning the code and using a smaller object, fairly accurate to the center peak.



Moved the headphones to a new location, turn angle seems to be off, may be due to inaccurate coded values and moving Cozmo between runs to reset to initial position.



Another attempt, puts cross hair in general area.

