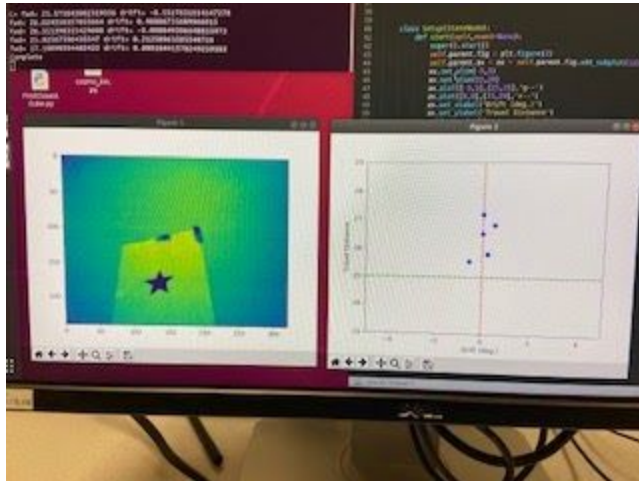


CameraBuild:

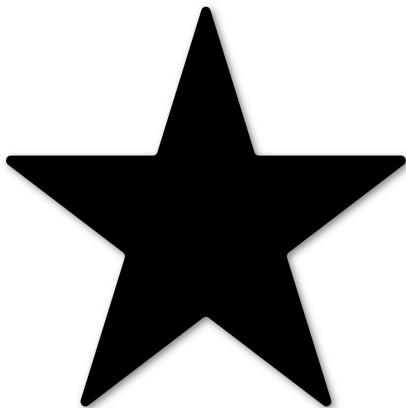
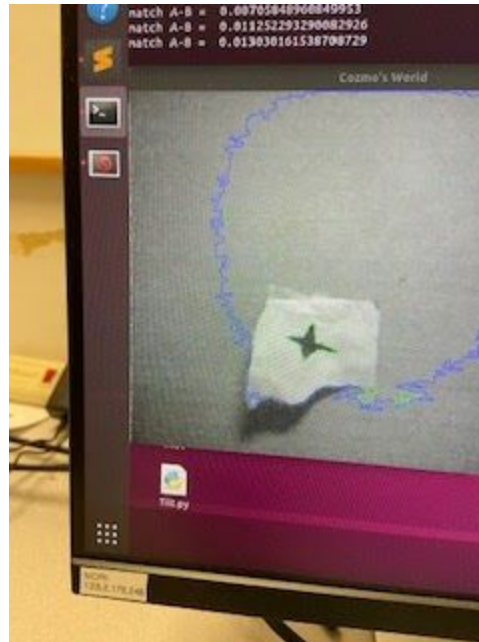
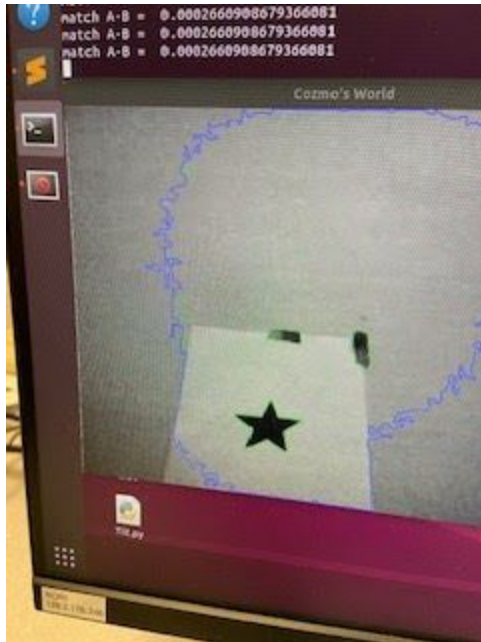
For this problem, we created two figures, one for displaying the graph of the plotted points that Cozmo travels at and another for displaying the images that Cozmo's camera viewer sees. An image showing these figures is displayed below.



A display of both the camera viewer in a figure and the matplotlib graph.

MatchNewShapes:

We used the `do_contours` function and the `user_image` as well as `user_annotate` functions to draw the contours of the annotated image and the template image that we uploaded. We then found the minimum error between the contours of the images using `cv2.matchShapes` and displayed this value. Below are some images showing the difference in the error values from a five-pointed star and a four-pointed star. The template image is also shown below. When Cozmo sees the contour of the five-pointed star (similar to the template image), the error values are much lower than when a four-pointed star is displayed.

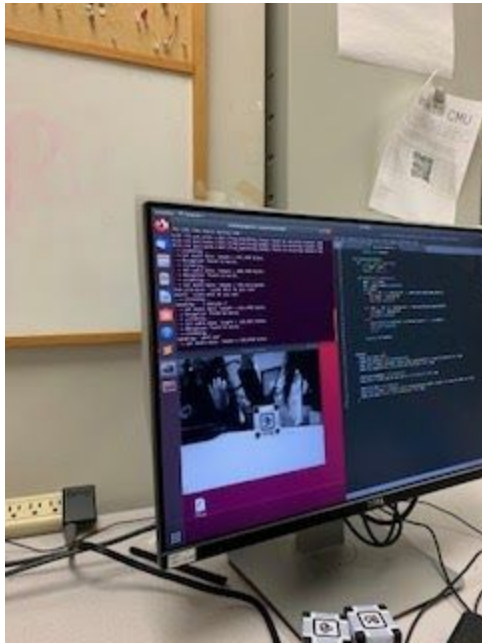


The five-pointed star yields values such as 0.002 where as the four-pointed star yields values close to 0.007.

SpeechRecognition:

The FSM for this problem followed a basic structure with a Hear transition with a command such as 'cozmo, what do you see.' This transitions to a Say, Action, or Doorpass node that completes

the command or signals that Cozmo cannot complete this command. Some examples are displayed below.



Cozmo saying that he can see cube 1.



Cozmo lifting a
cube upon
command.



Cozmo going
through
Doorway 46
upon command.