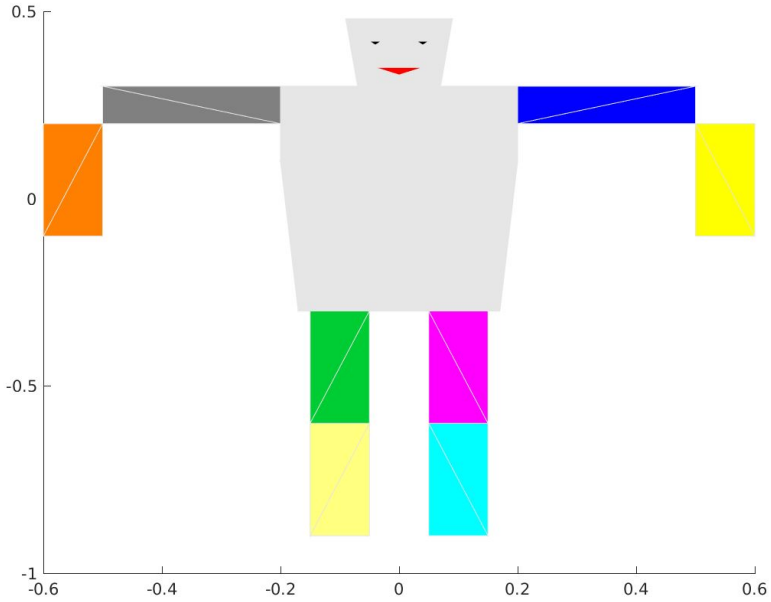
Implementing Augmented Reality 3D object after Plane detection:

We plan to implement pre-trained plane detection in any test image and then overlay the image with a 3D model over it.
Once the 3D model is placed over a given test image, it can be placed over a sequence of test images to get a video of AR.
File and functions descriptions:
getHumanoidCoordinates.m: Returns 3 matrices - vertex coordinates, triangle face orders, color of each vertex. It represents a 3D model of a humanoid robot.

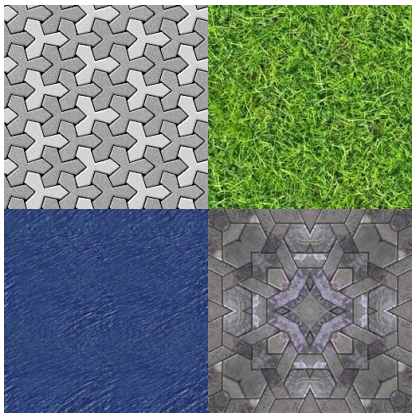


drawMesh.m: Draws the 3D model over the test image.
getHomography.m: Computes and return a 4X4 homography matrix, given a texture and the test image.
applyHomography.m: Multiplies the 4X4 homography matrix to the vertex coordinates after making them homogeneous, to place the 3D model at correct place and in proper orientation over the input test image. Returns back new 3D coordinates.

A sample example:

Texture plane to be detected:

Test Image:



Final Result: