TASK-3

Aim of the Task:-

Detect ball of a specific colour using track bar.

Conclusion:-

1. The difference of color pigments can be detected on the basics of 3 components, which are HUE, SATURATION, VALUE(HSV).
2. Hue corresponds to the color components or the base pigments , hence just by selecting a range of Hue we can select any color.
3. Saturation is the amount of color or the depth of the pigment or dominance of Hue.
4. Value is basically the brightness of the color or the corresponding pigment of the color.
5. The new functions encountered were:-
    a) cv2.namedWindow()-> This function is used to create a window named after the string passed in the function.
    b) cv2.createTrackbar-> This function is used to create a trackbar for controlling the value of a variable. It takes 5 parameters which are the name of the trackbar, name of the window on which the trackbar is to be placed, the lowest value on trackbar ,the highest value on trackbar and a function,
    c) numpy.array()-> This function creates a array foe storing data of same datatypes.
    d) cv2.getTrackbarPos() -> This function is used to access the position of the trackbar. This function takes two parameter one is the name of the trackbar and second is the name of the

window containing the corresponding trackbar whose position is to be accessed.

e) **cv2.bitwise_and()**-> This function is used for calculating the pre-element bit-wise conjunction of 2 arrays and a scalar. Hence it takes 3 inputs two arrays and a scalar.

f) **cv2.inRange**-> This function is used for thresholding and returns the threshold image. This function takes 3 parameters one is the image and the other two are the value ranges for the thresholding.

Bibliography:-

1) https://youtu.be/RBAk-PlbtZc
2) https://youtu.be/3D7O_kZi8-o
3) https://youtu.be/k80Vh8ry2fg
4) OpenCV documents and tutorials on the official website of OpenCV.