**LINE FOLLOWING ROBOT USING IMAGE PROCESSING**

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**WEEKLY PEPORT**

This week is utilised to complete learning image processing. Then code is prepared for the object detection using python through OpenCV. The reason for this particular code is, mostly this project is to detect a line of a particular colour. The code is made to detect a blue object and draw contour around that object. Basically, this code uses colour detection and contours to identify an object or in the case of project a line. Trackbars are used to adjust the values of the HSV (Hue Saturation Value) in order to detect lower range of blue that can be detected. The reason for this is that, with adjustable values of HSV different kinds of blue can be detected. Upper range for the blue is set to [120,255,255]. Then a mask is created using inRange of OpenCV. Then this mask is merged with the frame. Contours in image processing is exclusively used for object detection. Using findContours first contours are found to the image. This command contains three parameters – image, RETR\_TREE and CHAIN\_APPROX\_SIMPLE. RETR\_TREE indicates the contour retrieval and CHAIN\_APPROX\_SIMPLE is contour approximation method. Then these contours are drawn on the original frame using drawContours command. Apart from these for noise reduction GaussianBlur is used. Then frame with mask, mask, frame with contours is displayed.

For the bot, in addition to this moments are calculated. Moments are weighted average of pixels of an image. From moments centroid of the line is calculated. These centroids will be used for the movement of bot according to the lines drawn.

In the coming week, working of raspberry pi will be learnt and an algorithm for the whole project will be made.