

e-Yantra Robotics Competition (eYRC-2017)

Task 1A - Planter Bot

Objective:

- Perform the basic Image Processing tasks like read and display an image.
- Detect and identify objects of different colors and shapes by applying color space properties and image thresholding techniques.
- Differentiate between objects on the basis of color, shape and their location within the image using a technique such as contour detection and moments.

Structure of Task Directories:

Please find the following folders within the folder that contains this *Read Me Task1A* file. The folders have been numbered:

- **1. Resources:** You will find *Reading_Material.pdf* file in this folder. This file contains links to relevant tutorials and practice exercises for you by e-Yantra. These tutorials and exercises will help you build a base for performing the tasks as you go along. If you wish to get further knowledge of the open source library “OpenCV” and the programming capabilities of Python, links are provided from the official OpenCV documentation site in addition to e-Yantra Resources material. You are required to first go through the resources and exercises provided in this file before you attempt the Task1A.
- **2. Task_Description:** In this folder, you will find -
 - *Task1A_Description.pdf* which contains the task assignment and problem description for the Task1A.
 - “Test Images”: is a subfolder which contains a set of five images on which you will test the code and return your results as your submission material. It also contains a basic code snippet in a Python script file named *Task-1A_main.py*. You can modify only specific sections of these code files.
IMPORTANT: The sections marked “DO NOT EDIT!!!” are **strictly not** to be modified.
 - “Sample Shapes”: is another subfolder which contains six sample shape images. The shapes are: **Triangle, Rhombus, Trapezium, Pentagon, Hexagon and Circle** with respective names in **.png** format. You can use these shapes as templates to create your own sample images to test your code, in addition to the five “Test Images” provided. You are permitted to change the color of the shapes in your own sample images **for your practice**, provided you adhere to any combination of one of the three primary colors viz. **Red, Green and Blue**.

Submission Instructions:

Teams have to upload their solutions as instructed below:

- Please save the modified Python script file named *Task-1A_main.py* along with the output image and csv file in a folder named *Task_1A*.
- Further submission instructions are given in *Read Me* file in Task 1 folder.
- Refer *Submission Directory Structure & Flow.jpg* in Task 1 folder for submission directory structure and flow.

Warning:

- **IMPORTANT:** The document you submit should be YOUR work in YOUR WORDS. To avoid any copyright violations, you must NOT copy phrases directly from manuals or web.
- The team should NOT mail or upload the document anywhere else, except on the portal.
- Teams failing to submit the document by the deadline will lose the marks for this task.
- e-Yantra WILL NOT entertain any request for extension of deadline for uploading the task.
- e-Yantra holds complete discretion to disqualify a team if any foul play is suspected.