

e-Yantra Robotics Competition (eYRC-2017)

Task 1 - Planter Bot

Introduction:

Let us learn the basic processes of image and video processing in order to prepare for Planter Bot theme. Please note that you need to learn the concepts in a self-learning mode; using the resources that are provided and/or other resources. You may find this self-learning mode intimidating initially but you will soon fall in love with it and will find it very useful in your academic and professional life.

Objective:

- Detect objects of different colors and shapes by applying color space and image thresholding techniques; not just in still images but videos too.
- Understand basic Image and Video processing using open source libraries and program algorithms for solving problems in these domains.
- Overlay an image on the object of different color (a unique image per primary color).

Structure of Task Directories:

Please find the folders named Task1A and Task1B within the folder containing this “Read Me” file. The subfolders within folders Task1A and Task1B have been numbered and named for the individual tasks as follows:

1. **Resources:** You will find *Reading_Material.pdf* file in this folder. You are required to read this file first and learn the concepts provided by the resources in this file before you approach the task for a solution.
2. **Task_Description:** In this folder, you will find -
 - *Task1A_Description.pdf* (for Task1A) and *Task1B_Description.pdf* (for Task1B).
 - A basic code snippet in a Python script file named Task-1A_main.py (for Task1A) and Task-1B_main.py (for Task1B).
 - “Test Images”: is a subfolder for Task1A or “Video”: subfolder for Task1B
 - “Sample Shapes”: is another subfolder.

Details about these folders and their content are mentioned in detail in the individual task Read Me files i.e. “*Read Me Task1A.pdf*” and “*Read Me Task1B.pdf*”.

Submission Instructions:

Teams have to upload their solutions as instructed below:

- Please save the modified code file and other submission material for Task1A in the folder Task_1A and for Task1B in the folder Task_1B respectively; which in turn is to be saved in a folder named **Task1_<TeamId>**. Please use your e-YRC team id while actually naming the folder **Task1_<TeamId>**. For example, if your Team ID is 6723 you should name the folder as **Task1_6723**.
- Compress the above mentioned **Task1_<TeamId>** folder into a zip format. Upload the **Task1_<TeamId>.zip** on the Portal specified by e-Yantra team.
- Refer *Submission Directory Structure & Flow.jpg* in Task 1 folder for submission directory structure and flow.
- The deadline for uploading the solutions for entire Task 1 is given on portal.

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.