e-Yantra Robotics Competition (eYRC-2017)

Task 1 - Harvester Bot

Introduction:

Let us learn the basics of image processing in order to prepare for Harvester 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:

- Read, display and write images.

- Detect objects of different colours, shapes and sizes by applying color space and image thresholding techniques.

- Understand basic Image Processing using open source libraries and program algorithms for solving problems in these domains.

Structure of Task Directories:

Please find the folders named Resources, Task 1A and Task 1B within the folder containing this "Read Me" file:

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 1A and Task 1B:** In each of these folders, you will find -
   - *Task1A_Description.pdf* (for Task 1A) and *Task1B_Description.pdf* (for Task 1B).
   - Test Images: comprising of the test images based on which you will write your Python code.
   - A basic code snippet in a Python script file named task1A_main.py (for Task 1A) and task1B_main.py (for Task 1B).
     This code is located in *Test Images* folder of *Task 1A* and *Task 1B*.

Submission Instructions:

Teams have to upload their solutions as instructed below:

- Please save the modified code file and other submission material for Task 1A in the folder *Task 1A* and for Task 1B in the folder *Task 1B* respectively; which in turn is to be saved in a folder named **Task1#TeamID**. Please use your eYRC Team ID while actually naming the folder **Task1#TeamID**.
  For example, if your team ID is #1234, your folder should be named as Task1#1234
- Compress the above mentioned **Task1#TeamID** folder into a zip format. Upload the **Task1#TeamID.zip** according to the instructions on the e-Yantra Portal.
- 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.