

e-Yantra Robotics Competition (eYRC-2018)**Task 1: Ant Bot****Introduction:**

Let us learn the basic processing of Images and ArUco Markers in order to prepare for the Ant Bot theme. Please note that you need to learn these 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:

- Understand the basics of Image Processing by using open source libraries and creating programs or algorithms for solving problems in this domain.
- Create and detect Marker Images in order to decide further course of action like colour object detection.
- Detect objects of different colour and shape by applying colour space and image thresholding techniques.

Structure of Task Directories:

Please find the folders named “*Task1.1*” and “*Task1.2*” within the folder containing this “*Read Me*” file. The subfolders within **Task1.1** and **Task1.2** have been numbered and named for the individual tasks as follows:

- **1. Resources:** You will find a “*Reading_Material.pdf*” file in this folder. This document explains the different tutorials and their use as resource material before you dive into solving the task. It also contains some of these tutorial documents.
- **2. Code:** You will find 2 code files in this folder - one which is an API wrapper created by e-Yantra team to get you familiar with the ArUco library as soon as possible; and the other which is the skeletal code for the task to be performed.
- **3. Task_Description (In case of “*Task1.2*” this is folder 4.):** This folder contains a single document which describes the task to be performed i.e. “*Task1.1.pdf*” or “*Task1.2.pdf*”.
- **3. Images:** This is an additional folder in **Task1.2** which contains the input test images for the task.

Details about these folders and their content are mentioned in detail in the individual task’s **Read Me** i.e. “*Read Me Task 1.1.pdf*” and “*Read Me Task 1.2.pdf*”

Submission Instructions:

Teams have to upload their solutions as instructed below:

- Please save the modified code file and other submission material for **Task1.1** in the folder **<TeamID>_Task1.1** and for **Task1.2** in the folder **<TeamID>_Task1.2** respectively.
- Please use your e-YRC team id while actually naming the folder **<TeamID>_Task1.1** or **<TeamID>_Task1.2**. For example, if your Team ID is 1001 you should name the folder as **1001_Task1.1** and **1001_Task1.2** respectively.
- Compress the above mentioned **<TeamID>_Task1.1** folder into a **zip** format. Similarly, **zip** for **Task1.2**.
- Upload the **<TeamID>_Task1.1.zip** and **<TeamID>_Task1.2.zip** on the Portal specified by e-Yantra team by the due deadline of the task.
- Refer to *Submission_Directory_Structure_& Flow.pdf* in **Task1.1** and **Task1.2** folders respectively, for submission directory structure and flow.
- The deadline for uploading the solutions for each part of Task 1 is given on the 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 the web.
- The team should **NOT** mail or upload the document anywhere else, except on the e-Yantra 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 an extension of the deadline for uploading the task.
- e-Yantra has complete discretion to disqualify a team if any foul play is suspected.