e-Yantra Robotics Competition (eYRC 2019-20)

Task 3.2 - Supply Bot

The aim of this task is to get you started with implementing the concepts you learnt in Stage 1 using the hardware you received in the kit.

Problem Statement:

An example for the Task 3.2 that you have to perform is explained in detail through an example set-up as depicted in the Figures 1-3 and Table 1 below:

a. You are given an example image below with a Blue marker demarcating the Capital as explained in Rulebook. This node is now Node 1 and subsequent nodes in the clockwise direction are Node 2, Node 3...Node 9

Fig. 1. Capital in Arena for the example setup

In order to set-up the arena you will be given an example Configuration Table (Table 1):

Node Type	Node Number
Medical Aid	3
Food Supply	6

Table. 1. Example Configuration

Thus, your arena will resemble Fig. 2. for the example Configuration

Fig. 2. Example Configuration Arena as per Table 1.

b. The team then finds the angle between the Relief Aids and writes it on the captured image itself using *cv2.putText()* API in *Red colour with font size set to 0.5*.

There is no need for an output csv, just an image with angle written on it.

c. Encircle the detected Relief Aids with a *Blue circular border of 2 pixel thickness* as shown in the sample output image for the example Configuration

Note: It is recommended in this theme to use laptop/PC with **Windows 64 bit OS ONLY**.

Fig. 3. Example Configuration Output

Supporting Documents and Task Configuration:

You will find the following files in the **3.2. Test Setup** folder that contains this **.pdf** file.

- *test_task3.py* - this contains a skeletal code for video processing to process the Arena for Relief Aids detection. Edit the main code to perform the Task with the given Capital in Fig. 4. and set-up the arena as given in Table 2.

Note: You have to populate this code with a generalised image processing solution and submit it in the zip folder for Task 3.2 mentioned in the **"Submissions Requirements"** section below. Your code will be tested on a different configuration.

The Capital for the task that teams have to perform is shown in Fig. 4. below:

Fig. 4. Capital in Arena for the Task 3.2 setup

You must get the output similar to Example Configuration output as shown in Fig. 3.

- Perform the above task after setting up the arena with the following Configuration Table:

Node Type	Node Number
Medical Aid	9
Food Supply	4

Table. 2: Task Configuration

Submission Requirements:

Submit the image/frame once the Blue circle is outlined on both the coins and write the angle between the Relief Aids on the image itself.

Please ensure the final name of your image/frame is **SB#<Team ID>_task3I.jpg** where **<Team ID>** is your **eYRC team ID**.

Along with the image, you should also submit all your code along with *test_task3.py* in a Zip folder named SB#<Team ID>_task3_2.zip

For example if your eYRC team ID is 9999 then the submission folder should be named SB#9999_task3_2.zip containing the image and all your codes should be uploaded on portal

Ensure the size of the folder doesn't exceed **5MB.**