

Task 3.3 - Survey & Rescue

1 Problem Statement

As given in the Rulebook, we have to publish a detected Beacon on a ROS topic. Let's proceed to solving this problem step-by-step. We will follow a robust method for achieving our final goal, but you are not bound to follow along. You can follow any method you wish as long as the end result is the same. We will break this problem down into two main parts:

1. Detecting the Regions of Interest (RoIs) i.e. the black squares that are the cells.
2. Detecting for Beacons within these RoIs and subsequently publishing them on the topic `/detection_info`.

In this task, we will be dealing with the first part of the Problem.

2 Procedure

- We will perform this task without the LED modules or any other clutter on the arena. This will help us better detect the RoIs that will otherwise be obfuscated by the LED modules, their wires, the Drone etc.

NOTE: It is highly recommended that you attach/tape your flex on a fixed location on the ground if possible. If you do so, you will not have to record the RoIs repeatedly.

- Your task is to:
 1. Subscribe to a rectified image published by the USB camera.
 2. Apply image processing techniques to find out the regions of interest.
 3. Save these RoIs in a suitable file format for later use.
- The boilerplate script `roi_detector_boilerplate.py` provided to you will aid you in completing this task.
- In the Figure 1 below, we have detected and labelled the regions of interest, you do not need to obtain this image, it is for reference.

3 Submission

- Since we dealt with only the first sub-problem in this part, no submission is expected from you.
- A complete submission will be expected in the future tasks.

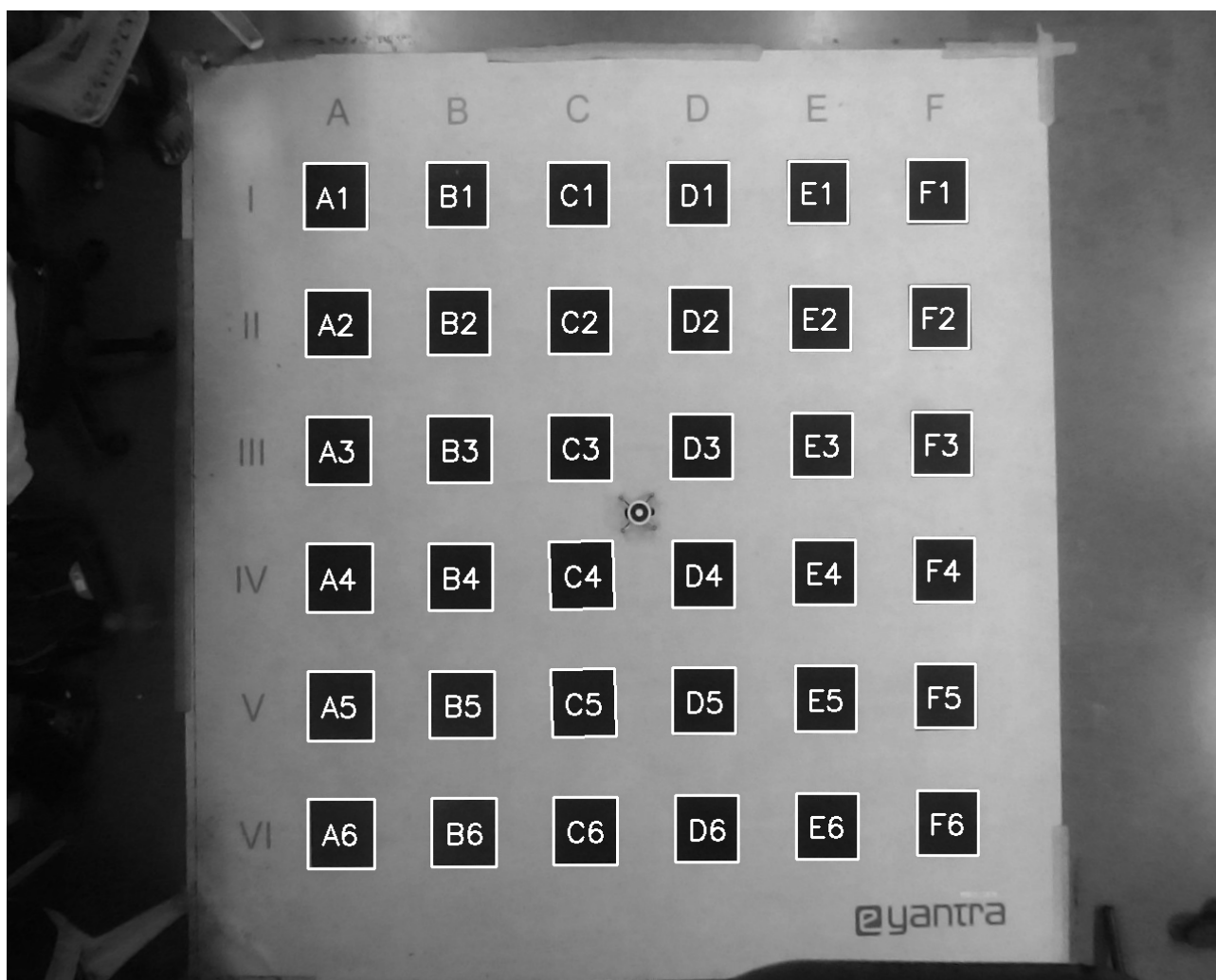


Figure 1: ROIs with Contours and Names Drawn Using OpenCV