# Task 4B: Detect colored object from the drone camera and find its pixel co-ordinates

task-4

Saail 1 February 6, 2023, 6:47am

## Aim:

The aim of this task is to detect object from the drone camera and find its pixel coordinates.

### Installations

We've pushed new code to the existing package. You need to pull it and run the catkin build

```
cd ~/catkin_ws/src/sentinel_drone
git pull
catkin build
```

## Problem Statement:

> This task is similar to **task2B**.

In this task the drone should hover over the object(yellow block) placed in a fixed location on the arena, detect the object and find its pixel coordinates.

> Assuming you have tested the drone camera stream in Task 3C. Refer the **Task 3C** section for drone camera setup. Make sure you have set up proper IP address on banana pi and on your PC.

### First, test the video stream from the drone camera using ros topic on your PC:

Run the following command on banana pi using ssh:

```
cd video_stream
python3 client.py
```

Run the ros node on your PC to receive the drone camera stream on a ros topic.

```
rosrun sentinel_drone ros_stream.py
```

You will get a camera stream on a `/video_frames` topic. You can check the image frames on **RVIZ**.

> Note: For starting the drone camera, the above steps should be followed every time.

### Finding Pixel coordinates of the object(yellow block) placed on Arena:

- Place the object(yellow block) on C4 location of Arena. (Refer to **Rulebook** for understanding block co-ordinates in the Arena.)
- Drone should hover over(close by) the object.
- Image data coming from the drone camera via ros topic named /video_frame should be used for capturing the image and detecting the object on your PC. (You can use your task 2B script)
- Pixel coordinates should be detected from the drone image.

## Submission instructions

- Take a video from any camera/smartphone showing the drone hovering and streaming image frame and finding the pixel-co-ordinates of the object on your PC.
- Upload a one-shot continuous video with the title `SD_<Teamid>__Task4b` (For example: If your team ID is 1234 then, save it as ***`SD_1234_Task4b`***
- Please note that while uploading the video on YouTube select the privacy setting option as **Unlisted**
- Upload a zip file containing the python script used for finding pixel coordinates of the object.
- This should be the structure of zip file.

  |__SD_1234.zip
  … |__SD_1234_block_detect.py

> **Your task will not be evaluated if the above instructions are not followed strictly.**

## Deadline

The deadline for submitting Task 4B is 16th February 2023, 23.59 hrs IST.

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**Saail** Unlisted 2 February 6, 2023, 6:47am

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**Saail** Closed 3 February 6, 2023, 6:48am

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**Saail** Listed 4 February 6, 2023, 10:02am