Progress Task – Problem Statement

Traversal of Drone through Hoop

Problem Statement

The drone starts from the Start, traverses through the hoop and lands back at Start.

Procedure

- Create a node and name it as **<team_id>_progress_task.py**. This node is used to command UAV based on the pathpoints as you have done in Task 1.2.

- Make a launch file named **<team_id>_progress_task.launch** and add all the required nodes in the launch file. You must include the node progress_task.py also in the launch file. Don't include the node to record rosbag file.

- Create a V-REP scene and name it as **<team_id>_progress_task.ttt**. Make a child script on a dummy to subscribe to the required topic and emulate the hoops and drone in V-REP. You can use input_key concept you have learned in Task 2 to emulate the hoops position and orientation.

- Start recording video. Instructions on recording video is given in submission instructions.

- Run the launch file and the V-REP simulation. Using *input_key* set the position and orientation of hoop as per the given Tree Configuration Table. You are free to press any number of keys to set the arena. Strictly follow the rules mentioned in rulebook.

- Run the rosbag command to record */whycon/poses*. Instructions to record bag file is given in submission instructions.

- Arm the drone by pressing key command. You should not press any key command once the drone is armed. On arming, the drone should ideally lift up, plan the path, traverse through the hoop and land back at Start without any collision.

- Re-positions are allowed only as per the rules given in rulebook.

Input

- **Start:** Starting position of the drone. Start is **IIIB**.
- **Tree Configuration Table:**

Tree	Location	Orientation
Cashew Tree (Red)	IVE	6A

Submission Instructions

Bag File:

1. Run the rosbag command to record the /whycon/poses. The following command records the topics /whycon/poses. **This command should be executed only after you emulate the hoop successfully in V-REP but before arming the drone**.

>> *rosbag record whycon/poses --chunksize=10*

2. Compress the bag file:
>> *rosbag compress -j bag_file_name.bag*

This will compress the bag file and now the size will be below 5mb approximately. Look the size of the bag file in its properties to distinguish between the original and the compressed bag file.

3. Rename the compressed bag file as **<team_id>_progress_task.bag** For eg: if your Team ID is HB#105, rename it as 105_progress_task.bag

Code:

1. Your python script should be named as **<team_id>_progress_task.py** For eg: if your Team ID is HB#105, rename it as 105_progress_task.py

2. Your launch file should be named as **<team_id>_progress_task.launch** For eg: if your Team ID is HB#105, rename it as 105_progress_task.launch.

3. Your V-REP scene should be named as **<team_id>_progress_task.ttt** For eg: if your Team ID is HB#105, rename it as 105_progress_task.ttt.

Compress these four files into a .zip file before uploading. Name the .zip file as your <team_id>_progress_task.zip. For eg: if your Team ID is HB#105, then rename it as 105_progress_task.zip

Video:

1. Upon verifying that your task is complete, record a maximum 4-minute video using a screen recorder like simplescreen recorder or kazam.

2. The video must be as follows:
   a) Team Slide –All members' details in a slide.
   b) The video must contain the terminal window (in which you give key inputs), V-REP scene, Whycon image output (**window should be large enough to see clearly**).
   c) Video should be recorded before running the launch file. **It should ideally contain the running of launch file, process of emulating hoop in V-REP using key inputs and the traversal of drone to complete the task.**

d) The video should not be edited in any manner. Teams uploading an edited video will be disqualified from the competition. e-Yantra reserves the rights to disqualify any team if any foul play is suspected.

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Uploading video on YouTube:

● Upload a one-shot continuous video with the title eYRC#HB#Progress_Task#<TeamID>. (For example: If your team ID is 1234 then, save it as eYRC#HB#Progress_Task#1234)

● Please note that while uploading the video on YouTube select the privacy setting option as Unlisted as shown in Figure 1. You need to upload the video as instructed on the portal.
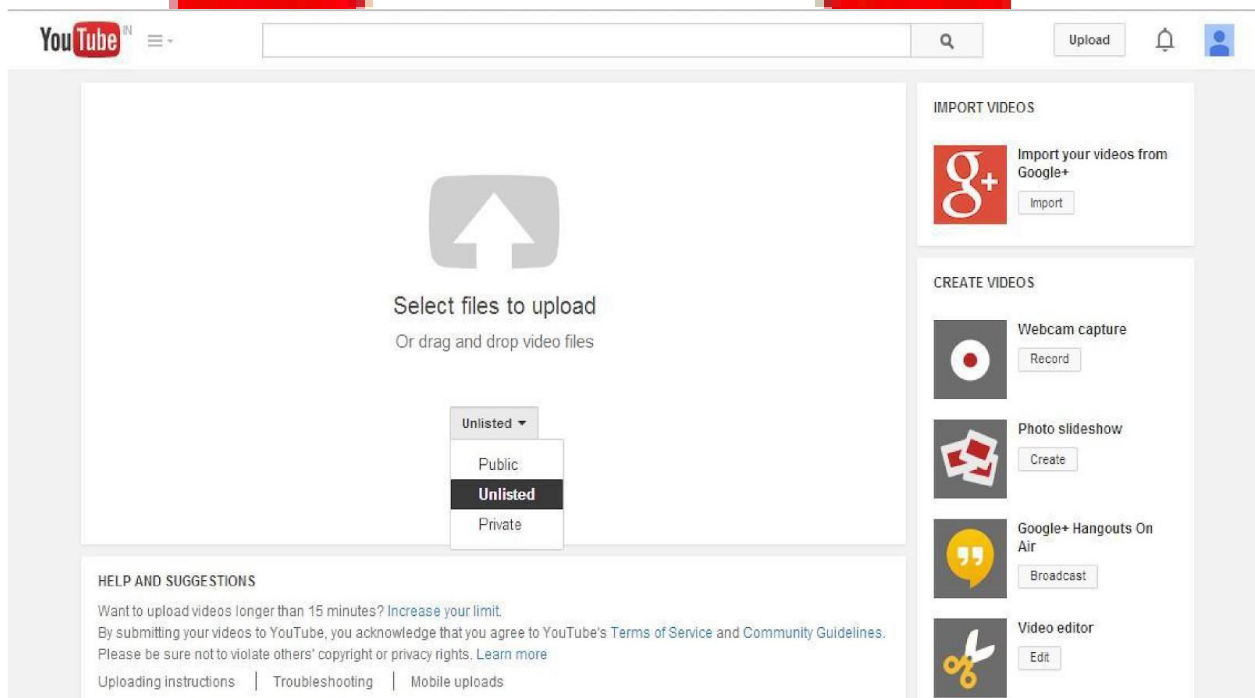

Figure 1: Uploading unlisted video on Youtube

ALL THE BEST!!