Problem Statement 2 - Arena Traversal

Problem Statement

- In this task you have been given two Arena configurations consisting of 1 Pebble AR_Object and 1 Water Pitcher AR_Objects.

- For each of these given configurations you are required to perform Pebble Pickup and Pebble Drop. Only the Augmented Reality part of Pebble Pickup and Pebble Drop is to be performed. Physically picking and dropping pebbles is not required.

- You are required to use the Blender 3D models that you created in Problem Statement 1 for this task.

- During each Pebble Pickup, the 3D model projected/superimposed on the Pebble AR_Object must change from Pebble pile (Initial) to Pebble pile (Diminished)

- During each Pebble Drop, the 3D model projected/superimposed on the Water Pitcher AR_Object must reflect change in water level.

- The robot must beep the buzzer for 1 second during each Pebble Pickup and each Pebble Drop

- An example video of the output is given **here**

- The Arena Traversal code written in Python / Embedded C should be generic. You are not allowed to hardcode the robot movements for each of the configurations. Any hint of hardcoding in the code may lead to disqualification. Only the Arena configuration can be initialised in the Python program at the start of each run (see Page 14 of Rulebook)

Configuration-1

AR Object Type	ArUco ID	Position	Orientation Axis
Water Pitcher	0	8	2-2
Pebble	1	16	1-1

Robot-Crow	
Aruco ID	10
Position	START-1

Configuration-2

AR Object Type	ArUco ID	Position	Orientation Axis
Water Pitcher	0	9	2-2
Pebble	2	2	3-3

Robot-Crow	
Aruco ID	10
Position	START-2

Video Recording Instructions

- For recording the video you may use any screen recording software such as Apowersoft Online Screen recorder to capture the video from your laptop screen (similar to the video provided by us).
- In you video, the OpenCV frame capturing the ArUco marker IDs as well as the OpenGL window should be visible (See Figure 1).
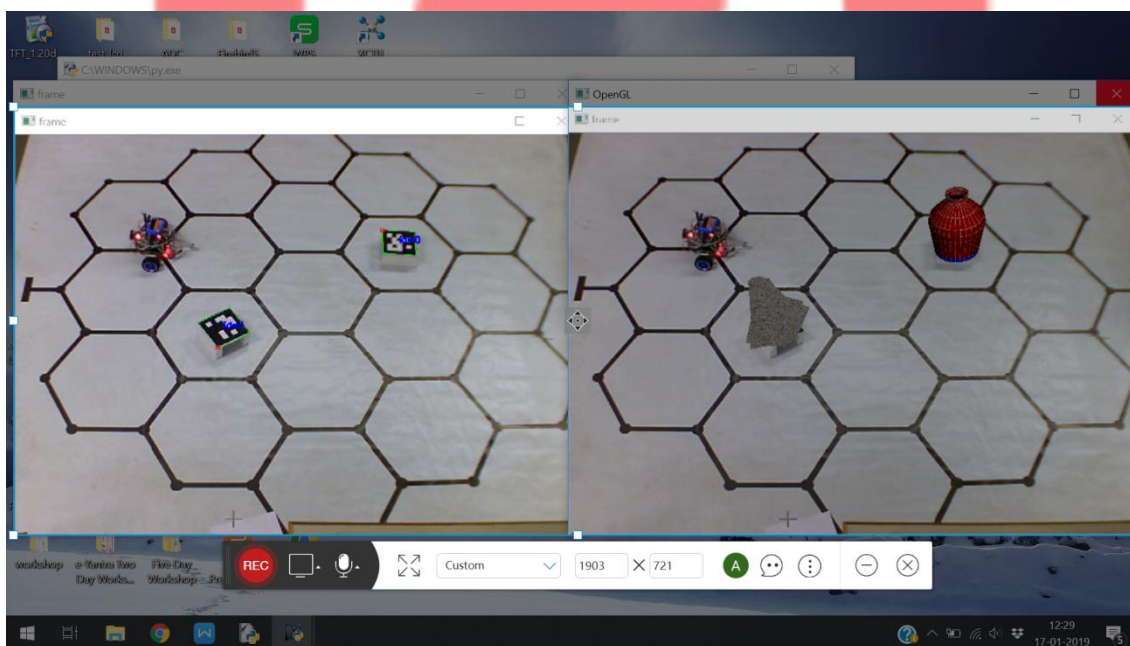-

Figure 1: Video recording using Apowersoft Online Screen Recorder

- For each configuration record a separate video. Then merge both videos using any video editing software.
- Upload the merged video to YouTube. The name of the video should be eYRC#TC#<Team_id>#ProgressTask_Video. For example if your Team_id is 2343 then the video name should be eYRC#TC#234#ProgressTask_Video. **Make the video as unlisted.**

Code Submission Instructions
- Make 2 new folders and rename them as **"AVR Code"** and **"Python Code"**
- Copy all your Embedded C code to the **AVR Code** folder.
- Copy your python scripts to the **Python Code** folder. All .obj, .mtl, texture files etc need to be copied in this folder as well.

Once you have completed this task, go through the Submission Instructions.pdf for instructions to submitting Progress Task

All The Best!