Instructions for Video Recording

Motive

We are delighted at the wide and enthusiastic participation of students in the e-Yantra Robotics Competition 2019-2020. You have contributed to the success of this competition over years by participating and taking it to the next level and in the process showing us the mettle you're made of. You've made this competition one of the largest robotics competitions in India. But with such a huge number of teams, we face a challenge to manually grade these submissions. Hence, this year we have come up with the solution … AUTOMATION! We wish to grade our themes automatically with the help of advanced technologies such as Machine Learning along with Image Processing. These technologies require standardized data to work. Hence, we sincerely request teams to strictly adhere to the given guidelines as these video submissions will be automatically graded. If you fail to follow the instructions, the system might wrongly process and ultimately, affect your marks.
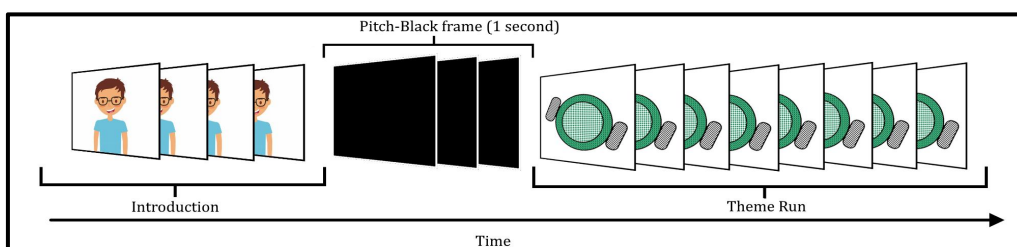
Instructions for Recording Video

1. **Hardware and Assembly**
   a. The recommended resolution of the camera **should be 8 Mega Pixels (MP) or higher**.
   b. The camera should be **mounted** and **not hand-held**, this is to **avoid shakes and blurs** in the video while recording.
2. **Continuity and Merging**
   a. The video you submit will have 2 segments as follows:
      i. In the 1st segment, you'll **record** your **team introduction**.
      ii. In the 2nd segment, you'll **record** the run of your theme, the implementation.
   b. Each of the two segments must be one **continuous shot**, i.e. it should **not have discontinuities** within them. The only discontinuity allowed in your final video submission is between the video of your introduction and the video of your theme run.
   c. **Merging two segments**. Once you have these **two videos corresponding to each segment**, each of them **shot continuously**, without any discontinuity within, it's time to merge them. Put a **pitch-black frame for the duration of 1 second between your two video segments**. You can use any video editing application to do the same. The **figure below describes the process in detail**.
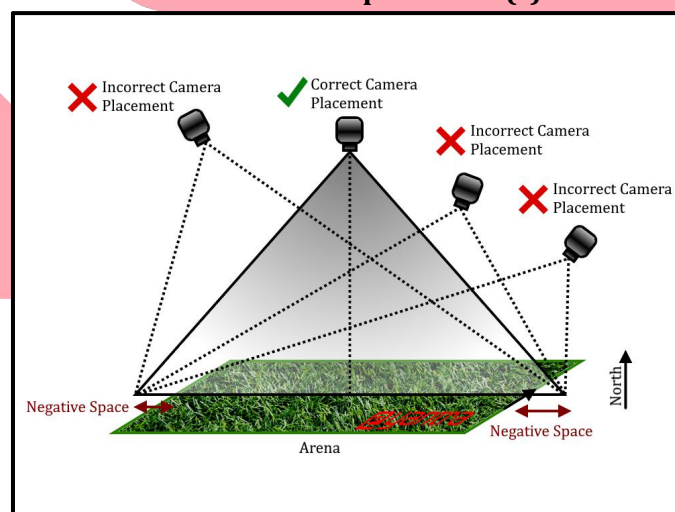

Pitch-Black frame (1 second)

Introduction — Theme Run

Time

3. **Sound and Lighting**
    a. The video should be **recorded in a quiet and a well-lit environment**.
    b. There should be **no interference** in terms of **background noise or movement** while shooting the video.
    c. Keep the **lighting conditions steady** throughout the video. Sudden change in light might falsely lead one of believe editing of the video and hence, disqualification.
    d. **Avoid specular reflection** as much as possible on any part of the frame/arena. For reference, check the figure below. **The image on the left has specular reflection which is highlighted by the colour green on the image on the right.**
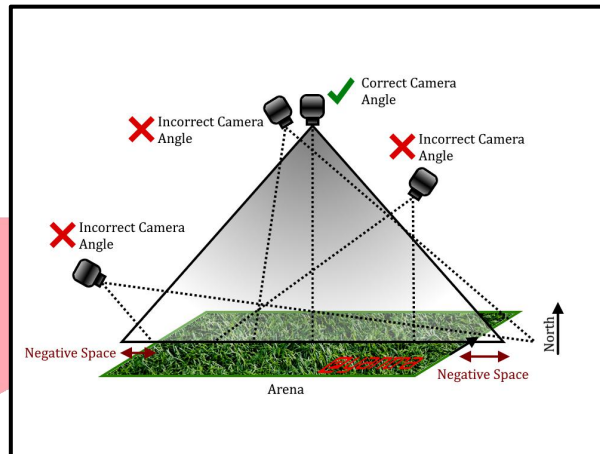

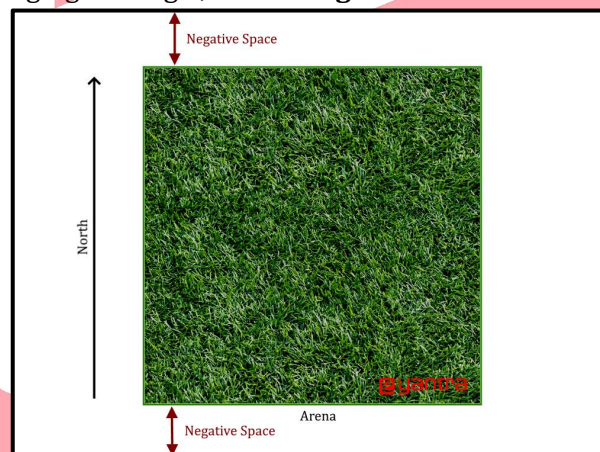4. **Placement, Framing and Angle**
    a. The **arena in the frame** should **not hidden/obstructed** by any unwanted, unnecessary things, like laptops, etc.
    b. The **camera should be perpendicular to the plane of the arena**. **The principal axis of the camera should be overlapping with the perpendicular line through the center of the arena.** That is, the arena always falls in the center of the frame, **without any perspective inclination**. The **figure** below illustrates the **correct and incorrect placement(s)** of the camera.
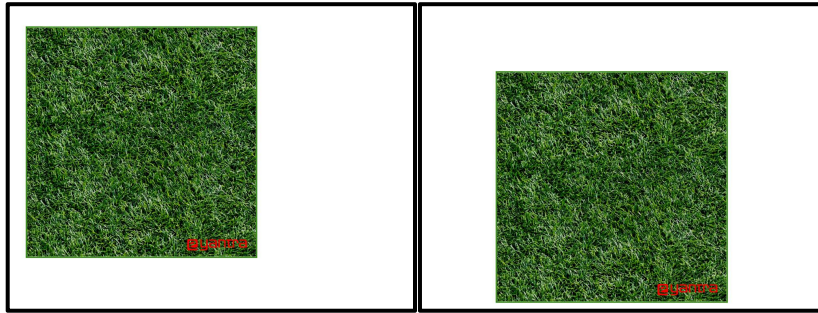
c. The following **figure** illustrates the **correct and incorrect placement(s)/angles(s)** of the camera. **Focus on the "negative spaces"**, coverage of the arena, and perspective from the camera.
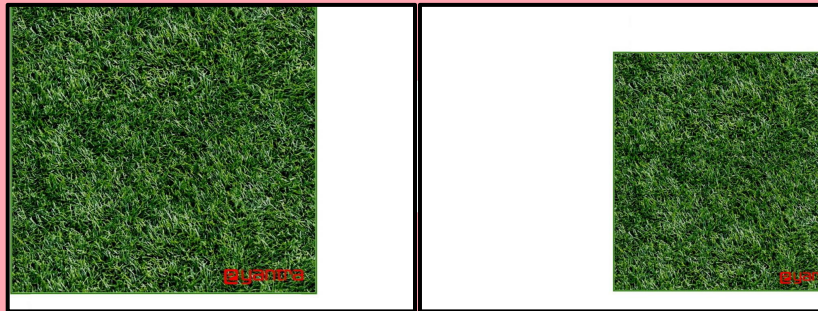

d. As mentioned above, the framing should be such that the are**na always falls in the center of the frame**.

e. Also, leave **"negative space" of about 5-6 inches across the longer sides of the camera frame**.

f. The **frame should be steady and hence, fixing the camera to a steady support is recommended**. Once the recording initiates, the **frame should not be altered by any means**. For example, zooming, moving the camera to another location, changing the angle, etc. The **figure** below illustrates **an ideal frame**.
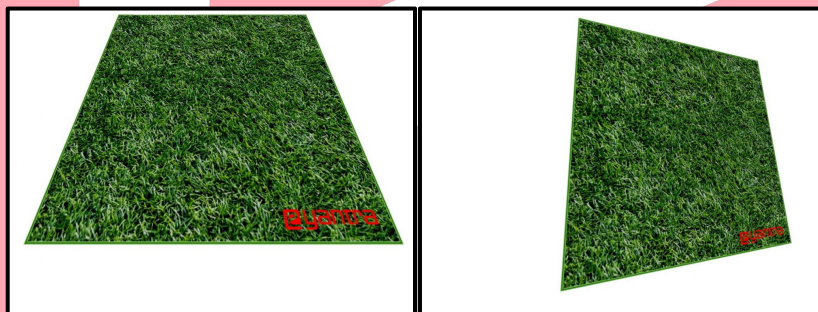

g. **Strictly avoid the following scenarios** throughout the video.
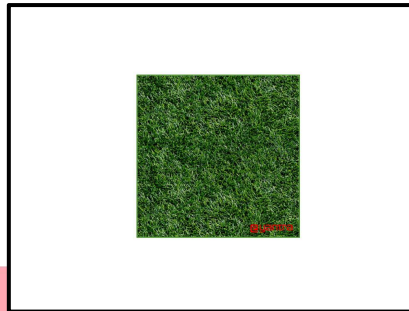
- Arena not in the center of the frame

- Cropping

- Perspective

- Cropping and Perspective
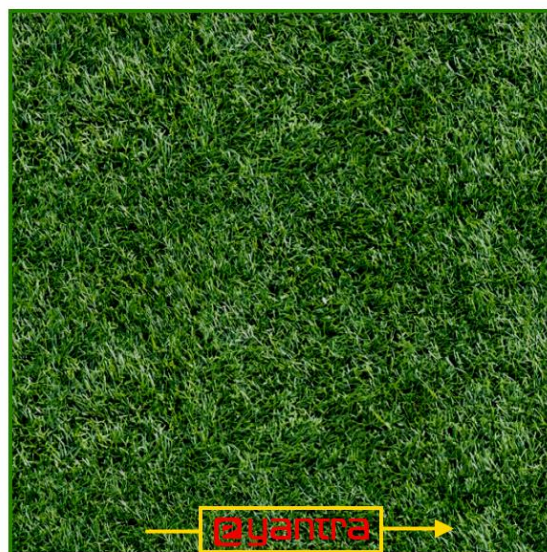
- Too much negative space

- Too little negative space

5. **Planar Rotation**

a. The **rotation angle** of the camera should be such that i**rrespective of the placement/size/colour the e-Yantra logo, the logo reads from left to right**. Remember, it is **not necessary for the logo to be on the bottom-right**, but it **reads from left-to-right**. The following **figures** illustrates **all correct rotations**.

Logo reads from left-to-right

b. **Strictly avoid the following cases**