CS4243 Project Instructions

- Each team comprises 4 students
- Need 3 cameras capable of taking videos
- Take a video of football match (5 minutes video). Each camera sees only approximately 1/3 of field.
- Output-1: Stitch to form a panorama of entire football field (no need real-time) with players running on the field.
- Output-2: convert the video into panorama, use icons to represent different players and show where they are in the field.

- Rules:
  - Use only Python (and its associated mathematics libraries)
  - You may use OpenCV for python
  - No other computer vision libraries can be used
  - You cannot download codes from internet to use. You are supposed to build the system from scratch.

- Requirements:
  - Show a 5 minute video of a football match with panoramic view (stitched from 3 video feeds each looking at about 1/3 of scene).
  - Show icons representing the position of players in the field as seen from top down view. Use the same icon for players from the same team. Use separate icons for referee (required) and linesmen (optional).
  - Draw in the actual video graphical overlay of a line to show whether a player was offside.

- Bonus points:
  - Compute the distance moved by each player for entire duration of video
  - Track the trajectory of ball and use graphics to show its 3D trajectory

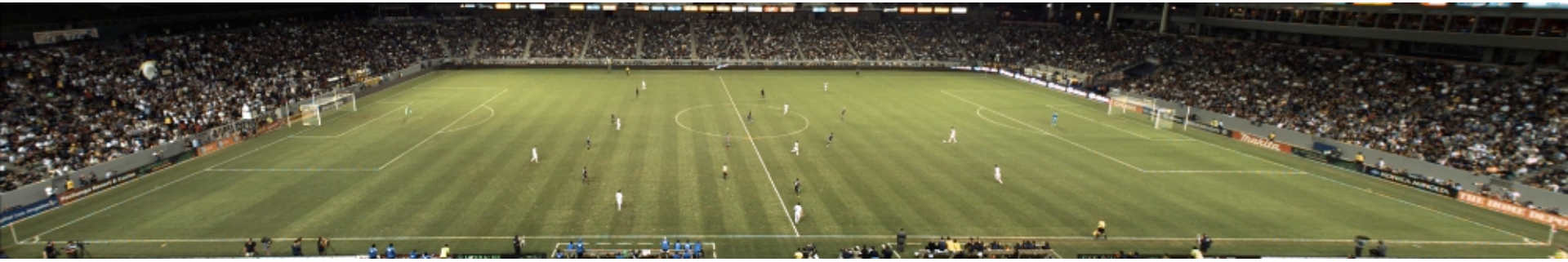
Tie 3 cameras together to cover the entire football field.

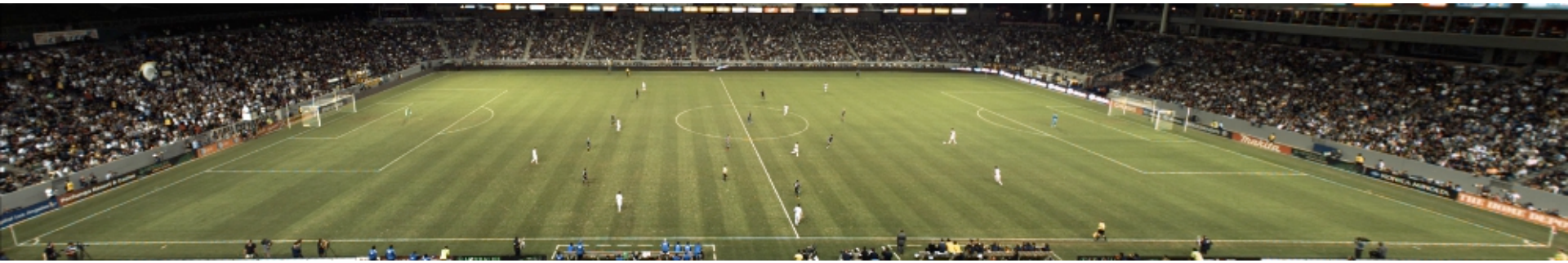
View from left camera

View from middle camera

View from right camera

Stitch





Analysis:

Transform players' position to top down view for ease of analysis.