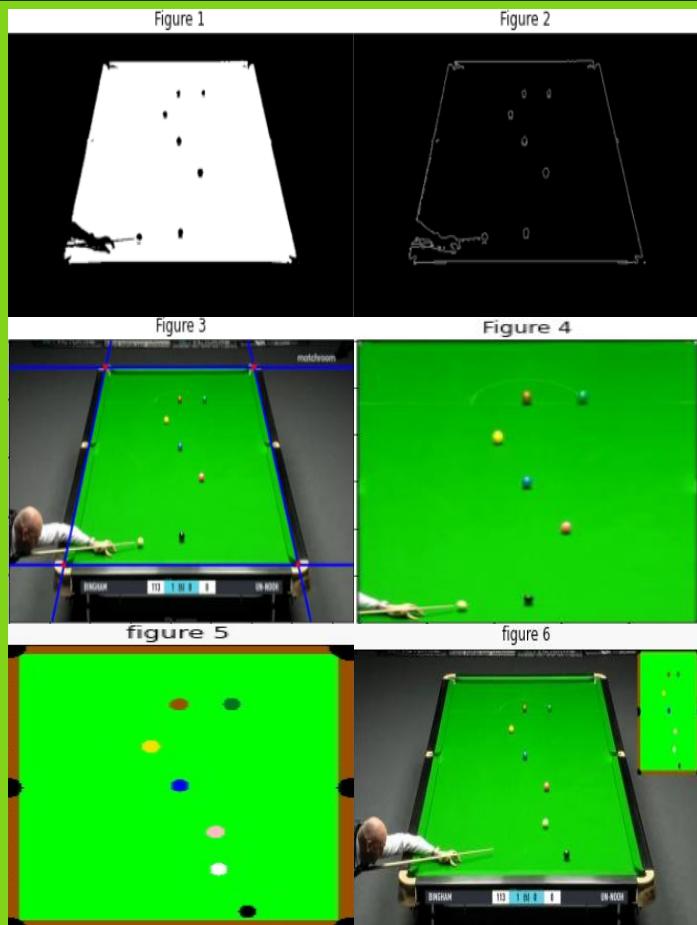


Steps results



Conclusions

- We managed to track each ball throughout the entire game
- there were problems with the balls randomly disappearing and fidgeting
- these problems were fixed almost completely with adjusting the mask ranges and implementing the sliding window method
- one problem which we couldn't fix was the players stepping in front of the camera and blocking the balls thus making them invisible momentarily
- given a clear view of table we can use the algorithm for a whole game of snooker
- Data type:**
 - an mp4 video
 - video dimensions(854,480)

Summary

Work environment: Jupyter lab
Language :Python
library: OpenCV, Numpy,matplotlib
project goals: to track a given game of snooker and to visualize it in a easy to understand graphic

General project explanation

The main purpose of the project is to track the position of the snooker balls during a game of snooker and display them on a proportional map of the snooker table.
 we use the different Hough functions and a masking technique in order to detect the balls to display them on the graphic, we assume that the camera recording the game doesn't move

Detailed steps

Step one:

- using green color **mask** we highlighted the table(figure 1)
- canny** edge detection (figure 2)
- Hough lines** to find the homography of the table (figure 3)
- We warp the perspective such that we get a top' view of the table (figure 4)

Step Two:

- We use different color masks and **Hough circles** to find each ball(figure 5)
- We then tracked the motion of each ball using its position in the previous frame. We also used a sliding window to minimize the area for which we would search in for each ball thus implementing better matching and faster runtime .(figure 6)