Soccer Ball Detection in Match Videos

Overview

The project detects the position of the soccer ball in match videos or live stream video directly fed from camera.

Objective

The project aims to locate the soccer ball in various frames of videos on the basis of color difference of the ball and the surroundings given the particular range of color limits of the soccer ball. The module automatically highlights the ball in the video.

Description

The project has been implemented using OpenCV in Anaconda Python 2.7 environment. The libraries used were numpy, matplotlib and imutils to name a few.

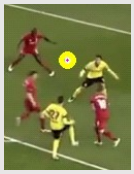
We have to set the parameters for the color of the soccer ball in the particular video for accuracy purpose.

We convert the frames into the HSV color space and also blur the frame by adjusting the frame size using imutils. Then the module decides (or finds) the best possible color falling the given limits of the range of colors and draws a circle round the ball in the frame if the radius falls in the range already set in the code. The detected ball is hence seen highlighted in the video.

Result

The detected ball is seen highlighted in the video however the results are not very accurate as the ball is not detected the frames having similar color objects like goal posts, gloves, flashes, etc.

Here are Some snapshots of the module in action.



References

https://www.youtube.com/playlist?list=PLQVvvaa0QuDffXBfcH9ZJuvctJV3OtB8A

https://www.youtube.com/watch?v=Z78zbnLlPUA&list=PLQVvvaa0QuDdttJXlLtAJxJetJcqmqlQq

Future Work

Try to keep a track of the previous locations of the ball so that a trail can be shown for the previous locations. We were not able to do so because for that the ball has to be tracked continuously.

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