**Image Processing Project**

**Our Aim**

Is to compute and show how many passes were made through the tracking of both players and the ball as separate objects.

**1) Classifiers used:** Supervised classification

1-Machine Learning, Dominant Color Learning and View-type Classification

2- Haar cascade for player’s detection

3- Clustering based trajectory matching method was proposed to solve the tracking of players in soccer video

4-

**2) Algorithms used:**

1-particle filter to deal with the multiple target tracking

2- Color-based elimination

3-Sobel Gradient

4-Threshold

5- Segmentation

6- Alpha matte

7- Saliency

8- Circle Hough Transform

9- Template matching

10- Morphological filtering (erosion and dilation) is applied to eliminate the noise.

**In summary**

Our project is about Object tracking movement, we are trying to track the ball and see how many passes were made by team X, team Y or passes in general,   
we will use the previously mentioned algorithms and classifiers based on other papers made for tracking a moving object like a soccer ball or an American football and classifiers to include a broad range of decision-theoretic approaches to the identification of images.  
Classification algorithms typically employ two phases of processing: training and testing. In the initial training phase, characteristic properties of typical image features are isolated and, based on these, a unique description of each classification category, i.e. training class, is created. In the subsequent testing phase, these feature-space partitions are used to classify image features.