Abstract

Object detection and tracking its movement is an important aspect in today’s sports broadcasting industry. It helps in post-match analysis, studying previous matches to find drawbacks in one’s technique and also helps in discussion and debate. Detecting a moving object is a cumbersome technique as it involves a very complex human movement as well. In this paper, movement of tennis ball is detected, tracked and its a-priori path has been studied to predict the posteriori movement. The detection of the tennis ball is performed using Matlab. Tracking and path prediction is performed using Kalman filter. This filter works on an algorithm having two stages: prediction and updating. The ball detection accuracy of 96% has been achieved. The parameters of a moving ball that has been studied are its acceleration, process noise and measurement noise. The error found in tracking the ball while varying its various parameters is also discussed.
Simultaneous Localization and Mapping for Trajectory Prediction of Tennis Ball


Index Terms

Computer Science

Information Sciences
Keywords

Trajectory prediction, Kalman filter, objects tracking, moving object detection.