# MEEN 689 ROBOTIC PERCEPTION PROJECT PROPOSAL

# HAWKEYE PREDICTION

**Problem Statement:**

Tracking and prediction of the trajectory of the ball can provide crucial insights in numerous sports like cricket, tennis, football, badminton, rugby, soccer and volleyball. Hawk-Eye is a computer to visually track the trajectory of the ball and display a profile of its statistically most likely path as a moving image.

In cricket, the state-of-the-art system works via six (sometimes seven) high-performance cameras, normally positioned on the underside of the stadium roof, which track the ball from different angles. The video from the six cameras is then triangulated and combined to create a three-dimensional representation of the ball's trajectory.

We propose to emulate the Hawk-Eye technology using computer vision algorithms on phone camera video. We will be using Kalman filter to predict/ estimate the next position of the ball with current position information. We plan to use OpenCV libraries for object detection based on the color (Hue/ HSV value). The aim is to predict whether a ball that has hit the batsman on the pads would have gone on to hit the stumps, the so-called lbw (leg before wicket) decision.

**Team Members:**


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