how does Hawk Eye Technology work?
Submitted by aswinpai on Sun, 06/29/2008 - 09:33.

* Sports

we have all seen and heard of the next big thing in sports technology ie Hawkeye which we see during every break of play while following cricket. now its also being used in tennis, golf, snooker and also suitable to use in football and many more sports. But how does it actually work?

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virgoMan's picture
Hawk Eye Technology. How it works?
Mon, 06/30/2008 - 19:22 [ virgoMan

One of the most difficult, and sometimes controversial, decisions that an umpire has to take on the cricket field is for LBW (leg-before wicket). To take the final call on a batsman, the umpire has to juggle with many variables whether the ball pitched outside the leg stump, hit the batsman in line with the stumps or whether it would have hit the stumps, and most importantly whether the player was making a genuine effort to play the shot.

....system is able to locate the ball in 3-D and can predict the motion with a claimed accuracy of 5 mm with the help of six cameras

Hawk Eye aims to aid the umpire by giving inputs on the physics of the ball by tracking and predicting its motion. It uses a special image-processing system from Roke Manor Research (a Siemens R&D company) and commercial off-the-shelf hardware along with six specially placed cameras. Hawk Eye incorporates both image analysis and radar technology. The six fixed JAI monochrome cameras, with a 120 Mhz frame rate, are placed around the playing field (see picture). They track the ball's entire trajectory, right from the point where it is released from the bowler's hand to the point the ball is considered dead.

This is updated 100 times every second. The cameras are used in two sets, and a multi-channel frame grabber handles each set. The images captured are then processed by software to produce a 3-D image. The future path is predicted using a parametric model. The system is able to locate the ball in 3-D and can predict the motion with a claimed accuracy of 5 mm.

Some of the esoteric statistics that can be generated by this system are: the areas where a particular bowler pitched and how much swing or spin a particular bowler generated. In some cases where the system's accuracy is questionable, it just gives a cant help message to ensure its accuracy never goes below acceptable limits.

Besides aiding the umpire in taking a decision, the Hawk Eye is also used to give a more enhanced feed to TV viewers. Who can forget all those virtual replays shown from various angles of a player being called for an LBW?

The application of Hawk Eye goes much beyond cricket. The company, Roke Manor, is also developing similar technologies for tennis, football, baseball and snooker.

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@aswinpai
Fri, 08/22/2008 - 16:25 [ superkents
I would say that it's a marvelous technique but not good enough. It certainly creates second thoughts. We get to experience that once we see the replays right. But as far as the accuracy goes I would give it a thumbs down. Because it does not cater the wind, pitch conditions as far as my knowledge goes. Please correct me if I am wrong.

And it kind of creates a bad image about the umpiring system and that's not fair. I would say, but you never know how it can bring more changes in the game in the future.

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