A Review of Use of Advance Technology in Cricket

Rohan Sudhakar Adnaik

Kolhapur
Corresponding Author - Rohan Sudhakar Adnaik

Abstract:

The purpose of the study was to highlight the technological advancement in cricket. Today is an era of technology. Technology discovers so many unknown things. Sports are not exception to it. Technology has come into cricket that involves players, coaches, umpires and more importantly spectators. Main reason for involvement in the cricket is the interest of everyone, which has been increasing over the years. It is because of new things introducing frequently which is useful to make cricket very fair and clear. Over the years cricket has incorporated into the game a few of the latest technological advances available. There have been some rejections of technology, such as the use of aluminum cricket bats, but generally the ICC has been rightly cautious about making changes to the game that will impact the players and spectators. Nowadays analytics has become an essential part and a major factor in deciding a team's success. Technological developments have happened in every field and it has had a huge impact on the game as well. Due credit must be given to the International Cricket Council for incorporating modern technologies. Technology helps the players to improve themselves as it helps them focus on the areas where they need to improve. It also helps the skippers in devising tactics. Technology has made life easier for the umpires to make an accurate decision. Technology like DRS, LED bails, hotspot, snickometer, spider cams etc. things certainly lifting cricket to new heights.

Keywords: Cricket, Technology, Spectators, Technological developments, ICC

Introduction:

Until 19th century, all bowlers used to ball underhand. It was in 1862, when a British player left the field in protest over a 'No Ball' call for raising the arm over the shoulder for delivering a ball. As a result, a regulation was passed to allow bowlers bowl overhand. The rule changed the game dramatically as the overhand bowling made it more complex for the batsman to judge the movement of the ball. And till then Cricket has come a long way with several modifications with rules affecting the nature of game play. Now Cricket is internationally well known game integrates so many technologies to get accurate results. Most of them were rejected by the purists. But still several technological amendments are slowly becoming crucial part of the game.

In the modern day game, analytics has become an essential part and a major factor in deciding a team's success. Technological developments have happened in every field and it has had a huge impact on the game as well. Due credit must be given to the International Cricket Council for incorporating modern technologies. Technology helps the players to improve themselves as it helps them focus on the areas where they need to improve. It also helps the skippers in devising tactics. Technology has made life easier for the umpires to make an accurate decision. After studying hundreds of references on the evolution of Cricket we can see the key technological implementation in the gentleman's game.

Objective:

1. To take overview of advancement in technology
2. To understand latest technology in cricket
3. To know actual application of advance technology in cricket

Technology in Cricket:

1. Third Umpire:

Before 1992, all the decisions pertaining to what was happening on the field was decided by the two on-field umpires. The Third Umpire, also known as the TV Umpire came into play in the first Test between India and South Africa in November 1992. The TV Umpire has television replays to make his decision and comes into play when the on-field umpires require his help.

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Previously, it used to be lights, like the ones in the traffic signals, used to decide the fate of the batsman, with red signaling the end of the batsman's innings or Out, whereas the green light signaling the batsman has survived the appeal or Not Out. Third Umpires since then have been used whenever the on-field umpires have any doubts regarding any appeals. Though one can't term this as a technological advancement, TV Umpires have certainly changed the game.

2. Decision Review System (DRS):

Cricket has joined some other world sports and has included an umpire referral system in some international matches. Such a system was first trialed in 2008 (in a Test series between Sri Lanka and India). Unlike in tennis where the challenge and referral decision is clear cut using hawke-eye technology, the cricket referral is adjudicated by the third umpire, and is open to further errors. The actual way it works may change and develop, but when it was first brought in this is how it worked. Players are allowed to challenge decisions made by the on-field umpires, and have them referred to the TV official. For each innings of the Test, each team can challenge any decisions, though they will be limited to three unsuccessful challenges per innings. Only the batsman on the receiving end of the umpire's original decision or the captain of the fielding side can appeal by making a "T" sign with both forearms at shoulder height. The third umpire uses the technology of the hot spot and slow motion replays at

different angles to gain information and make decisions.

It all sounds great for the players and viewers at home, but the pressure is on the umpires. In reality, the process often takes too long and can distract from the game. When there are challenges left near the end of an innings, players tend to make playful challenges on the off-chance of getting a decision overturned. So there are still problems that need to be ironed out, but the referral system is a great step forward for cricket.

3. Snickometer:

Commonly known as Sniko, the technology is used in televising Cricket to graphically analyses sound and video and show the noise frequency to find out whether the ball touched the bat before going to the fielder. Invented by British computer scientist Allan Plaskett, the Snickometer was introduced in the mid-90's and since then it has become a key technology to find out if the ball touched the bat or not. The Snickometer is frequently used by third umpires to take decisions on a complex catch appeal. The shape of the frequency helps the umpire to find out if the ball touched the bat on the way through to the wicketkeeper.

If there is a sound of leather on willow, which is usually a short sharp sound in synchrony with the ball passing the bat, then the ball has touched the bat. Other sounds such as the ball hitting the batsman's pads, or the bat hitting the pitch, and so on, tend to have a fatter shape on the sound waveform. However,

this technology is used when the ground umpires refers to the third umpire.

4. Hot Spot:

The Snicko was not considered as accurate enough; hence the Hot Spot was introduced to Cricket. It is an infra-red imaging system used to determine where the ball has struck before going to the fielder. The infra-red image shows a bright spot where contact friction from the ball has elevated the local temperature. Where referrals to an off-field third umpire are permitted, the technology is used to enhance the on-field umpire's decision-making accuracy. Where referrals are not permitted, the technology is used primarily as an analysis aid for televised coverage.

The technology uses two cameras positioned on the either end of the ground and measures heat friction generated by a collision, such as ball on pad, ball on bat, ball on glove or anywhere else. The technology uses a subtraction technique of monochrome negative frames into a computer for finding out the ball contact precisely.

5. Hawk Eye:

This technology is widely used among popular sports like Cricket, Tennis, Soccer, Hurling and more for visually tracking the ball and display a record of its statistical path through movie image. Developed by Dr. Paul Hawkins from the UK, the system was originally implemented in 2001 for making the television broadcast more interactive.

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The technology works via six or seven powerful 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 trajectory of the ball. Hawk-Eye is not infallible and is accurate to within 5mm (0.19-inch) but is generally trusted as an impartial second opinion in Cricket. The Hawk Eye technology helps the umpire by watching where the ball pitched, location of impact with the batsmen's leg and projected path of the ball past batsman.

6. Pitch Vision:

Developed by Mi Sprot, a UK-based company, the technology has been widely used in the Cricket training system. The Pitch Vision is designed to be used by the full spectrum of Cricket users to provide players key performance feedback. Priced almost 2/3rd of a bowling machine, the technology helps bowlers to measure and record bowlers pace, line, length, deviation, bounce and foot position on bowling crease ball by ball. The technology is able to show the map of bowler's line and length.

It also helps the batsman to see whether their shots would have pierced the field, identify which specific deliveries get you in trouble, compare performance against different bowlers, bat in real game scenarios against real field placements, see a 'Wagon Wheel' of shots from the session and confirm

whether the batsman is constantly getting to the pitch of the ball.

7. SpiderCam:

The SpiderCam enables film and television cameras to move both vertically and horizontally over a predetermined area, typically the playing field of a sporting event such as a cricket pitch. The SpiderCam operates with four motorized winches positioned at each corner at the base of the covered area, each of which controls a Kevlar cable connected to a gyro-stabilized camera-carrier, or dolly.

By controlling the winding and unwinding of the cables, the system allows the dolly to reach any position in the three-dimensional space. The inputs of the SpiderCam 'pilot' are processed by a software that forwards the commands to the winches via fiber optic cables. The SpiderCam was first used in the Indian Cricket League followed by the semifinals of 2010 IPL in Champions League Twenty20 in South Africa.

8. Stump Camera:

The Stump Camera is a small TV camera stuffed inside a hollow stump. The camera gets aligned vertically the camera view through a small window on the side of the stump via a mirror. These cameras help generate unique view of play for action replays specifically when a batsman gets bowled.

9. Ball Spin RPM/ Rev Counter:

This technology is used to show the rotation speed of the ball. It is used when spinners are bowling, to show viewers the idea how much each ball is

spinning. The technology is also able to show the RPM or revolution per minute through a counter, demonstrating how fast the ball is spinning after release.

10. Speed Gun:

The Speed Gun is used to measure the speed of the ball from one end of the pitch to the other. The technology allows calculating the speed of bowler's delivery. Implemented first in 1999, the speed gun gets mounted on a pole and positioned next to the sight screen. The device relays a beam from the radar head to detect movement across the entire length of the pitch. This technology actually tells us who is the fastest bowler and what was the highest speed the player achieved while setting up the record.

11. Bowling Machine:

A Bowling Machine enables a batsman to practice and to expertise specific skills through repetition of the ball being bowled at a certain length, line and speed. It can also be used when there is no one available to bowl, or no one of the desired style or standard. There are various types of bowling machines, which are quite different in the ways they achieve the required delivery, though most allow the use of remote control, so that a coach can be closer to a batsman when the stroke is played.

The main mechanism of the machine consists of two heavy wheels, each driven by its own electric motor. These are mounted in a frame such that the wheels are in the same plane. A ball joint allows the machine a wide range of movement. The whole assembly is mounted on a sturdy tripod or other frame so that the plane of the wheels is roughly at the height that a typical bowler would release the ball. A chute delivers the ball between the wheels, protecting the coach's hands.

12. LED Bails:

Using LED technology, the Bail glows once the ball struck the wicket/bail or the wicketkeeper whips off the bails. Developed by Bronte EcKermann, an Australian mechanical industrial designer, and created by South Australian manufacturer Zing International, the LED Bails are an expensive solution to notice falling of the bails. The bails pack a microprocessor and sensor in each bail along with a low voltage battery to determine if the wicket is broken in one thousand fraction of a second.

Conclusion:

In this article, we have discussed the technological advancements in cricket such as: Bowling machine, Hawkeye, Hot spot, speedometer, stump microphone, snikometer and etc. Not only these advancements have helped to make correct decisions but they have also brought the game closer to its fans. Players can now analyze and improve their performance. These technological advancements have changed to entire face of cricket in 21st century.

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Dr. Shrikant Prakash Patil