ARTIFICIAL INTELLIGENCE IN SPORTS

An Analysis of the Benefit of Decision Review System in Cricket

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Subject: Sports Law

June 2023

Abstract

Artificial Intelligence has changed the way of life in 21st Century and sports have also used them to their benefit. In this paper we will discuss about how the AI have been used in Cricket in past decade or so and what has been its impact.

The development of Artificial Intelligence has been very helpful to the whole mankind. Today it is has become part of our life, for examples using them as maps by Google to easily navigate, recommendation to purchase or suggest video on the basis of the user history. Similarly Artificial Intelligence has also become part of the game of cricket in past couple of decades.

The Artificial intelligence is the result why the game has saw teams taking help of analyst and strategists. The analysts with help of Data try to analyse the strength of a player, so if they have to assess the weakness of a batsman from the opposition team, they can use data analytics and arrive on the area of his strength and weakness. This data can be used by him to feed his bowlers about the area in which he needs to bowl.

On the other the batting team breaks up the mystery of the bowlers, read the bowl coming out of fingers and palms. It helps them to tackle the bowler in much better way.

On the other hand the recently introduced Decision Review System in 2008 has changed the way the game is played. The DRS system was introduced in order to minimise the error of umpires and help team getting as much correct calls. The DRS system is also based on the techniques which are part of Artificial Intelligence like Hot Spot, Snickometer or Hawk Eye. These techniques are now regular feature of the sports.

This paper will try to analyse how the Artificial Intelligence have helped the sports to get better decisions and minimise human errors.

Chapter 1- Artificial Intelligence in Cricket

The introduction of new technology has become part and parcel of our lives in past few decades. Today in 21st Century the way we behave, the way we spent our day and to whom we communicate depends a lot on the technology.

Cricket has not been immune from changes, over the years Artificial Intelligence have become integral part of the game and have changed the way it is played.

When the third umpire was introduced it was historic moment for Cricket in 1990s. But the game took a remarkable change in late 1990s and early 2000 when Data was introduced. It paved the way to make strategies in cricket.[1]Laptop became part of the team meetings and later on Data Analyst was also added to the support staff.

Number of teams has been able to reap the benefit of the data in recent years. They have been able to make strategy beforehand easily and counter the threat of certain batters or bowlers which have helped them to win trophies and tournaments.

While Cricket's landscape was changing considerably by 2007-08, however for one thing it was always criticized were the wrong decisions given by the umpires who affected the game and sometime use to have an adverse effect on the results. In the 2005 Ashes, a series considered to be the greatest Test series in the history of cricket, England won the series 2-1. However, the Edgbaston Test proved to be decisive here, England won the Test only by 2 runs but there was much to it.[2] At 279-9, with Australia needing only 3 runs to win and the last Australian pair fighting to the core, no.11 Michael Kasprowicz was adjudged out gloving a rising delivery from Steve Harmison to Geraint Jones behind the stumps by Umpire Billy Bowden.[3]The English players were jubilant and the crowd went bonkers as England levelled the series 1-1 after 2nd Test. But there was much to it as the replay showed that Kasprowicz's hand was off the bat when the ball touched his glove, as per rule it was not out but from the naked eye it was too difficult to determine.[4]

In 1980s the touring team use to complain regarding the umpiring decisions as the home team umpires use to officiate in those days.[5] The West Indies team in 1979-80 had a heated argument with the New Zealand umpires in what is still considered to be a controversial series. The New Zealand who was the home team celebrated their victory (1-0 in 3 Tests) as coming of age but West Indies were of the presumption that umpires have helped them

[1] Artificial Intelligence and Data Analytics in Cricket, 1Muhammad Ahmad Tahir, 2Muhammad Tahir Nazeer, 3Hira Atta, 4Muhammad Awais Saeed, 5Asif Munir
[2]https://www.espncricinfo.com/series/australia-tour-of-england-and-scotland-2005-139019/england-vs-australia-2nd-test-215010/full-scorecard
[3]https://www.cricket.com/news/a-brief-history-of-drs-1595518506615
[4] https://wisden.com/stories/news-stories/it-couldnt-be-plumber-the-lbw-decision-that-could-have-lost-england-the-edgbaston-test
[5] Fernando, A. and George, Siddharth, Debiasing Discriminators: Evidence from the Introduction of Neutral Umpires (May 21, 2020)

to win.[6]Teams travelling to India and Pakistan use to complain about the umpiring while other countries were not far different.

In 1992, The International Cricket Council, who is the governing body of Cricket, introduced the third umpire regulation to minimise the errors. In 1994 with the Test match between India and West Indies at Wankhede Stadium, Mumbai, the system of one neutral-i.e. an umpire who was a national of neither playing team and one home umpire was introduced. [7] Things continued to improve hence in 2002 the governing body made it mandatory to have both on-field umpires to be neutral[8].

These introductions to the game showed the minimization of biasness but the element of human error was still there, sometime the blunders which use to take the centre stage as a result of it the ICC decided to introduce the Decision Review System (DRS) in 2008.

Chapter 2- How Artificial Intelligence has affected Cricket in form of DRS

The DRS was to be trialled by ICC in England vs. South Africa Test series in 2008 English summer but as both boards couldn't reach on any agreement, so the plan was dropped but on the other hand the Sri Lankan and Indian Cricket board agreed to use the DRS for the first time in the Test series

Hence the 1st Test between Sri Lanka and India at Sinhalese Sports Club (SSC), Colombo witnessed the historic moment in the game when the players could challenge the decision of the on-field umpire and the Artificial Intelligence in form of DRS was being implemented to reduce the errors of on field umpires[9].

In 2009, the ICC officially introduced DRS in Test Cricket, as the Test match at University Oval, Dunedin between New Zealand and Pakistan became the first one to use this as ICC's protocol. Though ICC gave option to the teams to either opt for the system or not.

What is DRS and how it is used: Known as Decision Review System (DRS), it is an important tool used by the players to challenge the on field umpires decision if they are not satisfied. The team who wants to challenge the decision of the umpire have 15 seconds to ponder, once they challenge the decision of the on-field umpire, the umpire refers it to the third umpire who uses the technology to decide. It must be noted that the team who challenges the decision have to make sign T with their hands so as to make sure to the umpires that they want to challenge their decision. [10]

The Umpire use following Artificial Intelligence tools to come up on the decision:

a. Ultra Slow Motions
b. Zoom Lenses

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[6]https://english.newsnationtv.com/sports/cricket/new-zealand-beat-west-indies-one-wicket-dunedin-253825.html
[7] https://www.espncricinfo.com/series/west-indies-tour-of-india-1994-95-61946/india-vs-west-indies-1st-test-63660/full-scorecard
[8] Out of Sight, Out of Mind? The Effect of Peer Evaluators on In-Group Bias* A. Nilesh Fernando & Siddharth Eapen George
[9]https://www.cricket.com/news/a-brief-history-of-drs-1595518506615
[10]https://resources.ecb.co.uk/ecb/document/2022/03/10/a680e5ea-4a79-4d92-bc4e-9fef0617b347/8.DRS-Regulations-2022-vF.pdf,
Umpire and Player Review Regulations, England and Wales Cricket Board

c. Ultra edge

d. Snicko meter

e. Hawk Eye

Let's us take few examples how the AI have simplified the job of the Umpires

1. In case of Leg before Decision (LBW) In case of a player challenges the decision of the on-field umpire, the umpire refers it to third umpire. The Third umpire first sees whether it's legal ball, after that it see whether the ball has touched bat or not, if he is not convinced, he uses snicko to detect the touch. He can also use the Hot Spot technology if available to see the spot, this helps in checking whether the ball had hit the bat or not. Post that the tracker is use to predict whether the ball is in line of the stumps, the impact is line and the ball is hitting the stumps. If the umpire is satisfied then in such a scenario he tells the findings to the on field umpires and can ask them to stay with their original decision or revert it.[11]

2. In case of Catches: After the decision is referred to the third umpire, he first again follows the protocol. He checks whether the ball is legal or not. He then uses the Snico which can detect the faintest of edges. Sometime the Snico might not eb able to give clear picture for example: if the bat has hit the ground and at the same time the it has passed the bat then the umpire might not be able to take proper decision as the snicko just detects the sound. In such a scenario if the Hot spot is available then he can use it to check whether the ball had touched the bat or not. He can also use the Zoom Cameras to ensure that right decision is made.

In order to ensure that umpires are assisted properly the ICC provides them with assistance of the technical experts. As mentioned in the ICC manual of Standard Test Match Playing Conditions "*The ICC shall appoint an independent technology expert (ICC Technical Official) to be present at every series to assist the third umpire and to protect the integrity of the DRS process*"[12]

Conclusion

Since its inception in 2008, the Decision Review System can said to be highly successful, yes it has its own share of controversies where questions have been raised on its accuracies and the way the decisions have been made but there are now two thoughts that it has considerably reduced the errors made by umpire.

In the modern-day cricket, Artificial Intelligence have become an integral part of the game, it has helped in getting much better decisions which ultimately have helped the game overall. Because when the errors are avoided, it increases the trust of the spectators in the game and when their trust is strengthened ultimately it creates strong goodwill to the sport.

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[11]https://icc-live.s3.amazonaws.com/cms/media/about_docs/518a6f5d5f88e-Third%20Umpire%20-%20Decision%20Review%20System.pdfStandard Test Match Playing Conditions, International Cricket Council
[12] Supra

As the money invested in cricket have increased manifold in recent years hence the stakeholders want that the error factors in the game shall be minimised as much as possible because they want the high returns of the money possible. Above all the AI have become integral part of Cricket, this is the reason why BCCI who have been adamant not to use the DRS after being on the wrong side in initial years have implemented it now not only for International matches in India but also for Indian Premier League (IPL) and for domestic cricket as well.

Beyond DRS, Artificial Intelligence in sports has helped in improving the standard of cricket. The use of Data in modern day cricket has taken the competition to the next level where even the smaller countries have chances to progress and stun the bigger nations.

The Market of AI is expected to reach 267 Billion Dollars by 2027 globally, and it participation in Sports and particularly cricket is also expected to rise significantly. In years to come we can expect more such new additions with the help of AI which will make cricket more exciting.

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