

FIFA submission – July 1

Semi-automated offside technology to be used at FIFA World Cup 2022™

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Information:

FIFA has announced that semi-automated offside technology will be used at the FIFA World Cup 2022™ in Qatar starting on 21 November, offering a support tool for the video match officials and the on-field officials to help them make faster, more accurate and more reproducible offside decisions on the biggest stage of all.

The video submission includes interviews from FIFA's Living Football programme and semi-automated offside technology B-roll.

Transcript (source audio is indicated):

00:00

Living Football Presenter Jessica Libbertz (EN):

"The FIFA World Cup is rapidly looming on the horizon. We're looking forward to the biggest sporting event in the world. As we all know, harnessing technology is one of the explicit goals in the President's Vision 2023. Today, we want to talk about the next milestone and the history of VAR with Pierluigi Collina, Chairman of FIFA's Referee Committee, and FIFA Director of Football Technology and Innovation, Johannes Holzmüller. Johannes, thanks for being with us. It's nice to have you here again on the sofa. Johannes Holzmüller. Thank you. But we want to start with Pierluigi, the best referee of all time. Pierluigi, *buongiorno*. FIFA has just announced that semi-automated offside technology will be used at the FIFA World Cup in Qatar. What are we looking forward to? The VAR has been a great success so far."

00:48

Chairman of FIFA's Referee Committee Pierluigi Collina (EN):

"Although the implementation of VAR has been very successful so far, we are not to forget that it's something relatively new. The first match played with this new technology was only in 2016. Two years later, at the FIFA World Cup in Russia, with great success. Now, VAR is used in almost all major competitions around the globe. But we are aware that there are some aspects that need to be improved. Among them, certainly, are offsides. We know that, sometimes, it takes too long to make a final decision on offside incidents, particularly when the incidents are very difficult to assess. Today, players; attackers and defenders, are very good at playing around the offside line, and very often, the offside incidents are really very tight. Therefore, we decided to develop, together with various partners, some new technologies to try to limit the time needed and also to be more accurate. For this reason, at the FIFA World Cup 2022 in Qatar, there will be two new technologies implemented: one is the so-called semi-automated offside technology, and the other one is the connected ball."

02:39

Living Football Presenter Jessica Libbertz (EN):

"We will speak about the connected ball later with Johannes. Last time you were on the show, Pierluigi, we spoke about semi-automated offside technology. Can you briefly explain again, for those who didn't see the episode, how it works and why it is called semi-automated offside?"

02:57

Chairman of FIFA's Referee Committee Pierluigi Collina (EN):

"It's [called] semi-automated offside because the final decision is still taken by the video match official. Without going into too much detail, there will be 12 cameras tracking the position of the players on the field of play. Each player has up to 29 data points, and data will be sent up to 50 times per second. The position of the player will be determined very accurately on the field of play, particularly limbs, as well as all the other parts of the body relevant to [the] offside [rule]. Similarly to the position of the player, the ball is also tracked by these 12 cameras. It's a very new ball, it's the connected ball, with a sensor inside sending data up to 500 times per second. This is very important to determine, with the highest accuracy, the kicking point, which is also relevant to determining the player's position at that particular moment. Of course, these two new technologies will very much help [with] position checks, because whenever a player in an offside position receives the ball, an alert will be sent to the VAR, and the VAR will be immediately able to check this position, with the technology itself drawing the offside line. This will reduce the time needed for the assessment, and the accuracy will be improved as well. The aim is to give an answer as quickly as possible, with this answer [being] very, very accurate. The VAR has to validate the final decision before informing the referee. This is the reason why it is called semi-automated offside; because there is still the intervention of the human being to make the final call."

05:24

Living Football Presenter Jessica Libbertz (EN):

"How does this new technology work towards referees on the field?"

05:29

Chairman of FIFA's Referee Committee Pierluigi Collina (EN):

"Our objective is to prepare the referee as best as possible to avoid using the technology. But the technology is there to avoid making mistakes. Even the best referee can make a mistake. He's a human being. We know it. And that's why we implemented a system using tools that can really reduce the possibility of a human mistake affecting the outcome of a match."

06:03

Living Football Presenter Jessica Libbertz (EN):

"For fans watching matches in the stadium or at home, how will they receive this information?"

06:29

Chairman of FIFA's Referee Committee Pierluigi Collina (EN):

"This is something that we also considered. So, once the decision-making process has been completed and the decision has been made by VAR, the same data points which were used to determine a player's position, will be generated into a 3D animation and this animation will be shown on the giant screen at the FIFA World Cup 2022 stadiums, and will also be provided to TV broadcasters and the TV viewers will be able to see them on their televisions."

07:00

Living Football Presenter Jessica Libbertz (EN):

"Pierluigi, you were one of the best, let's say *the* best referee in the world. Do you wish there had been something like this back in 1998?"

07:10

Chairman of FIFA's Referee Committee Pierluigi Collina (EN):

"Nobody likes to make a mistake, even myself, and when I was on the field of play, I never liked to be wrong. So, certainly, I would have been delighted to be somehow saved by the international technology when I made a mistake."

07:29

Living Football Presenter Jessica Libbertz (EN):

"Which almost never happened. Pierluigi [Collina], thank you very much, *mille grazie*. Have a great day. And we want to pick up right here on the sofa with Johannes Holzmüller, FIFA Director of Football Technology and Innovation. Johannes, it's the second time for you in the studio, [it] seems you're a friend of the show now. How are you?"

07:47

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

"I'm doing well, thank you so much. It's always a pleasure being here in the studio and talking with you about the latest technologies in football."

07:56

Living Football Presenter Jessica Libbertz (EN):

"And it's always so interesting. You are FIFA's Director of Football Technology and Innovation, as we mentioned, and have been leading the way when it comes to harnessing technology in football, and VAR, for example, was a great success at the FIFA World Cup 2018. So, what was FIFA's thought process in the wake of that tournament in terms of improving the system?"

08:17

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

"Yeah, exactly. As you said, it was a great success and, of course, we constantly try to improve the different systems and solutions that we bring to the world of football. And by monitoring not only the FIFA tournaments but also the leagues around the world [that] are applying VAR, we realised that there are certain areas where we can further improve the setup and the workflow. So, the most obvious one for us was the offside decision-making process because we checked with our providers and found out that on average, on a global level, it takes 70 seconds until the decision for an offside incident is made. So, that means 70 seconds that the players have to wait on the pitch, the referee has to wait on the pitch, but also the fans have to wait. So, therefore, we said: "OK, this is something we want to improve." And so, our main objective, our main goal was to make this process faster as well as more accurate, or as accurate as possible."

09:23

Living Football Presenter Jessica Libbertz (EN):

"So, there have been several trial runs, also at the FIFA Club World Cup. Now, how has the technology grown over time, and how reliable is it?"

09:32

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

"Yeah, so we started, as you correctly said, after the last World Cup, and in 2019, we had the very first meeting with technology providers and universities around the world. We told them about what we planned to do: so, we want to reduce the time needed to make this decision, as well as to make it as accurate as possible. At that time, only a few companies said: "OK, we would like to go with you, and we would like to look into what we can do." So, we started this process in 2019 with first demonstrations, with first ideas and discussions about possible solutions. But then, unfortunately, in 2020, due to COVID[-19], we had to postpone all our tests. So, actually, we started with real physical tests in 2021. So, we went to different stadiums around the world, we implemented different technologies from different providers and we looked into all the different possible solutions. And we always brought the best solutions to FIFA tournaments, like the FIFA Club World Cup or the FIFA Arab Cup, to find out what is the best solution to reach our goal. So, finally, we decided to have semi-automated offside technology, which is based on tracking technology, as well as a connected ball because we believe that it's very reliable: all the test results that we have seen are very reliable, as well as the data, [which is] very accurate. So, we used different universities around the world to help us to analyse, to validate this data, but also to improve this data together with the technology providers."

11:05

Living Football Presenter Jessica Libbertz (EN):

“Besides COVID, what was the biggest challenge?”

11:08

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

“Yes, I think the biggest challenge was, or has been so far, that we are using different technologies. So, on one side, limb tracking, so optical tracking with cameras installed in the stadium. On the other side, the connected ball, where the data is coming out of the ball at the end. To connect this data, to synchronise this data, I think that was definitely one of the main challenges where we worked a lot on bringing all the different data sources together [so] that it can be used in a very simple way by the VAR at the end.”

11:36

Living Football Presenter Jessica Libbertz (EN):

“So, finally: how quickly can offside decisions be made now? Best-case scenario.”

11:46

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

“Yes, I think Pierluigi also mentioned something in this regard. As I said before, we are talking about 70 seconds at the moment as an average. So, all our tests, or in our tests, we have seen that we can do it in a much shorter time period. So, we can significantly reduce this required time, which means at the end that fans in the stadium, the referee on the pitch, as well as the players, do not have to wait so long anymore.”

12:14

Living Football Presenter Jessica Libbertz (EN):

“OK, so what is the next step towards the FIFA World Cup now? Will there be final tests?”

12:20

FIFA Director of Football Technology and Innovation, Johannes Holzmüller (EN):

“Yes, of course. So, in the coming weeks we will continue our testing. We want to define, fine-tune the system for the World Cup but, of course, also as a next step we are planning to create a global standard to enable all the leagues around the world to use this technology. Then, finally, of course, as we have already done but we will continue to do, we will inform all the participating teams of the World Cup, as well as the media and the public, about what semi-automated offside is and how it can improve the football experience.”

12:56

Living Football Presenter Jessica Libbertz (EN):

“Yes, it starts here. Thank you very much, Johannes Holzmüller. Well, we are looking forward to significantly faster and more accurate offside decisions. It was great to have you here, you’re always welcome. Thank you very much, Johannes.”