Officiating | Broadcast Enhancement | Live Production
Experiential | Digital | Coaching

hawkeyeinnovations.com | pulselive.com
Hawk-Eye in Tennis

Hawk-Eye has been an integral part of tennis since 2002 and continues to deliver innovative solutions for tournaments, broadcasters, federations, sponsors and academies that enrich the game for players and fans.

“Hawk-Eye not only dismantles a tennis controversy in a matter of seconds, but spectators get to watch replays right along with the players. It’s fun, lightning-quick and decisive, absolutely clearing the air for the ensuing point.”

Sports Illustrated

SERVICES
WHAT WE DO

Tournaments
By delivering officiating and broadcast solutions that raise the exposure of the event and fan engagement solutions that add value to sponsors.

Broadcasters
By delivering broadcast enhancement products that help tell stories and drive viewer engagement.

Federations
By providing solutions that make the game fairer, more engaging and more accessible.

Sponsors
By providing solutions that integrate sponsors into the fabric of the sport and get them closer to tennis fans.

Academies
By providing coaching services that deliver unique insights that can make the difference between winning and losing.
Hawk-Eye’s experience at managing officiating services within the live event environment has enabled the development of a number of solutions that enhance the in-stadia experience for fans and players alike.

**Tennis Simulator**

Attracting participants in their hundreds daily, Hawk-Eye’s tennis simulator is a fantastic sponsorship opportunity as well as offering an immersive and interactive game play environment allowing tennis fans to test their skill against the world’s best.

**SMART Vote**

Providing an easy and natural sponsorship extension Hawk-Eye’s SMART Vote takes fan participation to the next level allowing spectators to cast their vote on anything from line call decisions to trivia knowledge. This is all made possible with the use of six small cameras, vision processing and branded voting cards.

**Big Screen Production**

Hawk-Eye delivers engaging Big Screen Production solutions which make the live event experience for fans as exciting and interactive as possible. This service can encompass: live scores, virtual reality replays, challenges, sponsors messages, live social polling results and much more.

**Serve Speed & Shot Clock Display**

Hawk-Eye’s ball tracking technology enables the accurate capture of serve speed which can be activated via digital LED boards around the court and also on the big screen. In addition, Hawk-Eye’s Shot Clock adds another element of drama by displaying the time taken between shots to ensure there are no lengthy stoppages.

**Court Projections**

Adding an exciting new dimension to indoor tennis events, Hawk-Eye’s court projection feature allows challenges to be displayed in an innovative way enhancing both the viewing experience within the stadium as well as for TV broadcasters.
OFFICIATING

Hawk-Eye’s Electronic Line Calling service is now used by over 80 tournaments worldwide every year and has become an essential part of all major tennis events; making the sport fairer for players and acting as an exciting broadcast enhancement feature.

“Ultra-Motion brings the additional entertainment value to our fans and the real video combined with existing technology has added to the system’s credibility with players and officials.”

Gayle Bradshaw, Executive Vice President, ATP.
OFFICIATING ENHANCEMENTS

**Ultra-Motion**
Transforming the officiating replay system, Hawk-Eye’s Ultra-Motion cameras can work up to 340 frames per second to render both the trajectory and bounce mark of the ball to real video footage. This enhancement not only improves the viewing experience of challenges, but also brings an added sense of realism to decisions.

**Virtual Reality Replay Sponsorship**
The exposure and interest of the Hawk-Eye Virtual Reality replays provide a fantastic opportunity for a sponsor to engage with a captivated audience.

**Tennis SMART Officiating**
Tennis SMART Officiating not only ensures correct and informed decisions are made as efficiently as possible by officials, but also serves as an excellent training tool by improving the standards of officiating and accelerating their learning.
Hawk-Eye in Tennis

LIVE PRODUCTION

Hawk-Eye has developed a number of innovative broadcast solutions ranging from an HD quality, low cost live production service to insightful augmented reality graphics that drives fan engagement.

SMART Production

Hawk-Eye, in collaboration with SONY, has developed a new broadcast technology that allows tennis to increase the number of broadcast courts at an event for a fraction of the cost of traditional approaches.

The SMART Production solution uses up to six cameras on remote heads, which automatically track both the players and court lines to recreate the angles and shots you would expect to see from a cameraman. The images are then fed into a central server which acts as vision mixer, provides replays, and produces in game score graphics in the style of the event, allowing a traditional five man broadcast operation to be run by a single person.

SMART Graphics

Hawk-Eye has developed a real time web based graphics system which passes data from the umpire’s scoring tablet, generating live match graphics for any template, as well as recalling existing player information. The SMART Graphics system is fully integrated within the SMART Production server which means that only one additional server is required to set-up graphics for all courts. Whilst the score bug and scorecard appear automatically, additional graphics such player bios and set stat information can be added manually where editorially relevant.
**Green Screen**

It is now possible to use Green Screen technology to take analysis to the next level. Whether it is the broadcaster’s talent facing up to different serves or discussing shot placement, it can now happen within the virtual world adding a new element to analysis and the way it is presented.

**Augmented Reality Analysis**

By optimising a deep understanding of data analysis and visualisation in tennis, Hawk-Eye is able to develop augmented reality graphics that help presenters and analysts tell insightful and engaging stories.

**Ultra-Motion**

Hawk-Eye’s Ultra-Motion cameras capture up to 340 fps and significantly enhance the viewing experience. The footage from the cameras can be used for analytical pieces as either as full frame inserts, split-screens, or combined with Hawk-Eye’s tracking data. This opens up the opportunity for ground breaking biomechanical analysis of player technique that hasn’t been possible previously.

**Tennis Table**

All of the stats that would normally be presented within the virtual world can now be displayed on top of a table giving talent the opportunity to interact and tell stories in a new and innovative way.
Player Idents
An aesthetic feature becoming increasingly popular is the provision of player idents and flags. Hawk-Eye can tailor the graphic design and look in accordance with the type of tournament as well as alter the layout and positioning of it to meet the specifications of the broadcaster.

Virtual Reality Statistics
Whilst an established feature now in Tennis, Hawk-Eye’s statistical analysis of player performance shown in our virtual reality world is continuously developing in terms of the types of stats that can be shown as well as the style and presentation of them.

Player Tracking
Through Hawk-Eye’s player tracking data it is possible to display over the broadcaster’s live camera feed the distance run during the point and the area of the court covered by both players.

Site Wide Models
Adding an exciting new dimension to any broadcast, Hawk-Eye’s stylish and detailed site wide stadium models significantly enhance the viewing experience by illustrating the appearance of a venue as well as encapsulating the overall feel of the site which can be shown through sweeping moves and fly-ins.

Post-Match Analysis
Hawk-Eye statistical analysis can now be easily integrated into post-match interviews with players which can provide more insightful assessments/supporting data to show why a player won/tactical game plan etc.
Hawk-Eye’s digital division, Pulselive has a unique set of capabilities that can bring tennis to life through digital and social media - making the game more interactive, engaging and accessible for fans.

Web & Mobile

Pulselive has developed a number of web and mobile applications for some of the world’s largest sports events and has taken this expertise to tennis, working with federations, broadcasters, tournaments and sponsors to develop exciting digital and social solutions.

Social Media

Pulselive is an official partner of both Twitter and Facebook and is uniquely positioned to capitalise on both mobile, web and broadcast media to develop interactive social media solutions that drive interaction across all platforms and connect sports fans with the sport more effectively than ever before.

Content

As the digital division of Hawk-Eye, Pulselive has taken this expertise in data visualisation and augmented reality and brought this to life in the digital world.

Second Screen

Second screen is fast becoming a must have for the live sports experience, adding an additional layer of engagement and insight to the TV pictures and offering an additional sponsor touch point. Pulselive are already working with broadcasters such as ESPN to create second screen experiences that truly complement live TV coverage.

“Pulselive are a company of action. The brains behind the dynamic Court Cast application, Pulselive spearheaded a phenomenal tennis tool, unique to the world of ESPN.”

Matt Wilansky, Tennis Editor, ESPN Inc.
TENNIS COACHING SYSTEM

Hawk-Eye’s understanding of officiating and broadcast technology in combination with extensive experience in working alongside top athletes has enabled the development of a coaching system that show players and coaches not only what happened but also why.

Data & Video Integration

Hawk-Eye’s Tennis Coaching System combines data visualisation and broadcast quality video that enables top athletes and coaches to biomechanically analyse technique and investigate on-court performance through ball tracking data.

SMART Coach

Hawk-Eye is the only company in the world to collect player and ball tracking data at all Grand Slam events and approximately 80% of elite events below that tier subject to data rights. This allows users of the coaching system to easily compare and evaluate their data and video to that of current, past and future professional players.

Hawk-Eye’s SMART Coach Product, in partnership with SAP, is already in use on the WTA Tour. SMART software has the potential to allow broadcast video and data to be burnt to storage devices or uploaded to a cloud for coaches and players to analyse offsite.

“This is something that I would have liked to have had during my career. It’s all about trying to be the most complete Tennis player you can be. With the Hawk-Eye system it creates that, so I am very proud.”

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