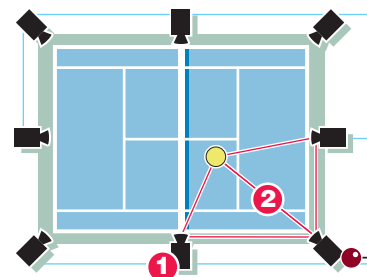


Hawk-Eye on the watch at U.S. Open

Already widely used to enhance TV viewing, electronic line-calling is to make its official debut as an aid for umpires. Despite the reservations of world No. 1 Roger Federer, Hawk-Eye is expected to help resolve controversial decisions by enabling players to challenge line calls

HAWK-EYE OFFICIATING SYSTEM



Cameras:
Eight high-resolution, high-speed, black-and-white cameras located around court

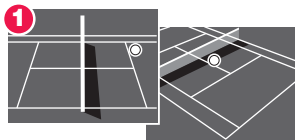
IMAGE PROCESSING

Over 2,000 pictures per second from each camera combined in **control computer**



BALL POSITION

1. Software – calibrated by lines on court – identifies ball in each camera frame



2. 3D position of ball calculated by triangulation from three cameras



YOU CANNOT BE SERIOUS!

Players allowed two challenges per set to review line calls (one extra in tie-breaks). **Umpire can then view computer-generated replay**



3. Position of ball calculated for each frame to map trajectory – and enable exact prediction of bounce point, accurate to within 3mm

Skid and ball compression included in calculation

Hawk-Eye also logs ball speed, kick, and slice