

Video Arbitration System

Video record and playback for referee judgement



1. Profile

Video Arbitration System is special for referee's video judgement which is able to record 1-6 channels video in HD quality during the match, whilst playback them in slow motion with changes in speed.

Working with KAZO's match scoring system named Ultra Score, referee's score operation will be marked on the frame of video automatically.

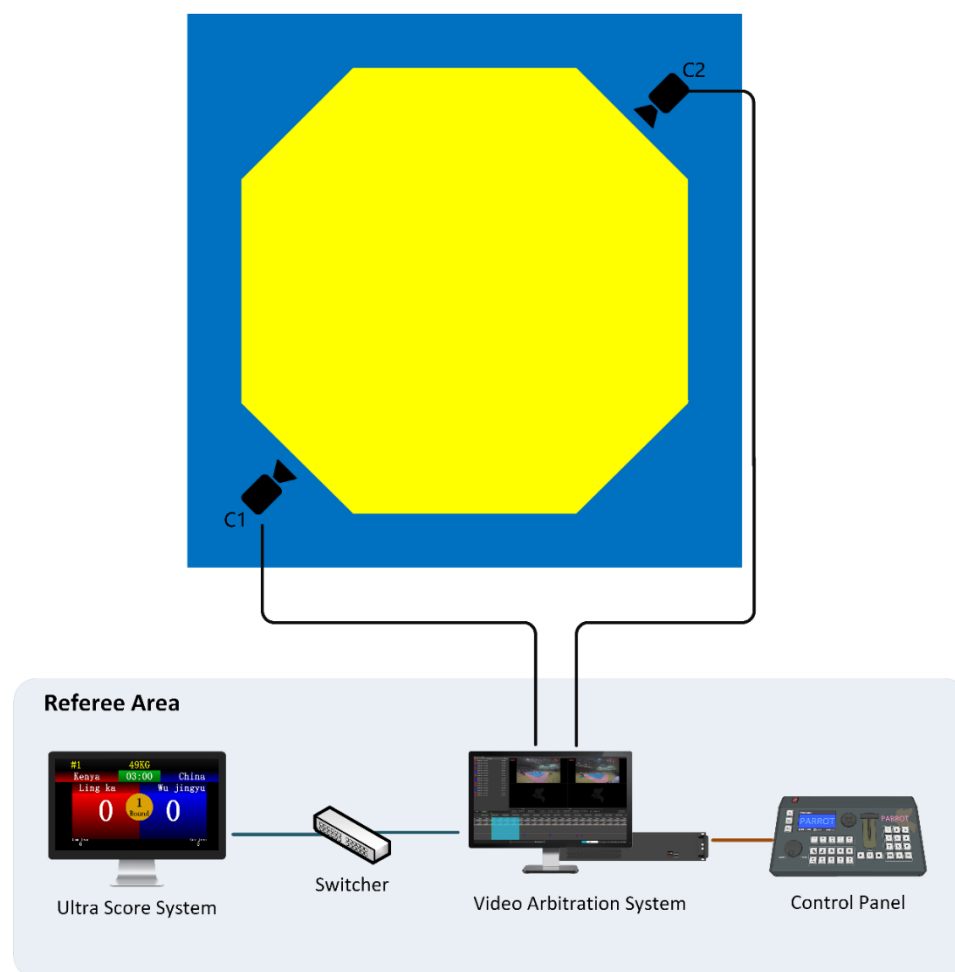
It can be used to provide the technical support when dispute happens during the match so as to reduce the misjudging, to ensure fairness and justice of the match.

Application:

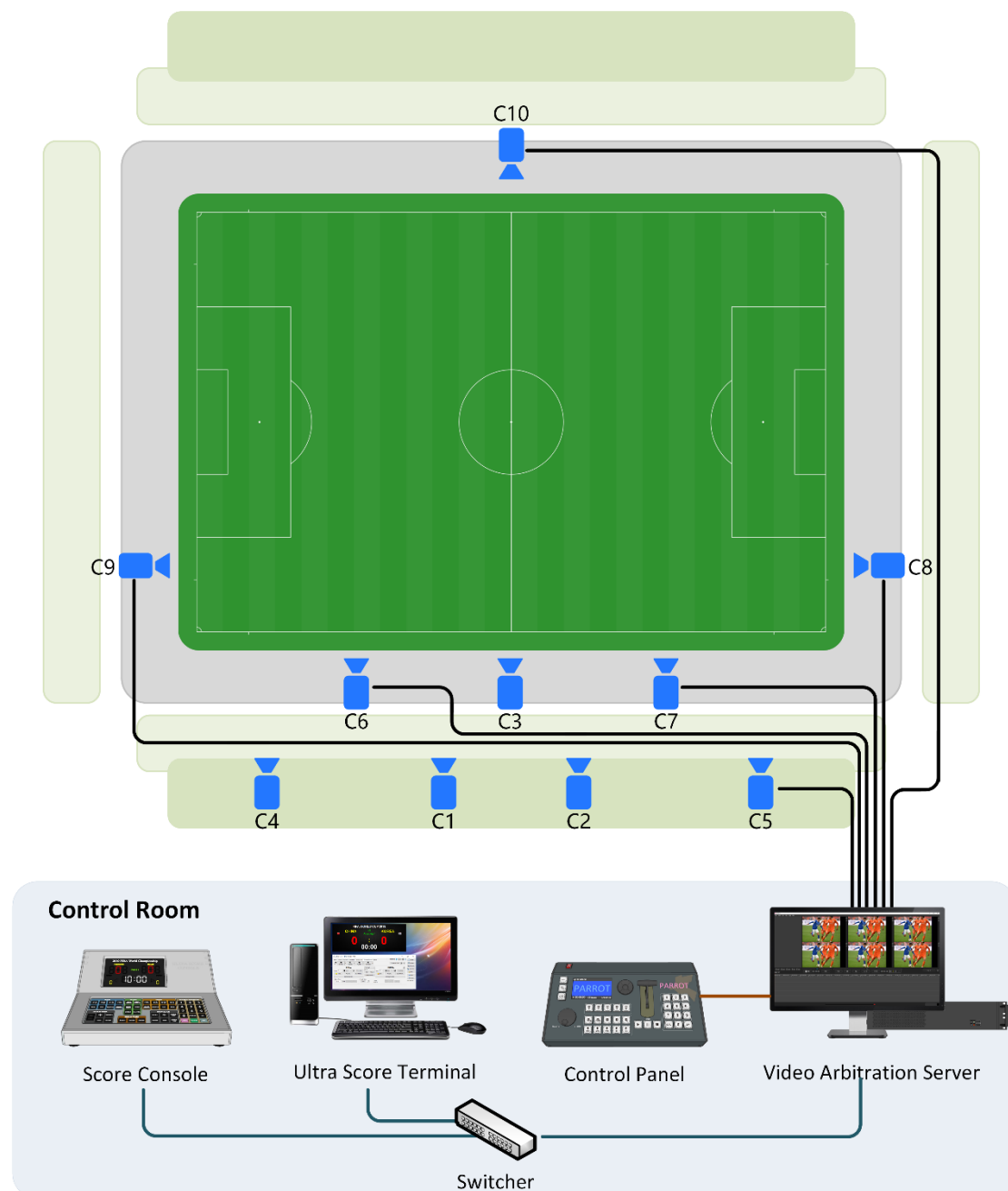
Basketball, Volleyball, Soccer, Badminton, Handball, Wrestling, Wushu Taolu, Wushu Sanda, Judo, Taekwondo, Diving, Ice Hockey, Weightlifting, etc.

2. System Application

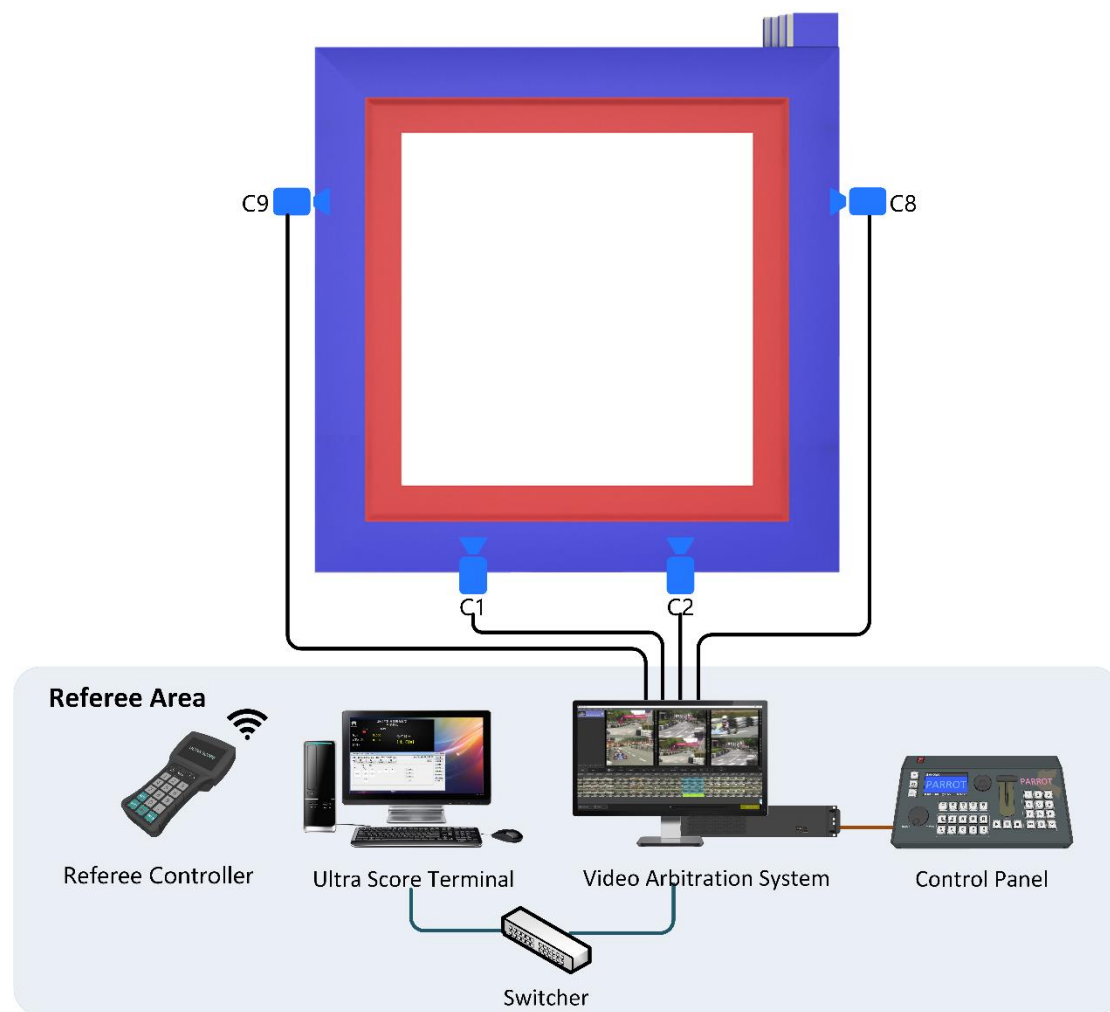
Taekwondo application diagram



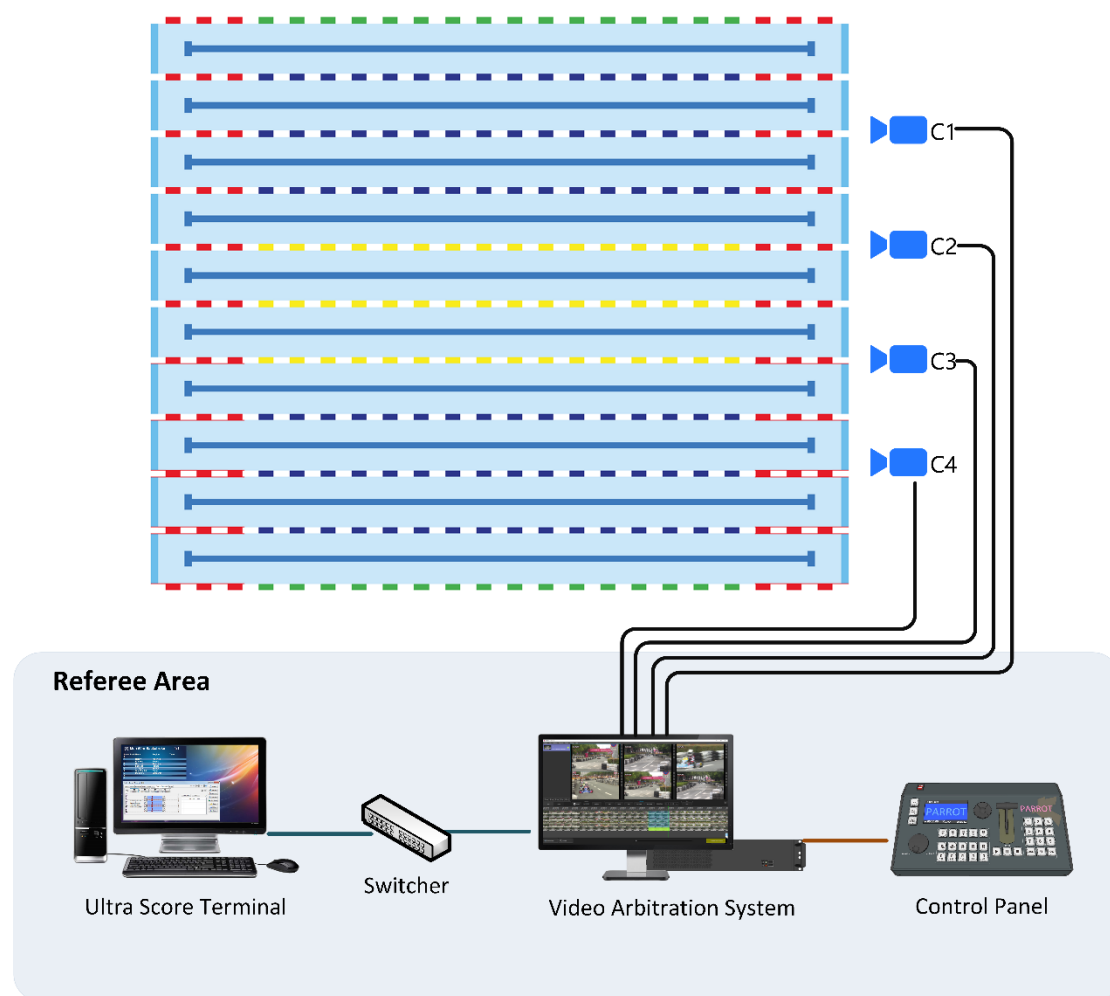
Soccer application diagram



Gymnastics application diagram



Swimming application diagram



2.1 System Description

- 1) Ultra Score software is installed on the control computer. Connecting control computer and video arbitration server to the local network.
- 2) 1-6 sets of HD cameras are installed around the count which connects to video arbitration server via SDI cable.
- 3) Control panel is connected to video arbitration server via a USB cable which makes referee easy to check the playback process and control the speed of slow motion.
- 4) Video arbitration server provides an output video signal which can be connected to LED/LCD display for live slow motion replay.

2.2 Functions

- **Nonstop video recording in the background:** 1-8 channels of HD video are recorded simultaneously in the background, nonstop for 10 hours. Video retrieval and playback is unaffected.
- **Synch-playback of multi-channel video:** Supports playback mode of single channel video in full screen and multi-angle video in 6 windows.
- **Speed change in slow motion:** supports 20 frame/s video playback and capturing motion in a grid of 0.05s. The function of frame freeze, fast playback, 1/2 slow playback, 1/4 slow playback and dragging progress bar is available.
- **Video event query:** video stream can be divided into several video events, storing in the event list, which can be renamed for retrieve easily.
- **Video segment marker:** Important or controversial moments can be marked in video stream which will be replayed quickly when clicking the marked records.
- **Professional playback control panel:** configuring T-bar, slow moving wheel, speed preset function keys to make the process more convenient.
- **Video signal output:** provides 2 video output signal, one of which is for preview, the other of which can be connected to LED/LCD display for live slow motion replay.

Working with Ultra Score to realize,

- **Auto generate video event:** Video events will be generated automatically for quick query according to the match data that has been preset in Ultra Score.
- **Referee's operation record:** Referee's every scoring and timing operation can be recorded into the video, showed below the frame when that moment happened.
- **Player's point record:** Player's point can be recorded into the video, showed below the frame when that moment happened

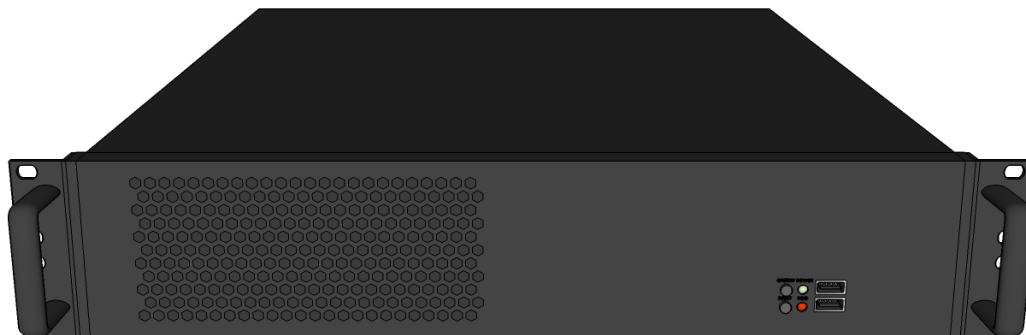
2.3 Product Configuration

Product	Type	Qt.
Video Arbitration Server	KS-PARROT-2C	1
Control Panel	KS-PARROT-CP	1
HD Camera	KS-PARROT-CAMERA	2
Tripod for camera	TRIPOD STANDARD	2
SDI Cable	CABLE-SDI-15	2
Monitor	Dell	1

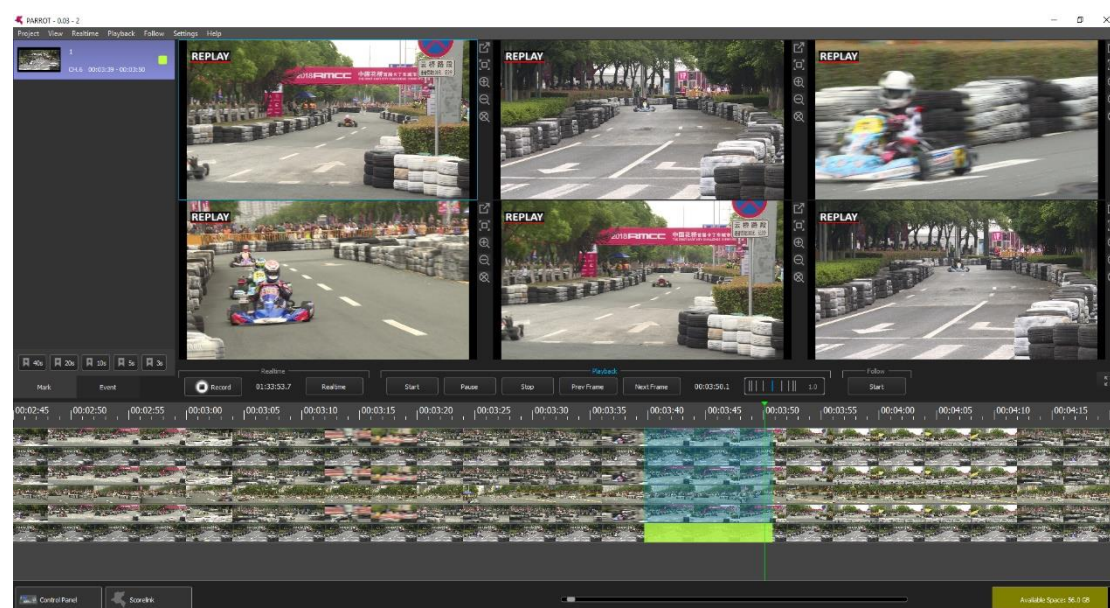
3 Products Specification

3.1 Video Arbitration Server

Products	Details
Video Arbitration Server	<p>Type: KS-PARROT-2C/4C/6C/8C</p> <p>Video Input: 2/4/6/8 channels input synchronously;</p> <p>Input port: SDI;</p> <p>Video Output: 2 channels simultaneous playback;</p> <p>Output port: DVI or HDMI;</p> <p>Video Format: 1080P;</p> <p>Recording capacity: ≥ 10 hours;</p> <p>Multi-screen monitoring: supported;</p> <p>Weight: 8kg.</p>



Software interface:



Device Specification

Type	KS-PARROT-2C/4C/6C/8C
Size	483x430x90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	HMDI*1, DVI*1
Environmental	
Operating Temp	-5°C~45°C
Storage Temp	-40°C~80°C
Relative Humidity	5%~95%, non-condensing
Input Voltage	AC 100V~240V

3.2 Control Panel

Products	Details
Control Panel	<p>Type: KS-PARROT-CP</p> <p>Function:</p> <ul style="list-style-type: none">◆ Support one touch replay, deferred replay, in/out replay.◆ Simultaneous control 2/4/6 channels of video decks or HD cameras.◆ Preset speed button.◆ T-Bar for dynamic slow motion.◆ Simply step forward or backward the video by the optical jog.◆ Durable metal construction design.



Device Specification

Type	KS-PARROT-CP
Size	365 x 200 x 98 (mm)
Net Weight	1 KG
Cabinet	Iron
Display	Color LCD(4.3Inch)
Sound	None
Communication	
USB	≤5m
RS232	≤10m
Environmental	
Operating Temp	-5~45°C
Relative Humidity	5~95 %, non-condensing
Storage Temp	-40~80°C
Input Voltage	DC 12V
Total Power	15W

3.3 HD Camera

Products	Details
HD Camera	Type: KS-PARROT-CAMERA



Device Specification

Product Type	KS-PARROT-CAMERA
Image sensor	SONY 1/2.8 inch Progressive CMOS
Effective pixels	3.1 million pixels
Signal System HD	1080p60/50, 1080p30/25, 1080i60/50, 720p60/50
Signal system	PAL/NTSC
Lens	12x optical zoom, f=3.9mm (wide angle) ~46.8mm (distal)
Horizontal view angle	72.5° (wide angle) ~7.4° (distal)
Aggregation mode	Auto / Manual
Minimum illumination	0.1Lux

Shutter speed	1/1~1/10000S
Gain	Auto / Manual
White balance	Auto / Manual / Indoor / Outdoor
Image effect	Color / Black & White / Electron flip
S/N ratio	≥50dB
Horizontal shaking	355° (Maximum velocity 80°/s)
Pitching shaking	-30°~30° (Maximum velocity 60°/s)
Presetting bit	9 remote control and keyboard can set up to 200
Video output HD	HDMI、 3G-SDI、 USB2.0、 USB3.0、 RJ-45
Audio input	3.5mm LINE-IN
Power	12V DC (10.8~13.0V DC)
Operating temp	0°C~40°C
Storage temp	-20°C~60°C
Size	164x148x173mm
Power consumption	12W (DC 12V)
Weight	1050g
Color	Silver