Scoring & Timing Solution for Kho Kho

1. Introduction

This is a general solution for LED display in Kho Kho stadium which has the functions of timing, scoring, displaying advertisement, notification, the information of referees and teams. It is an ideal choice for most of stadiums.

1.1 System Architecture
The whole system is composed of several subsystems, including: Match Scoring System, Meet Management System and Video Arbitration System.
Each subsystem can not only work independently, but also work together to share the data.
It is flexible for customers to configure according to the actual application.

- **Match Scoring System**

Match Scoring System named ULTRA SCORE is composed of Ultra Score Software, Match Scoring & Timing Host, Referee Scoring & Timing Terminal, Match Timing Display, etc.
It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.

- **Meet Management System**

It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc.
Linking with Online Registration System and Match Scoring System, it can realize: participants management, match schedule, result management, technical statistics, court arrangement, rank statistics, etc.
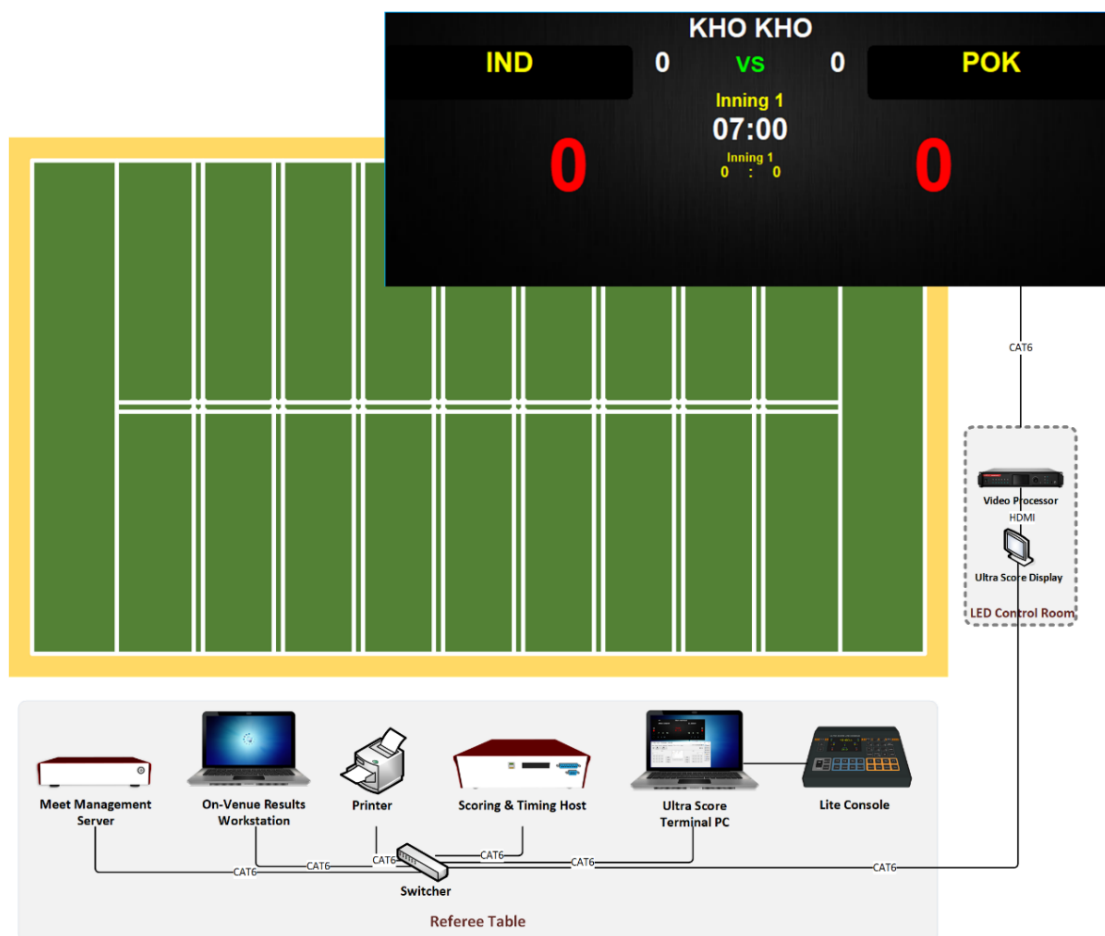
- **Video Arbitration System**

Video Arbitration System named PARROT is composed of video arbitration server, control panel and cameras.
It is operated by the referees during the match. When working with Match Scoring System, referee's score operation will be marked on the frame of video automatically, whilst playback them in slow motion with changes in speed.
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.

1.2 System Chart

System Structure Description

1) **LAN:** A LAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC, Scoring & Timing Host, Meet Management Server, On-Venue Results Workstation and Printer to the LAN.

2) **LED Screen:** One or two LED screens are controlled by separate computers which connect with LED sending cards. Both of the LED screens can show the same contents or different contents as required.

3) **Match Scoring & Timing Host:** It is the core scoring & timing equipment which is installed in the Officials Table and has the function of hot backup.

4) **Lite Console:** Installed in the Officials Table for referee's operation of score.

5) **Meet Management Server:** It is the core data processing equipment which is installed in the Technical Table and connected to the LAN by network cable.

2. Match Scoring System

2.1 Ultra Score Software

Products	Details
Standalone edition	◆ Installed on one PC. ◆ Supports: Kho Kho ◆ English version ◆ Including 1 dongle
Standard network edition	◆ Referee terminal + 1 Display ◆ Supports: Kho Kho ◆ English version ◆ Including 1 dongle
Professional network edition	◆ Referee terminal + 2 Display ◆ Supports: Kho Kho ◆ English version ◆ Including 1 dongle

Difference:

Standalone Edition:

Match management, Scoring, and Media display functions, all in one installed on a PC. Referee must do operation on the PC for display directly.

It is suitable for the stadium where has just one screen, which doesn't have strict needs of the scoring and timing accuracy.

Network Standard Edition:

Score terminal and media player functions can be installed on 2 PCs respectively. So that one independent PC can be setup on the courtside special for referee's operation, the other PC running as media player to manage the LED display.

It is suitable for the stadium where has one screen, needs to do the scoring and timing on the courtside.
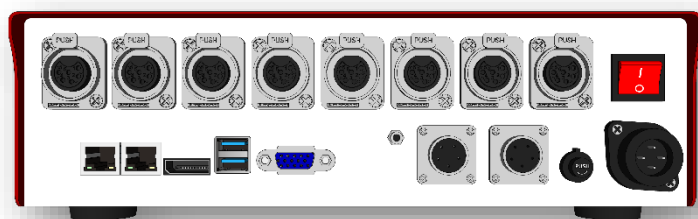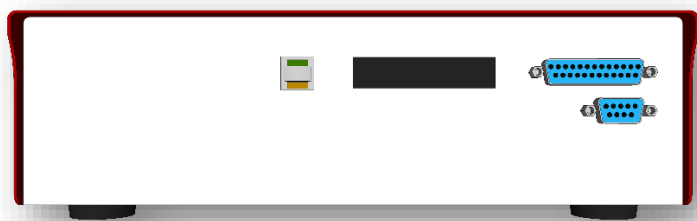
Network Professional Edition:

Except the function of score terminal, 1-3 media players can be equipped on PCs separately, in order to display different contents on several LED screens.

It is suitable for the stadium where has more than 2 screens where referee need to do scoring on the courtside and LED screens need to display different contents separately. (For example, one LED screen is for scoreboard and another is for advertising or player info).

Scoring and timing display for Kho Kho:

2.2 Match Scoring & Timing Host

Match Scoring & Timing Host	
Type	KS-MONSTER
Size	260 x 280 x 80 (mm)
Support	Kho Kho
Other	Supports hot switching of the main and backup servers.

Item	Details	Item	Details
Product	Match Scoring & Timing Host	Type	KS-MONSTER
Size	260 x 280 x 80 (mm)	Net weight	3 KG
Material	Iron	Power	100W
CPU	Intel J3160	RAM	8GB
Communication	RJ45×2	Hard disk	64GB
Video output	VGA×1, DP×1	Input voltage	AC 100~240V
Working Temp	0-60℃	Relative humidity	5%-95%, non-condensing
Language	Chinese, English	Timing accuracy	<=10ms
Port	G-Port×8, 24S port×2, Audio×1，USB port×2，Serial port×1		
Supporting games	Kho Kho		
Functions			

1. Timer functions: Match timer control.
2. Scoring functions: Modify the score of the team and player.
3. Supports match rule setup.
4. Provides buzzer sound output, which can be connected to the venue's public address system or speakers.
5. Supports hot switching of the main and backup servers. In case of the main server fails, just manually switch to the backup server to ensure the data intact. And in case of power failure, the previous screen will be restored after restarting.
6. Supports the post-match celebration mode.
7. Supports real-time data output, which can be used for live broadcast.
8. Montioring the status of scoring devices, providing convenient fault diagnosis (with a separate monitor).
9. Anti-loose port ensure the safety of match data.

2.3 Lite Console

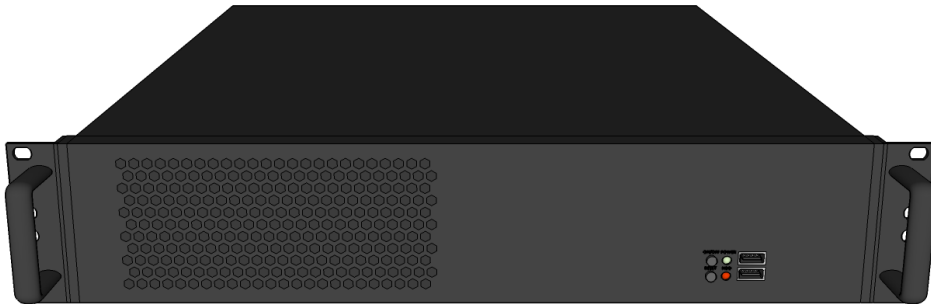| Item	Details
Lite Console	Type: KS-GC15 Size: 265x220x100(mm) Communication: USB, RS485 Display: Color LCD (4.3 Inch) Shell: Iron + Plastic Support: Kho Kho Functions: ◆　Used with the Ultra score software ◆　Support: Kho Kho ◆　Scoring function. ◆　Match timer control. Adjust the match timer.

2.4 Meet Management Server

Products	Details
Meet Management Server	Type：KS-MMS-MINI Size: 170x150x35 (mm) Weight: 1.0 KG Features: ● Easy to create a match, and import the match entry information. ● Arrangement the match with variants of game systems. Including elimination, round-robin, etc. ● Provide the match information to the scoring software on each venue/court. ● Gather the real time score and statistics information from the scoring software. Monitor the progress of the match. ● Generate standard reports for the match, including start-list, results, combined results, ranking, etc. ● Print certifications with adjustable print templates. ● Print the team score report. ● Open interface with ODF compatible data feed.

2.5 Video Arbitration Server

Products	Details
Video Arbitration Server	Type: KS-PARROT-2C/4C/6C/8C Video Input: 2/4/6/8 channels input synchronously; Input port: SDI; Output port: DP*2; Video Format: 1080P; Recording capacity: ≥ 10 hours; Multi-screen monitoring: supported; Weight: 8kg.

Software interface

![Kazo Vision logo] **Kazo Vision**
WEB: http://www.kazovision.com   MAIL: sales@kazovision.com

Device Specification

Type	KS-PARROT-2C/4C/6C/8C
Size	485x480×90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	DP*2
Environmental	
Operating Temp	-5℃～45℃
Storage Temp	-40℃～80℃
Relative Humidity	5%～95%, non-condensing
Input Voltage	AC 100V~240V
Functions	

- **Nonstop video recording in the background:** 2/4/6/8 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 2/4/6/8 windows.

- **Speed change in slow motion:** support 50 frame/s video playback and capture motion in a grid of 0.02s.

- **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.

- **Video signal output:** provides 2 video output signals, one of which is for preview, the other of which can be connected to LED/LCD display for live slow motion replay.

2.6 Control Panel

Products	Details
Control Panel	Type: KS-PARROT-CP Function: ◆ Support one touch replay, deferred replay, in/out replay. ◆ Preset speed button. ◆ T-Bar for dynamic slow motion. ◆ Professional dynamic jog wheel. ◆ Key to mark the last 10s/20s of the video content. ◆ Flexible select the marked video and playback.

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℃
Relative Humidity	5~95 %, non-condensing
Storage Temp	-40~80°C
Input Voltage	AC 100V-240V
Total Power	15W

2.7 HD Camera

Products	Details
HD Camera	Type: KS-PARROT-CAMERA

Device Specification

Product Type	KS-PARROT-CAMERA
Video output	3G-SDI
Effective pixels	3.0 million
Max Resolution	1920*1080
Max Frame rate	60FPS
Sensor	CMOS
Focal length	4.2MM
Size	62.5*50*50MM