Scoring & Timing Solution for Wushu-Taolu

1. Introduction

This is a professional solution for LED scoreboard display in Wushu Taolu stadiums.
Mainly for large-scale Wushu Taolu matches which held in professional sports venues.
The system functions conform to CWSA rules.
Match arrangement, real-time scoring & timing display, players' & referees' info display, rank statistics export & print, slow motion video record & playback, and advertising display can be realized through the coordination of Match Scoring System, Meet Management System, Video Arbitration System, etc.
It is an ideal choice for most of smart and professional stadiums.

2021, Shanghai Youth Wushu Taolu Championship

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, Wireless Host, etc.

It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.

The system functions conform to CWSA rules.

- **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.
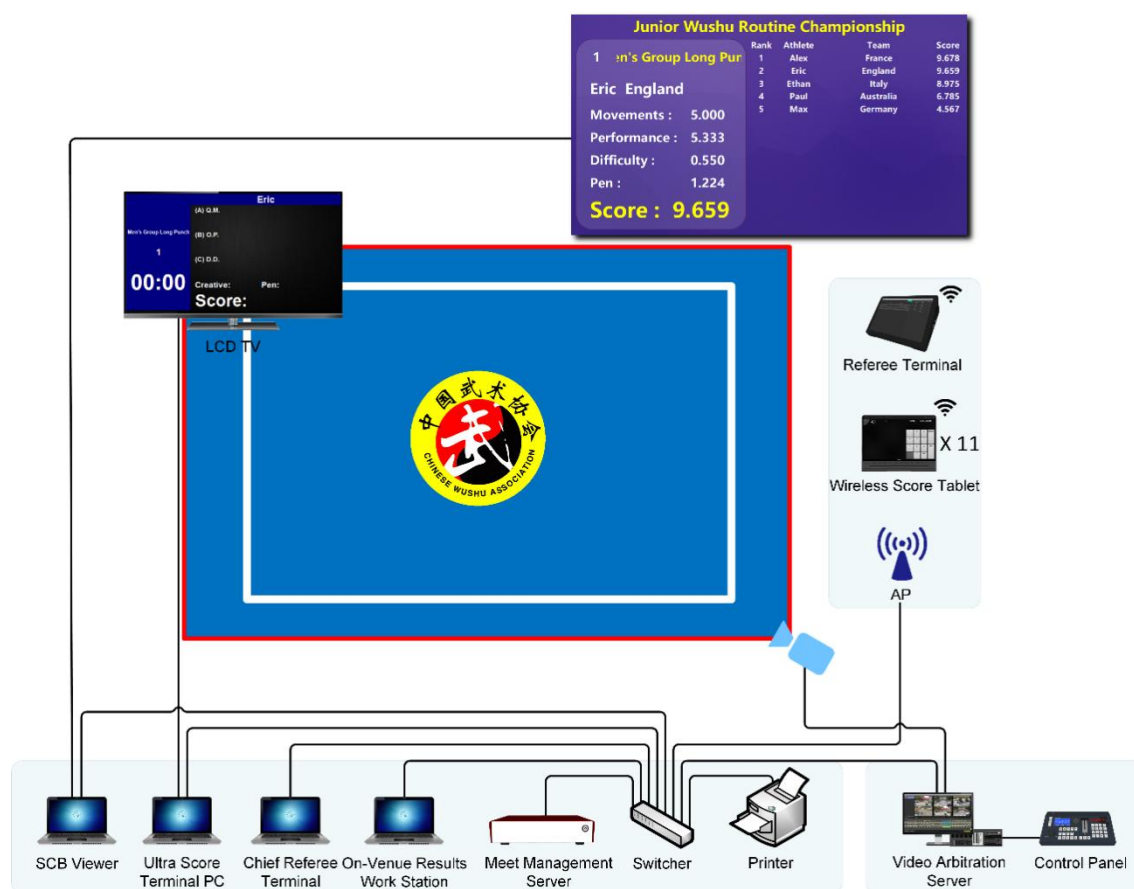
- **Video Arbitration System**

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/WLAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC, Referee Terminal, Wireless Host, Match Timer, 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) **LCD TV:** 1-2 LCD TVs sets in each court are connected to the referee's computer in each court through video cable for real-time display of single-court scoreboard.

4) **Referee's Computer:** A referee's computer installed with Ultra Score software is placed at the referee's table in each court for the timing and scoring of single-court match.

5) **Wireless Score Table:** Connect to the LAN via WiFi for competition scoring.

6) **Referee Terminal：** Real-time access to referee scoring data, support game suspension or manual score change.

7) **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.

8) **Video Arbitration Server and Control Panel：** The Video Arbitration Server is placed in the arbitration or judges' table at the side of the court, connected to the LAN through network cables or WIFI, and the control panel is connected to the server through USB cables. It is used to provide real-time video playback for matches and provide basis for arbitration.

1.3 Functions

Event arrangement
- Both import and input the players' information are available.
- Auto draw the players' lots.
- Auto generate, export and print the bracket.
- Auto generate, export and print the order form.

Scoring operation
- Professional wireless scoring handheld supports adding points for the player.
- Display real-time score and device connection state.
- Modify the match time according to match category.
- Support extending multi-displays to show the match.

Results treatment
- Quickly print and export the result form.
- Rank statistics, quickly export and print.
- Quickly export and print the event form of referee operation.

System advantages
- With rich experience of tournament and stable system.
- Wireless scoring devices are easy to use without wiring.
- The information will auto save in case of power out and other emergency situations.
- We provide free upgrade service of software.
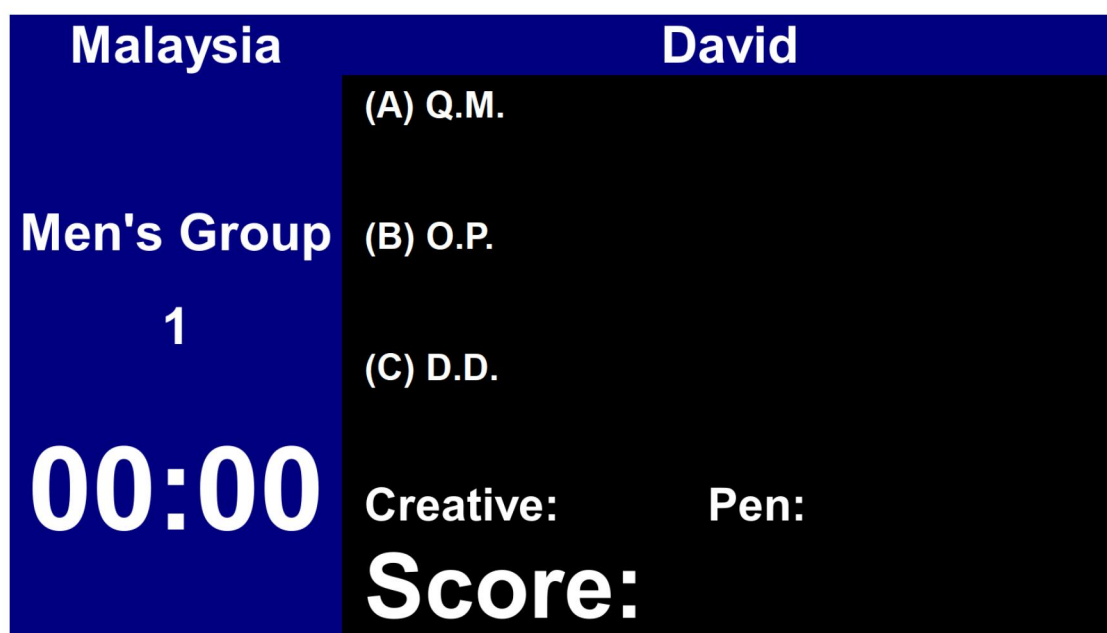
1.4 Product Configuration (for one court)

Product	Type	Number
Match Scoring System		
Ultra Score Software	Standalone Edition	1
Chief Referee Terminal Software	KS-RETM-SOFTWARE	1
Score Display Software	SCB VIEWER	1
Wireless Score Tablet	KS-GC14-I11	11
Referee Terminal	KS-RETM	1
Meet Management Server	KS-MMS-MINI	1
PC	/	3
LCD Display	/	1
Video Arbitration System		
Video Arbitration Server	KS-PARROT-2C	1
Control Panel	KS-PARROT-CP	1
HD Camera	/	2
Tripod for HD Camera	/	2
SDI Cable	15m	2
LCD Display	/	1

2. Specification for products

2.1 Ultra Score Software

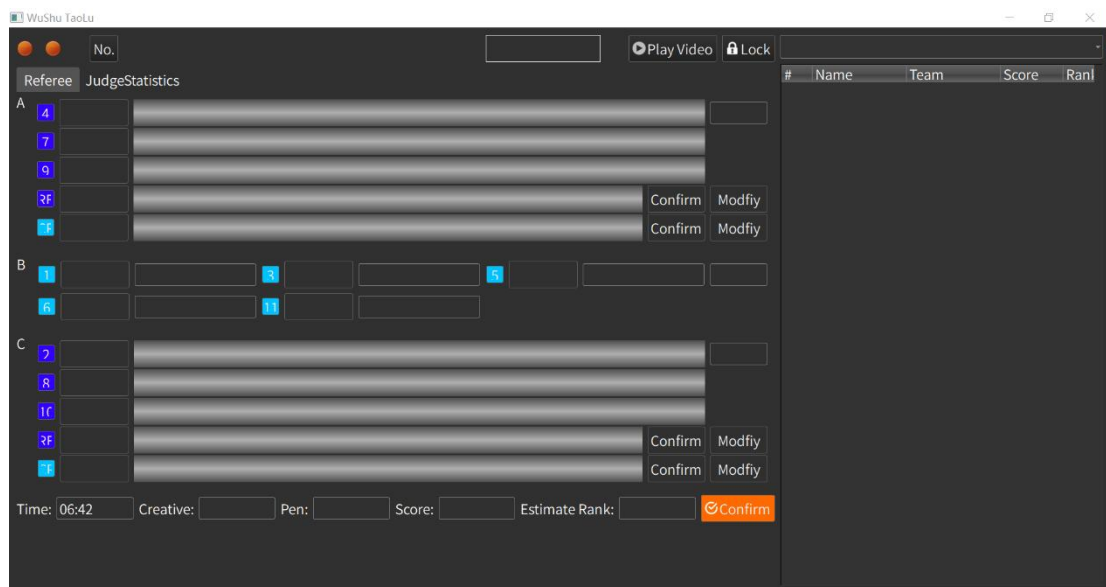| Products	Details
Ultra Score Software	◆ Standalone edition ◆ Supports: Wushu Taolu ◆ The referee operates the match on the PC for display directly. ◆ Display various scoring information. ◆ Record results and generate reports. ◆ English version ◆ Including 1 dongle

Display interface of Wushu Taolu:

2.2 Chief Referee Terminal Software

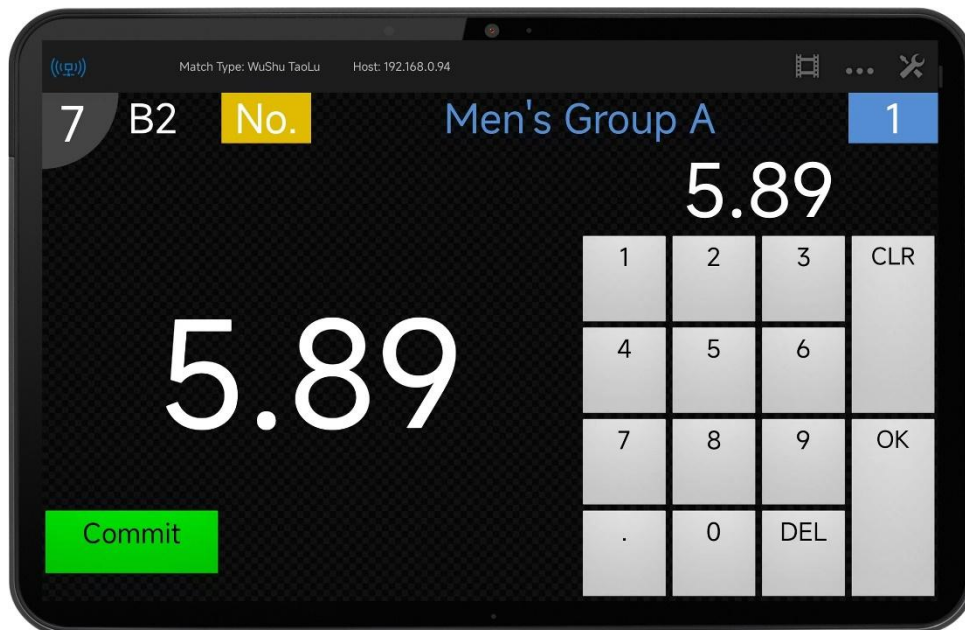| Products	Details
Chief Referee Terminal Software	Languages: English OS: WIN10 Function: ◆ Support: Wushu Taolu. ◆ Monitor the scores of judges on the court in real time. ◆ Modify or remind the unreasonable grades. ◆ View the current real-time ranking info.

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2.3 Score Display Software

Products	Details
Score Display Software	Type：ULTRASCORE VIEWER ◆ It's suitable for LED / LCD to display score,team member information,national flag and logo; ◆ To display the instructions of foul, suspension and replacement operation; ◆ To display the game time, pause time, system time and game countdown. ◆ Scoring & timing operations, layout of scoreboard meet international game rules. ◆ All elements on the scoreboard including fonts, color and layout can be edited according to client's requirements. ◆ Cooperating with the timing and scoring software to display the scoreboard of single court and multi-courts in real time. ◆ The summary display screen can automatically adjust the display layout according to the competition process. ◆ Cooperating with the Meet Management Server to display the match roll calling, results announcement, ranking announcement in real time. ◆ Auto backup function can recover the match immediately from the computer fault.

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2.4 Wireless Score Tablet

Products	Details
Wireless Score Controller Tablet	Type：KS-GC14-I11 ◆ Including one license of Lightscore software ◆ Screen: 11"inch ◆ Pixel: 1920*1200IPS ◆ Ram: 6GB ◆ Storage: 128GB ◆ Battery: 8000mAh ◆ System: Android ◆ Supports: Wushu Taolu ◆ Communication: WIFI ◆ Full colored touch screen

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2.5 Referee Terminal

Detailed parameters

Item	Details	Item	Details
Product	Referee Terminal	Type	KS-RETM
Size	281 x 173 x 39 (mm)	Material	PVC+Metal
Touch LCD	11.6 inch	Resolution	1920*1080
OS	WIN 10	Battery	No Built-in Battery
Communication	LAN / WLAN	Hard Disk	SSD 180GB
Video Output	HDMI*1	RAM	8GB
Functions			

- ◆ Monitor the scores of judges on the court in real time.
- ◆ Modify or remind the unreasonable grades.
- ◆ Achieve the overall control of the display score.
- ◆ View the current real-time ranking info.

2.6 Meet Management Server

Products	Details
Meet Management Server	Type：KS-MMS-MINI Size: 260x135x35 (mm) Weight: 1.0 KG Input Voltage: 12V DC RAM: 4GB CPU: Intel J3160 Hard Disk: 64G Communication: LAN*1 Port: VGA*1, DP*1，USB*2 Features: ● Multi-court arrangement, auto generate the order form. ● Multi-project arrangement, make the schedule more smoothly. ● Monitor the status of each court in real time, including the current field, rotation and player info. ● Court adjustment, can manually modify the match court and session info. ● Summary and print integrated report.

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2.7 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

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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.

2.8 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.

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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

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2.9 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

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