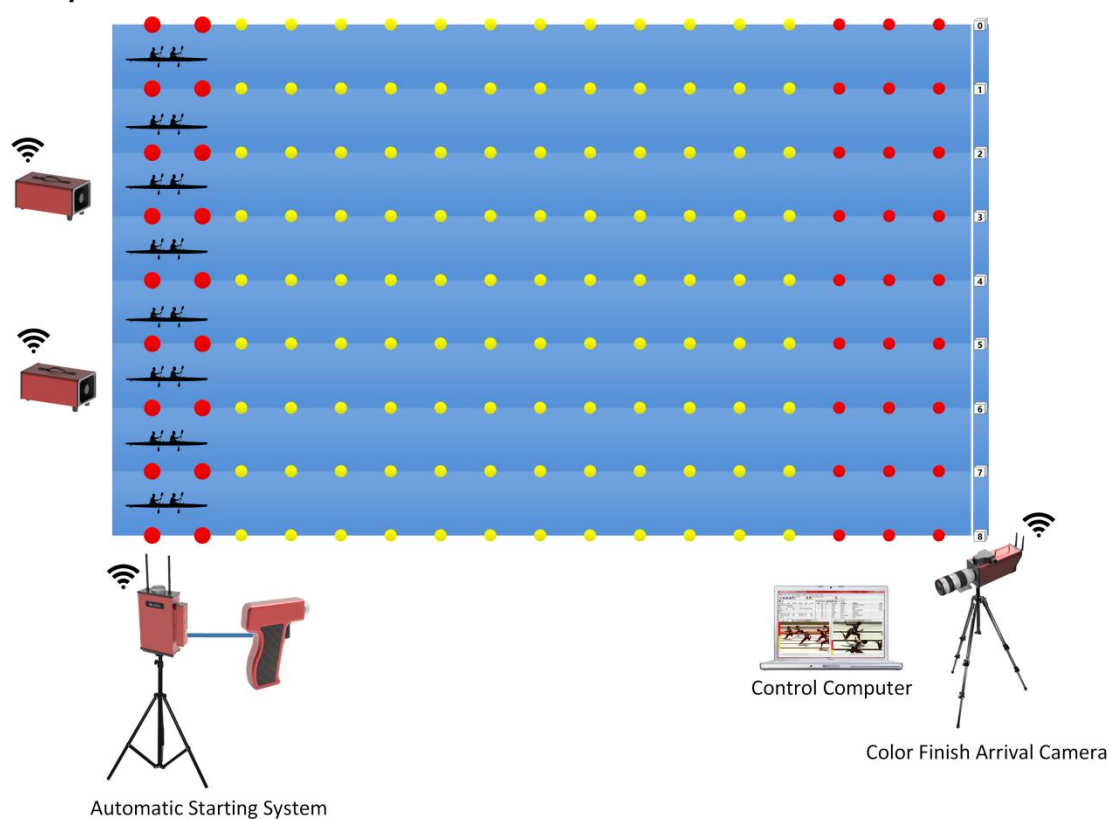# Scoring & Timing Solution for Sprint Canoe

1. Introduction

This is a professional timing program for Sprint Canoe.

Through the cooperation of Timing Software, Automatic Starting System, Colorful Photo Finish Camera, Meet Management Server and other systems, using high-speed color CCD digital camera and advanced image data processing technology, the timing accuracy of the equipment meets the requirements of professional competitions, with high timing accuracy, fast and accurate interpretation, strong stability It has the characteristics of simple operation, convenient carrying and installation, and less consumables.

The system realizes the automation of the measurement process, thus ensuring the fairness and justice of the competition process and results.

1.1 System Chart

Automatic Starting System
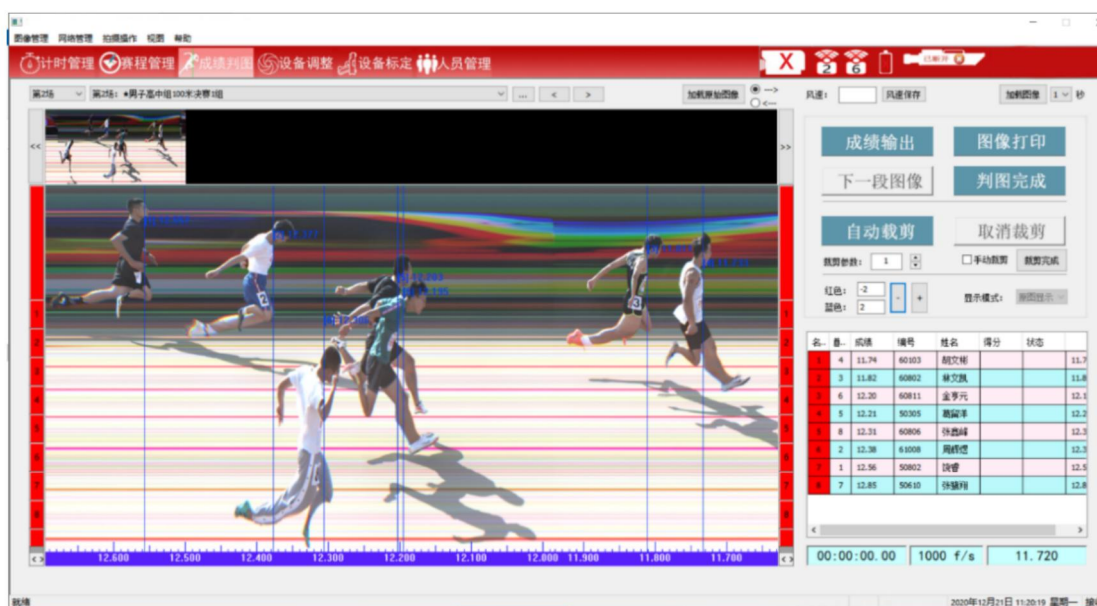
Control Computer

Color Finish Arrival Camera

1.2 System Description

1) **LAN:** A LAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC, Match Scoring & Timing Host, Referee Scoring & Timing Terminal, Basketball Stats Workstation, Meet Management Server, On-Venue Results Workstation and Printer to the LAN.
2) **Automatic Starting System:** Installed at the starting point for command.
3) **Colorful Photo Finish Camera:** It is installed at the end point and used for shooting at the end point. It has the real-time interpretation function. The shooting and interpretation can be carried out at the same time.
4) **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. Specification for products

2.1 Match Timing Software

Products	Details
Match Timing Software	Operating system: support win7, 10, 32 / 64 bit systems Function: Support the simultaneous operation of shooting and score interpretation; When the computer crashes and the software is restarted, the timing can be restored with one click; The accuracy of score output is 0.0001s ~ 1s; multiple orders and reset the order time; ◆ Support zero time calibration function; ◆ Support stop timing to continue shooting; ◆ Support automatic image clipping and filtering redundant images; ◆ Support large screen display of scores and images; ◆ Support automatic scoring; ◆ Support the printing of transcripts and the generation of Excel sheets and TXT documents; ◆ Support selecting wrong groups and associating images with corresponding groups after the competition.

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2.2 Automatic Starting System

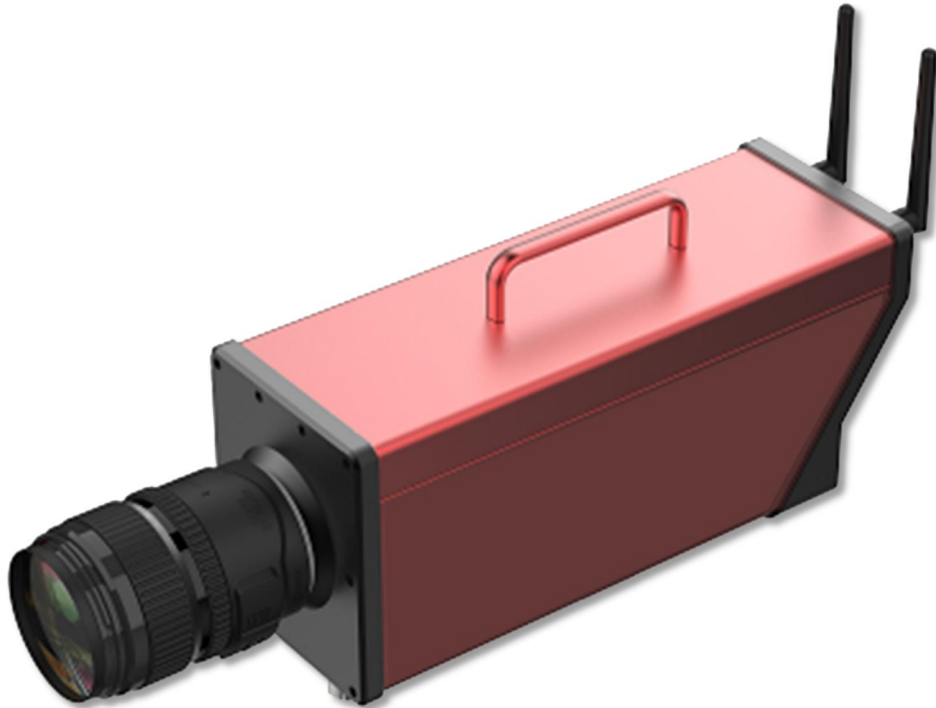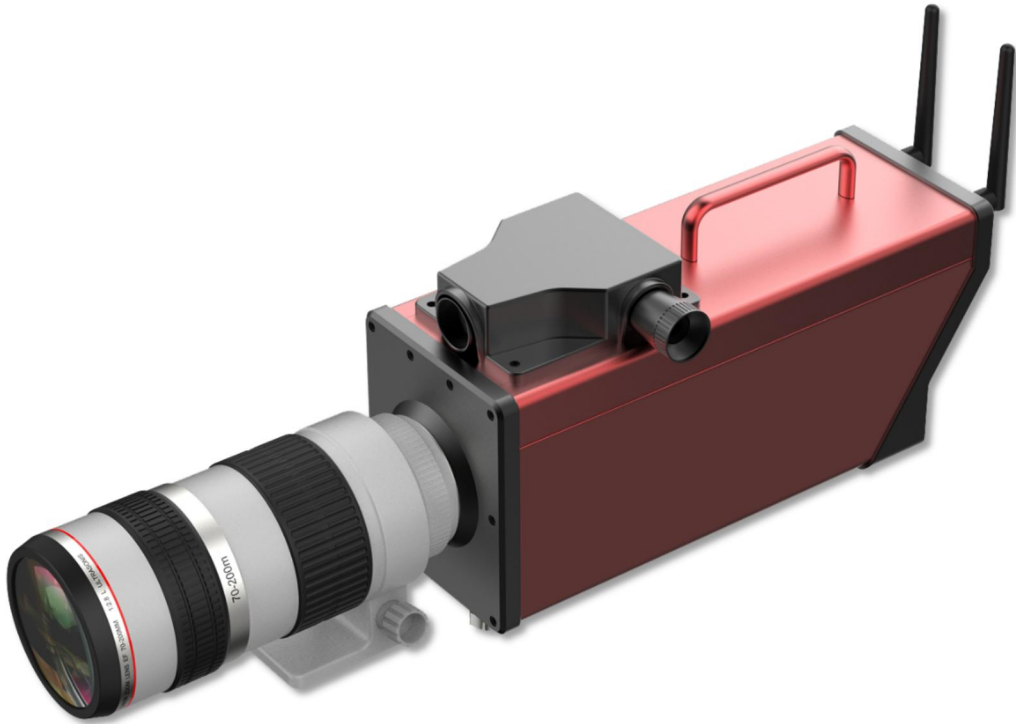| Products	Details
Automatic Starting System	Supporting items: Track and Field, Dragon Boat, Kayak, Horse Racing, Dog Racing, Bicycle, Racing, UAV, Short Track Speed Skating, Long Track Speed Skating, Skiing and other competitions.
	Including starting host*1, electronic starting gun*1, wireless speaker*2, safety box*1.
	Size of starting host: 23*13.5*5.5(cm), weight: 1.5kg
	Size of speaker: 31*26* 33(cm), weight: 7kg
	Function:
	◆ Support electronic starting gun;
	◆ The starting distance is up to 1000 meters;
	◆ Support wireless start button;
	◆ Support microphone voice input;
	◆ Voice and starting shot dual output;
	◆ The host can work continuously for 8 hours without external power;
	◆ The sound can work continuously for 8 hours without external power;
	◆ Support zero calibration of electric meter;
	◆ Support multiple orders and multiple trigger record storage.

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2.3 Colorful Photo Finish Camera

Products	Details
Colorful Photo Finish Camera	Supporting items: Canoe, Track and Field, Horse Racing, Dog Racing, Bicycle, Racing, UAV
	Frame rate: 1000 frames /s, 2000 frames /s, 5000 frames /s.
	Timing accuracy: 0.001 second, 0.0005 second, 0.0002 second
	System error: ＜ 0.0002s
	Cumulative error: 0.5ppm
	Image display resolution: 1024 × 1024
	Color: full color image
	Host size: 29.8*14*15.6(cm)
	Weight: 2kg
	Power adapter: 14.8-16.8v/1-2a
	Communication interface: Gigabit Ethernet port
	Wireless sending transmission distance: < = 1000m
	Battery type: lithium battery
	Battery life: 4 hours at full power
	Operating environment:
	Ambient temperature range: - 10 ℃ ～ 60 ℃, relative humidity range: 10% ~ 80%
	Storage conditions:
	Temperature range: 0 ℃ ～ 40 ℃, humidity range: 10% ~ 60%
	Closure length of tripod: 61cm
	Maximum height of tripod: 170cm
	Net weight of tripod: 2.5kg
	Size of safety box: 64.2*37.9*23(cm)
	Functions:
	◆ Support image automatic exposure processing;
	◆ Support positioning athlete sprint image;
	◆ Support front capture sprinter chest number cloth;
	◆ Support multiple orders and reset the order time;
	◆ Support zero time calibration function;
	◆ Support stop timing to continue shooting;
	◆ Support image local magnification function;
	◆ Automatic image clipping to filter redundant images;
	◆ Support remote interpretation: one computer for shooting and another computer for interpretation;
	◆ Support thumbnail display to quickly locate athletes;
	◆ Support video playback;
	◆ Support PNG and BMP image generation.

2.4 Black & White Photo Finish Camera (optional)

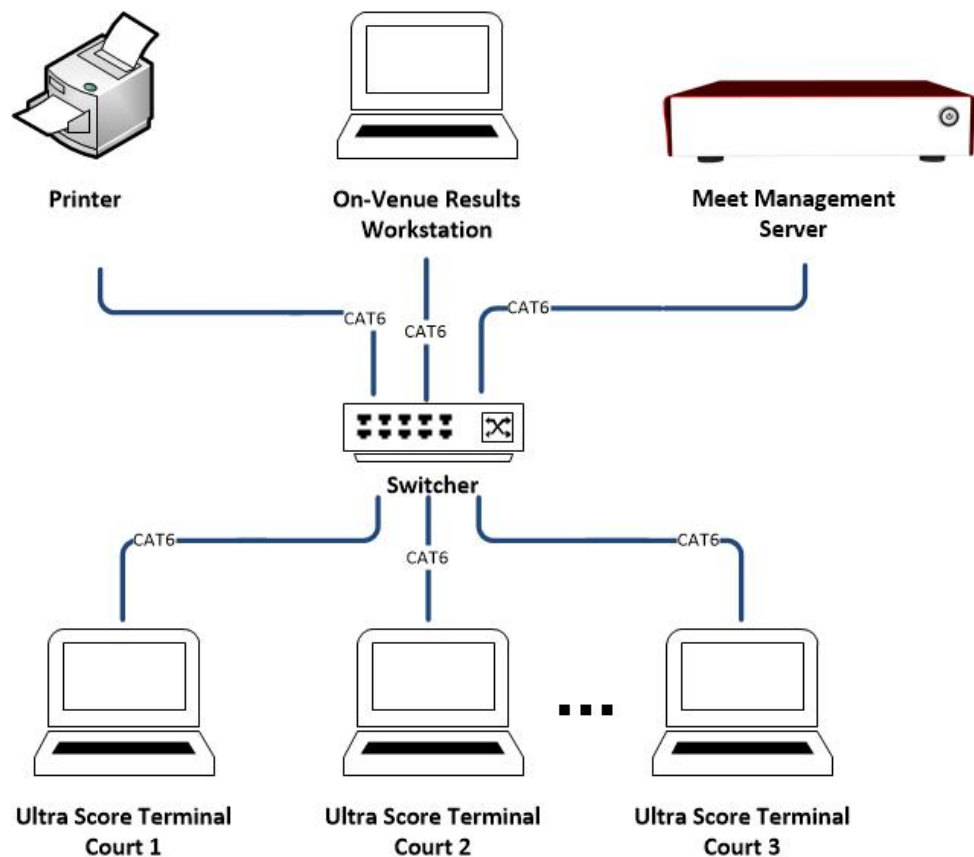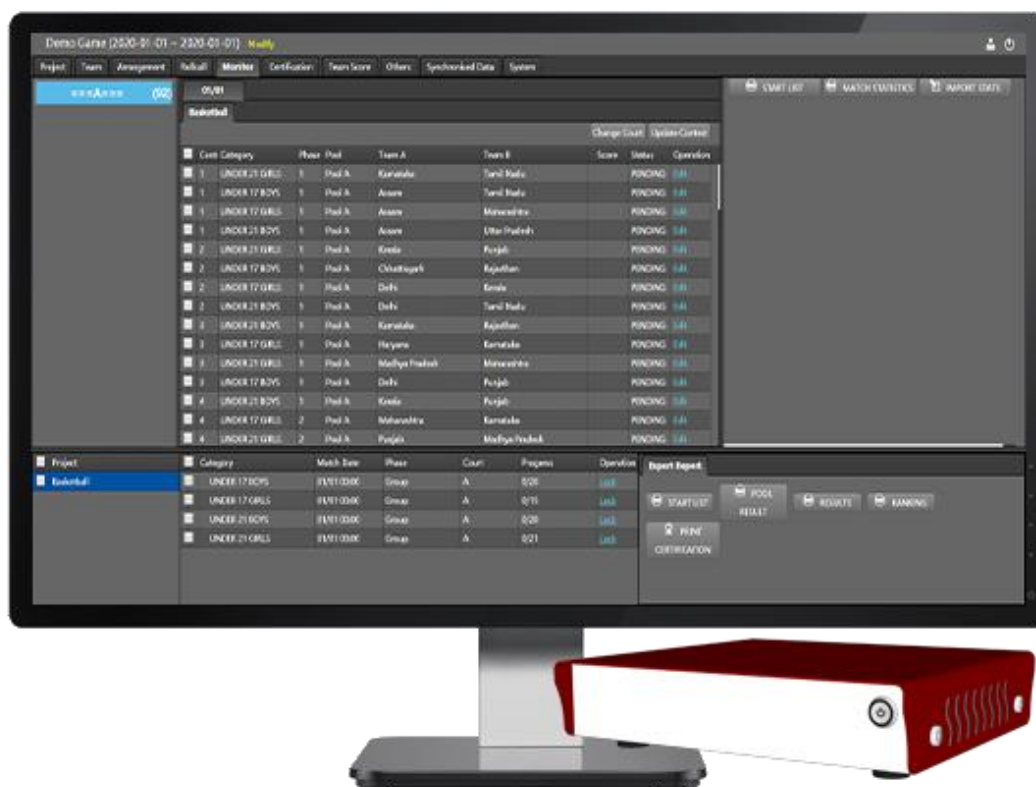| Products	Details
Black & White Photo Finish Camera (optional)	Supporting items: Canoe, Track and Field, Horse Racing, Dog Racing, Bicycle, Racing, UAV Shooting frame rate: 1000 frames /s. Timing accuracy: 0.001 seconds System error: < 0.0002s Cumulative error: 0.5ppm Image display resolution: 512 × 1024 Color: 8-bit black and white image Host size: 29.8*14*15.6(cm) Weight: 2kg Power adapter: 14.8-16.8v/1-2a Communication interface: Gigabit Ethernet port Wireless sending transmission distance: < = 500m Battery type: lithium battery Battery life: 4 hours at full power Operating environment: ambient temperature range: - 10 ℃ ~ 60 ℃, relative humidity range: 10% ~ 80% Storage conditions: temperature range: 0 ℃ ~ 40 ℃, humidity range: 10% ~ 60% Closure length of tripod: 61cm Maximum height of tripod: 170cm Net weight of tripod: 2.5kg Size of safety box: 64.2*37.9*23(cm) Functions: ◆ Support image automatic exposure processing; ◆ Support positioning athlete sprint image; ◆ Support front capture sprinter chest number cloth; ◆ Support multiple orders and reset the order time; ◆ Support zero time calibration function; ◆ Support stop timing to continue shooting; ◆ Support image local magnification function; ◆ Automatic image clipping to filter redundant images; ◆ Support remote interpretation: one computer for shooting and another computer for interpretation; ◆ Support thumbnail display to quickly locate athletes; ◆ Support video playback; ◆ Support PNG and BMP image generation.

2.5 Meet Management System

It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc.

Linking with Online Registration System, Match Scoring System and Basketball Stats System, it can realize:

1) **Participants Management:** Information management of players, teams and referees. Both import and input registration form are available. And auto generate the order form.

2) **Match Schedule:** Auto draw the players' lots. Multi-project arrangement make the schedule more smoothly. Auto generate the bracket, order form and round form.

3) **Result Management:** Receive or record the results. Determine the players' rank, admission or elimination at each stage. Print the results announcement and send to the LED display system, TV broadcasting system and comprehensive meet manage system.

4) **Technical Statistics Arrangement:** Combine with the basketball stats software, it can summarize the info of teams' score, teams' timeout, teams' foul, players' substitution, players' foul, players' comprehensive results, and generate the integrated report.

2.5.2 System Diagram

2.5.2 Meet Management Server

Item	Details	Item	Details
Product	Meet Management Server	Input Voltage	12V DC
Type	KS-MMS-MINI	Weight	1.0 KG
Size	170x150x35 (mm)	Port	VGA*1, DP*1，USB*2
Functions			

1. Easy to create a match, and import the match entry information.
2. Arrangement the match with variants of game systems. Including elimination, round-robin, etc.
3. Provide the match information to the scoring software on each venue/court.
4. Gather the real time score and statistics information from the scoring software. Monitor the progress of the match.
5. Generate standard reports for the match, including start-list, results, combined results, ranking, etc.
6. Print certifications with adjustable print templates.
7. Print the team score report.
8. Open interface with ODF compatible data feed.

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