Scoring & Timing Solution for Baseball/Softball

1. Introduction

This is a professional solution for LED scoreboard display in baseball competitions.
The system is applicable to international and domestic standard baseball competitions.
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.

Applicable rules of the system:

- 《OFFICIAL BASEBALL RULES 2021 Edition》

1.1 System Architecture

The whole system is composed of several subsystems, including: Match Scoring System and Meet Management 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, Scoring & Timing Host, Pitch Clock, BSO Screen, Display for Ball Speed, Ball Speed Sensor, etc.

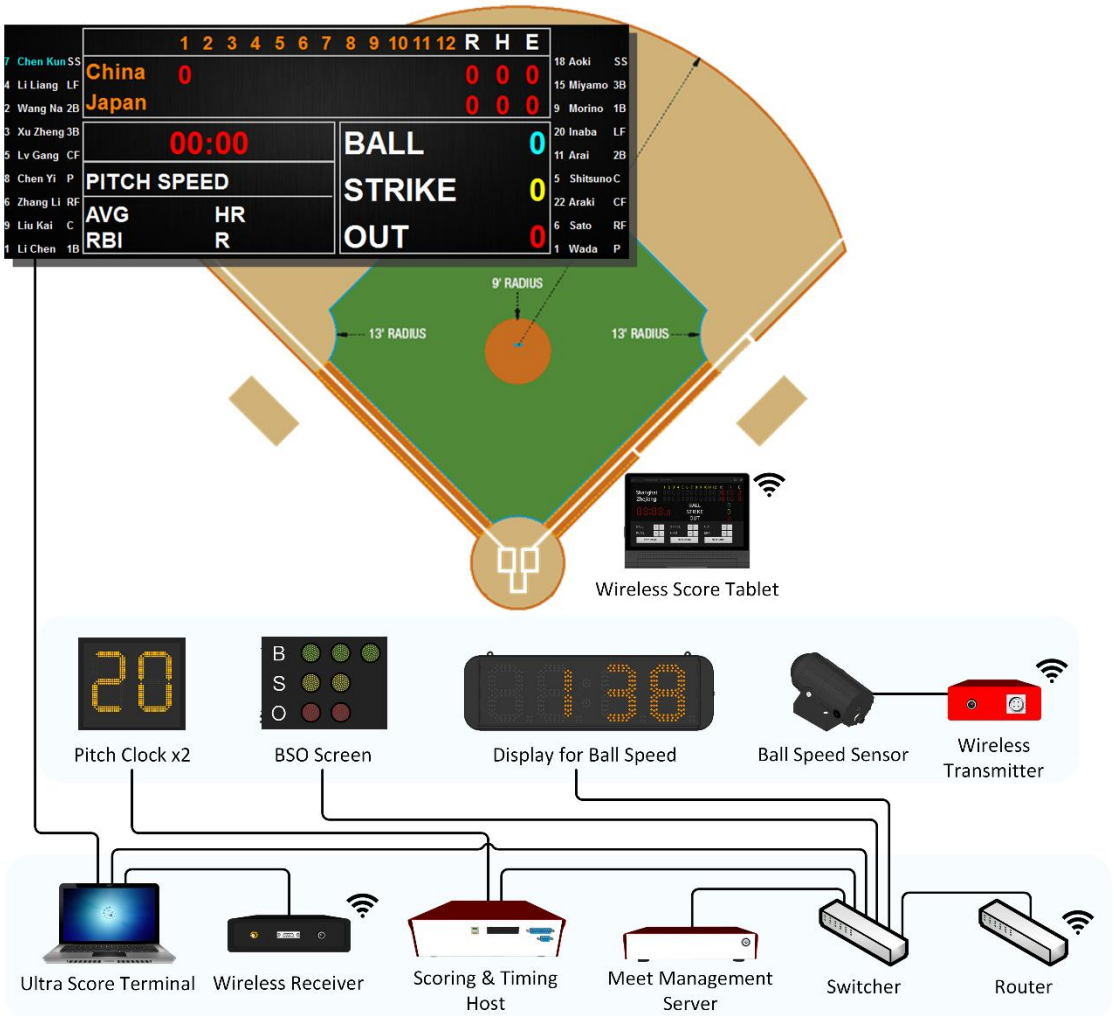
It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.

- **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, court arrangement, rank statistics, etc.

1.2 System Structure



System Description

1) **LAN:** A LAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC and Meet Management Server 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) **Scoring & Timing Host:** It is the core scoring & timing equipment which is installed in the Officials Table and has the function of hot backup. The Pitch Clock, BSO Screen and Display for Ball Speed can be connected to the host through special cables.
4) **Pitch Clock:** It is installed in the home base area and used together with Ultra Score for pitcher's pitching countdown display.
5) **BSO Screen:** Linked with baseball game timing and scoring software, it is used to display good and bad balls.
6) **Ball Speed Sensor:** It is installed in the home base area and linked with the Ultra Score to obtain the ball speed information on the game field in real time and display it on the large screen.
7) **Display for Ball Speed：** It is installed in the home base area to measure and display the pitcher's ball speed.

8) **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.

1.3 Product Configuration

Product	Model	Qt.
Match Scoring System		
Ultra Score Software	◆ Standalone Edition ◆ Support: Baseball	1
Score Tablet	KS-GC14-I13	1
Ball Speed Sensor	KS-BSPD-SENSOR	1
Wireless Sender	KS-BSPD-WHT	1
Wireless Receiver	KS-BSPD-WHR	1
Display for Ball Speed Sensor	KS-BSPD-SCREEN	1
Match Scoring & Timing Host	KS-MONSTER	1
Baseball Pitch Clock	KS-BSPC	2
BSO Screen	KS-BSO-SCREEN13501000	1
Meet Management Server	KS-MMS-MINI	1
PC	/	2
Printer	/	1

2. Specification for products

2.1 Ultra Score Software

Products	Details
Standalone Edition	◆ Installed on one PC. ◆ Supports: Baseball ◆ English version ◆ Including 1 dongle
Standard Network Edition	◆ Terminal + 1 Display ◆ Supports: Baseball ◆ English version ◆ Including 1 dongle
Professional Network Edition	◆ Terminal + 2 Display ◆ Supports: Baseball ◆ 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.

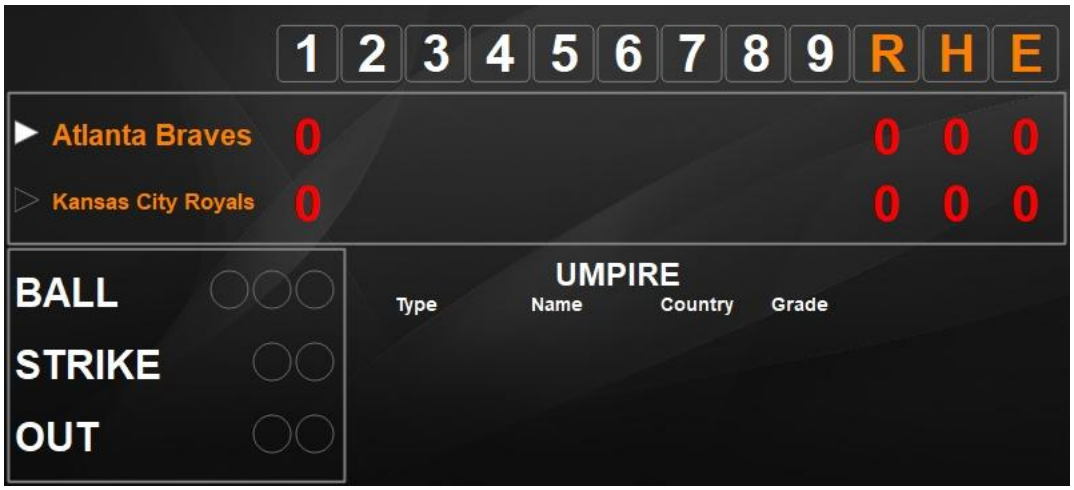
It is suitable for the stadium where has one screen, needs to do the scoring and timing on the courtside.

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 baseball：

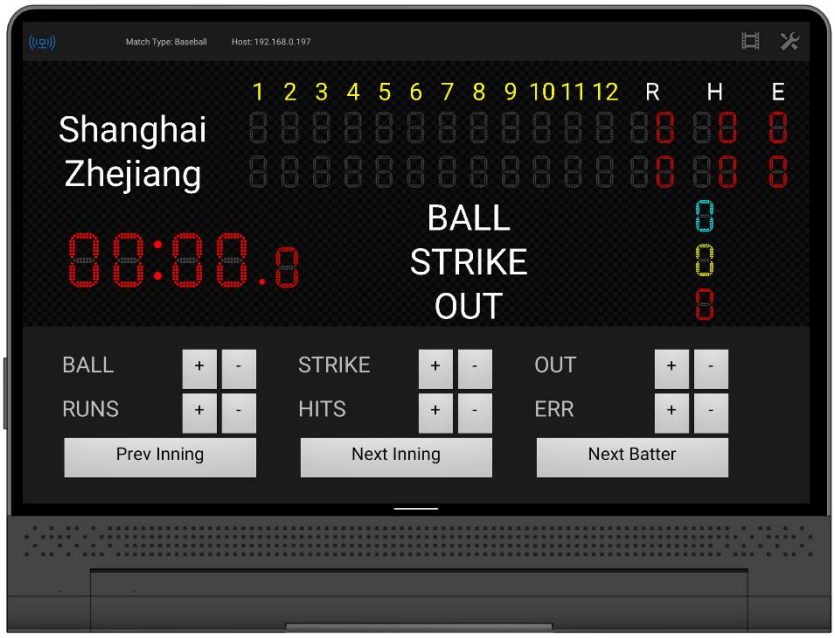


2.2 Match Scoring & Timing Host

Item	Details
Match Scoring & Timing Host	Model: KS-MONSTER Size: 260 x 280 x 80 (mm) Weight: 3 KG CPU: Intel J3160 RAM: 8GB Hard Disk: 64GB Communication: RJ45×2 Video Output: VGA×1, DP×1 Port: G-Port×8, Shot Clock port×2, Audio×1, USB×2, Serial port×1 Accessories: Match Timer Handheld *1, Shot Clock Handheld *1 Support: Baseball Function: ◆ Pitcher timing and system time ◆ It can be externally connected and synchronously control the Pitch Clock, BSO Screen and Display for Ball Speed Sensor. ◆ 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.

2.3 Wireless Score Tablet

Products	Details
Wireless Score Tablet	Model: KS-GC14-I13 ◆ Including one license of Lightscore App ◆ Screen: 13"inch ◆ Pixel: 2160*1350IPS ◆ Ram: 8GB ◆ Storage: 256GB ◆ Battery: 9300mAh ◆ System: Android ◆ Supports: Baseball ◆ Communication: WIFI ◆ Full colored touch screen

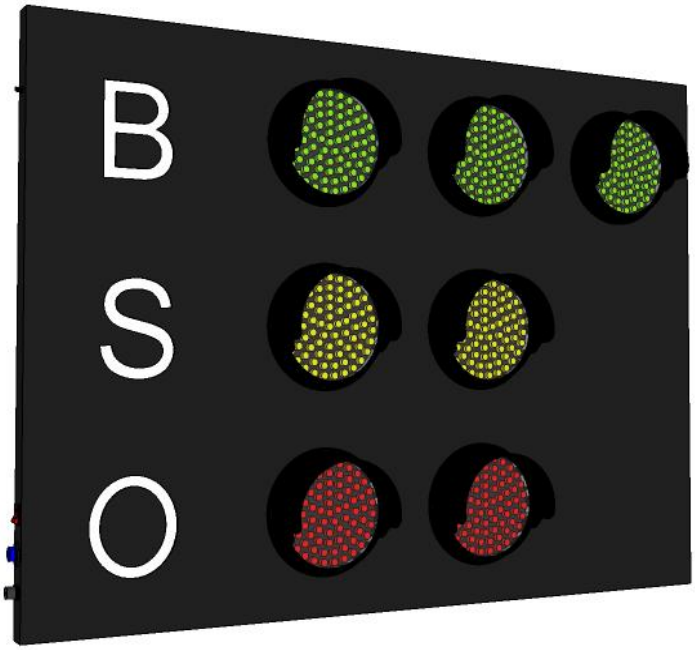


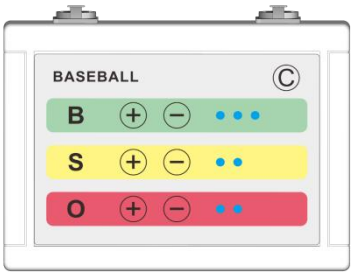
2.4 Baseball Pitch Clock

Products	Details
Pitch Clock	Model: KS-BSPC Size: 710x610x60 (mm) Single side Weight: 10KG Power: 60W* Material: Aluminium Communication：Wired Function: ◆ Be used together with Baseball scoring software, display the pitching countdown.

2.5 BSO Screen

Products	Details
BSO Screen	Model: KS-BSO-SCREEN13501000 Size of Scoreboard: 1350x1000x150(mm) Size of Scoreboard Controller: 195x145x60(mm) Material: Aluminium Communication: Internet Waterproof Grade: Outdoor Waterproof Display Color: Red, Yellow, Green Communication Mode: Wired Control: It can be controlled by software or independently through the console. Function: ◆ Display Ball, Strike and Out.





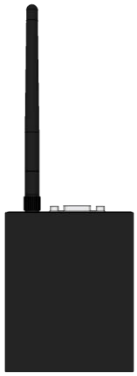
2.6 Ball Speed Measurement System

2.6.1 Wireless Host for Arrow Speed Sensor

Products	Detail
Wireless Host	Model: KS-BSPD-WHT/KS-BSPD-WHR Wireless Sender Size: 230x185x85 (mm) Wireless Receiver Size: 66*24*82 (mm) Working frequency band: 410Mhz-525Mhz (factory setting 433) Communication distance: 5KM (open space) Function: ◆ System: Must be used together with Ultra score software. ◆ Wireless reception of Ball speed sensor data.

Wireless Sender

Wireless Receiver

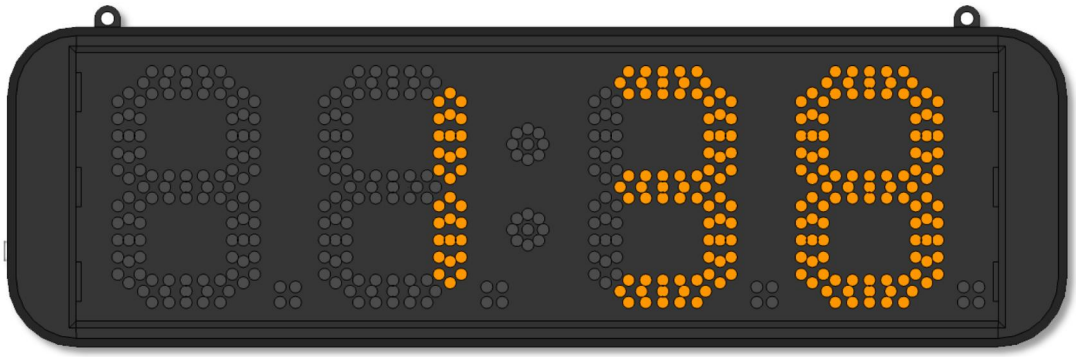


2.6.2 Ball Speed Sensor

Item	Details
Ball Speed Sensor	Model: KS-BSPD-SENSOR Speed Range: 5-890MPH Accuracy: +/-0.1 MPH Max Distances: 300 feet Support： Baseball Function: ◆ The sensor is compatible with Ultra score software. ◆ Track baseball ball speed on serves and returns from courtside game after game.

2.7 Display for Ball Speed Sensor

Products	Details
Display for Ball Speed Sensor	Model: KS-BSPD-SCREEN Size: 620x190x45 mm Color: Yellow Support: Display ball speed Communication Interface: RJ45 network cable



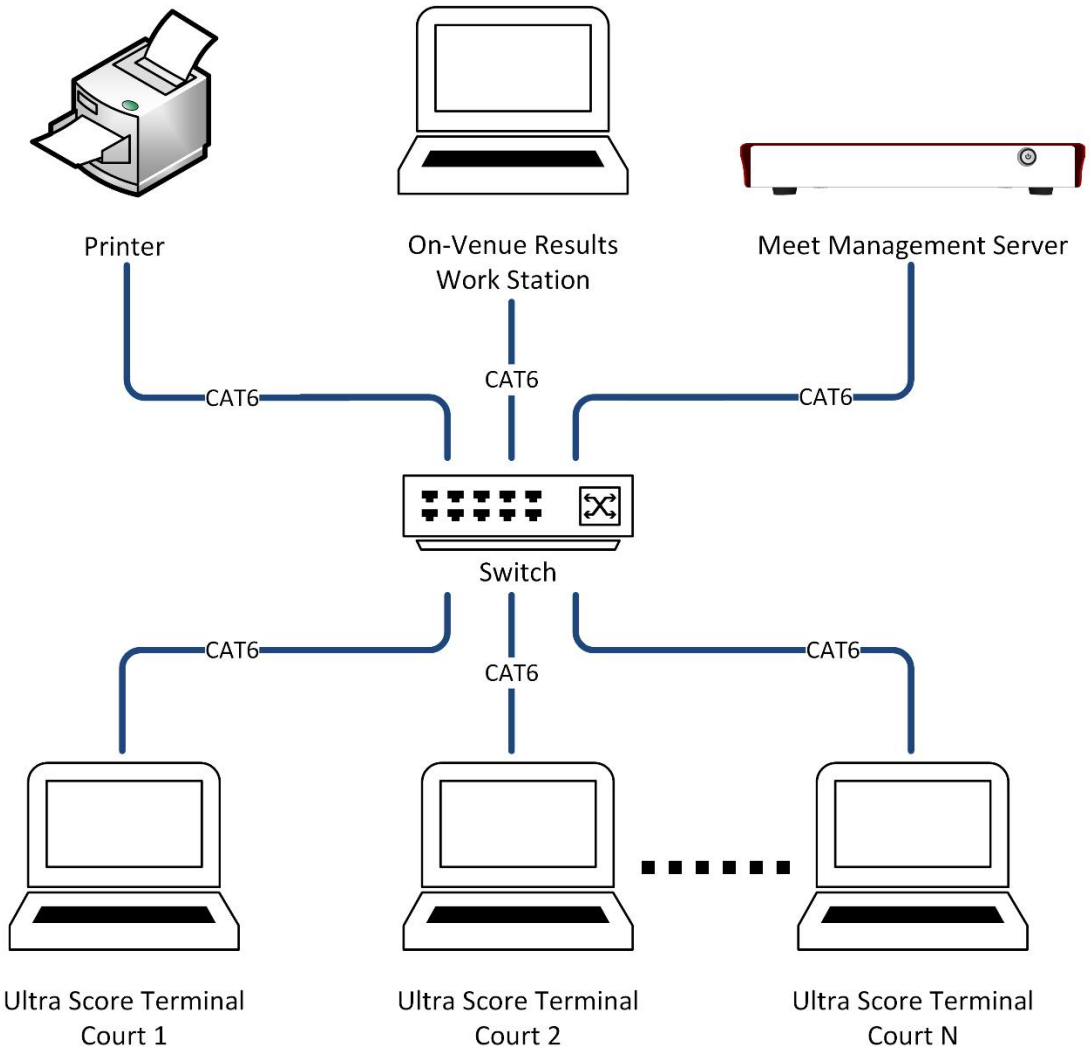
2.8 Meet Management System

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.

2.7.1 System Diagram



2.7.2 Meet Management Server

Products	Details
Meet Management Server	Model: KS-MMS-MINI Size: 260*135*35 (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.