



Scoring & Timing Solution for Aussie-Rules Football



1. Introduction

This is a professional solution for LED scoreboard display in Aussie-Rules Football stadiums.

Mainly for large-scale Aussie-Rules Football matches which held in professional sports venues.

The system functions conform to AFL 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.

2013, Keith Football Club, Australia



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, Ultra Score Console, 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 NFC 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.

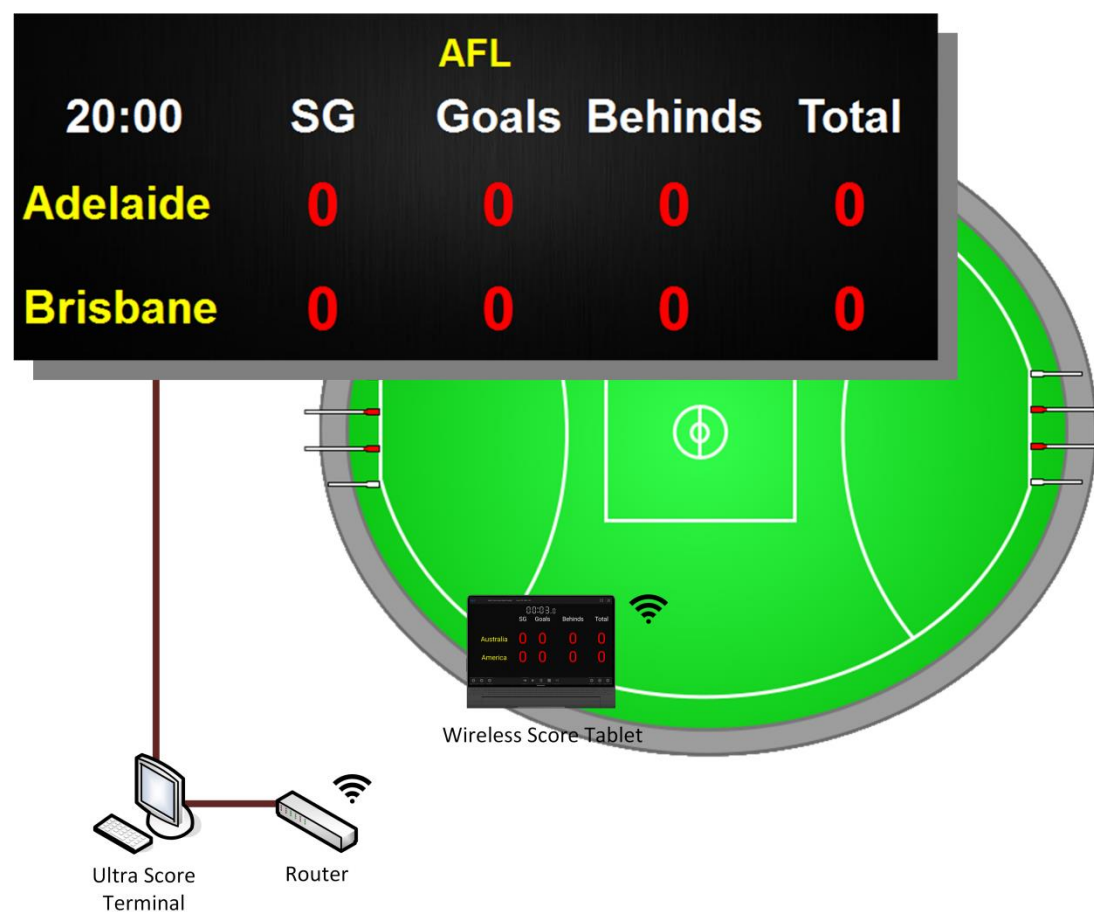
- **Video Arbitration System**

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 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, Football Stats Workstation, 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) **Ultra Score Console:** Installed in the Officials Table for referee's operation of score and penalty. It can be connected to the LAN through network cable or WIFI.
- 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. Products List

2.1 Ultra Score Software

Products	Details
Ultra Score software	<ul style="list-style-type: none">◆ Standalone edition◆ Supports: Aussie-Rules Football◆ Including 1 dongle
Ultra Score software	<ul style="list-style-type: none">◆ Standard network edition (Terminal + 1 Display)◆ Supports: Aussie-Rules Football◆ Including 1 dongle
Ultra Score software	<ul style="list-style-type: none">◆ Professional network edition (Terminal + Referee + 2 Display)◆ Supports: Aussie-Rules Football◆ 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.

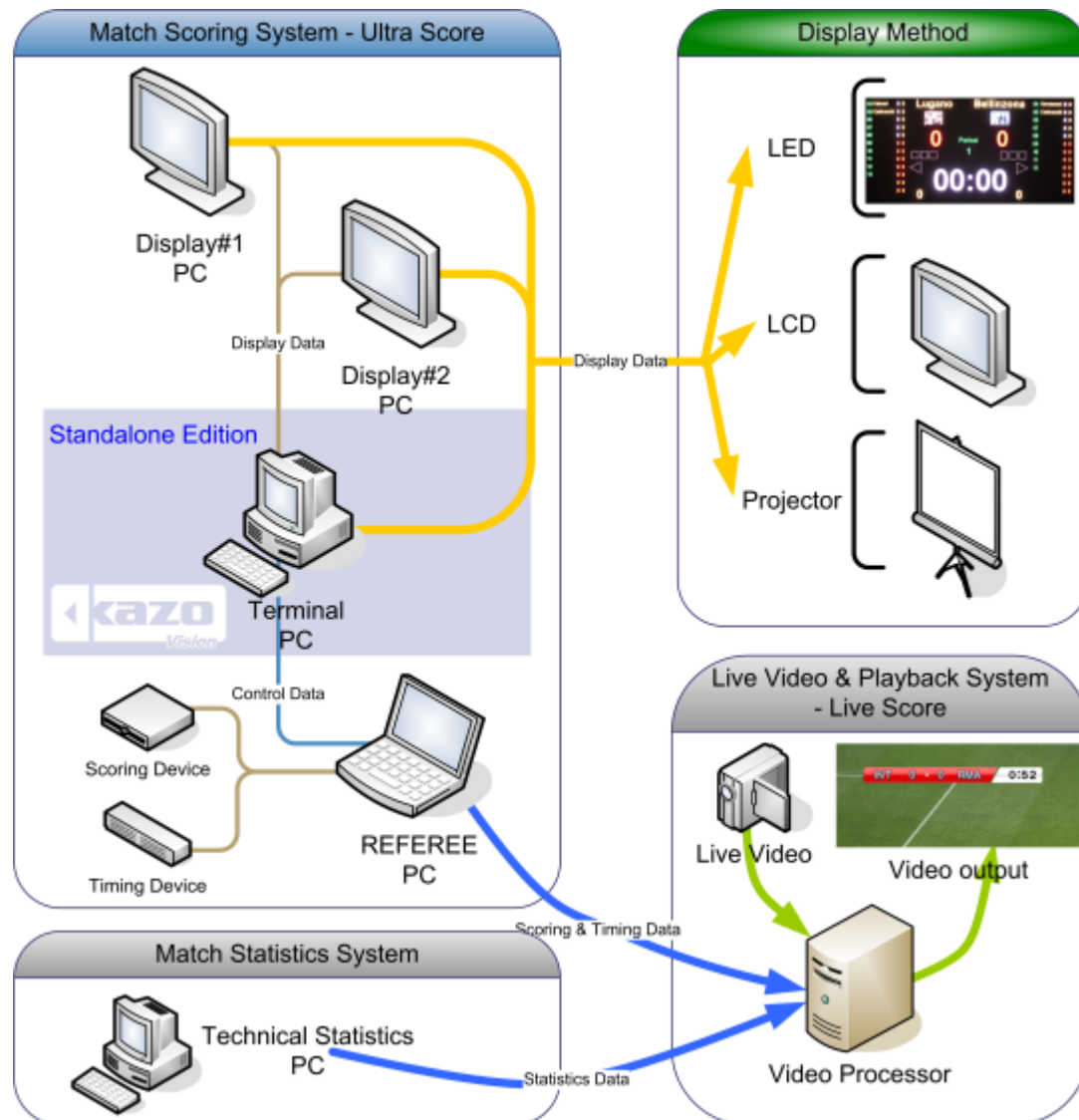
It is suitable for the stadium where has one screen, needs to do the scoring and timing on the courtside.

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).

System Diagram:



Features

- (1) Professional scoreboard display: Scoring and timing operation, layout of scoreboard can meet international game rules.
- (2) Match management: Information of match, team, team members and coaches can be saved in advance. And referee's scoring operation during the match can be recorded and output.
- (3) Scoring functions: Include operation and display of teams and players' point, foul and substitutions.
- (4) Timing functions: Include operation and display of game time, pause, break time, count down time and system time.
- (5) Convenient operation feeling: Referees can do operation on a special score console as well as by using shortcuts on the keyboard.
- (6) Powerful media player: Kinds of media formats are supported. It is easy to switch between the scoreboard and video.
- (7) Notification: Rolling to display short notice on the screen which allows to set the speed, colors, fonts freely.
- (8) Customization: All contents on the scoreboard including fonts, color and layout can be modified to meet clients' needs.
- (9) Self-adaptation: With easy configuration, score information can be displayed on kinds of LED and LCD screen by using this system which can adjust the layout to meet any sizes of screen.
- (10) Security: Auto backup function will help you recover the match immediately from the computer fault.

2.2 Wire / Wireless Score Console

Item	Details
Wire/Wireless score console	<p>Type: KS-GC16 Size: 330x290x140(mm)</p> <ul style="list-style-type: none"> ◆ Used with the Ultra score software ◆ Communication: 1*Ethernet, 1*WIFI ◆ With 7" full color LCD screen ◆ Material: Plastic ◆ Support: Aussie-Rules Football ◆ Functions: Modify score, foul, control the competition clock and shot clock, etc.



Ultra Score Console

Size	330 x 290 x 140 (mm)
Net weight	3 KG
Box material	Plastic
screen	Full-colored 7" LED
Audio	6.5mm Audio Output
Power	AC 100V-230V
Network	LAN, WLAN
Language	Chinese, English



Handy Match timer

Size	120 x 80 x 25 (mm)
Net weight	0.2 KG
Box material	Plastic

2.3 Wireless Score Controller (tablet)

Products	Details
Wireless Score Tablet	<p>Type: KS-GC14</p> <ul style="list-style-type: none"> ◆ Including one license of Lightscore App ◆ Screen: 10"inch 2560*1600IPS ◆ Ram: 3GB ◆ Storage: 32GB ◆ Battery: 9300mAh ◆ System: Android 6.0 ◆ Supports: AFL ◆ Communication: WIFI ◆ Full colored touch screen



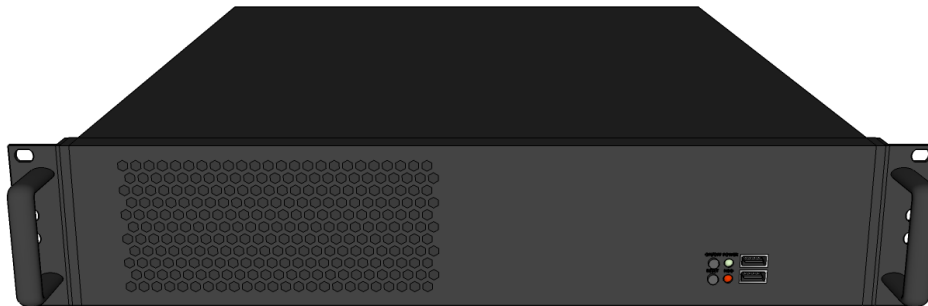
2.4 Meet Management Server

Products	Details
Meet Management Server	<p>Type: KS-MMS-MINI</p> <p>Size: 170x150x35 (mm)</p> <p>Weight: 1.0 KG</p> <p>Features:</p> <ul style="list-style-type: none">● 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.



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



Device Specification

Type	KS-PARROT-2C/4C/6C/8C
Size	485x480x90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	DP*2
Environmental	
Operating Temp	-5°C~45°C
Storage Temp	-40°C~80°C
Relative Humidity	5%~95%, non-condensing
Input Voltage	AC 100V~240V
Functions	
<ul style="list-style-type: none">● 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	<p>Type: KS-PARROT-CP</p> <p>Function:</p> <ul style="list-style-type: none"> ◆ 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°C
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