



Self Crono - Stage d'aggiornamento 2019

Il cronometraggio con PhotoFinish

nelle Manifestazioni Top e nelle Realtà Regionali

Bolzano - 12-13 ottobre 2019



The Microgate Approach

Federico Gori

Programma della sessione

- **Case study: Falcon Races**
 - Strumenti
 - Integrazione tecnologica
- **ReiPro**: un nuovo strumento di cronometraggio
- **Le nuove camere Vision Pro**
- **MispeakerGT**: la grafica televisiva alla portata di tutti

Falcon Races Management

The story

In the last few years, Microgate has been actively involved in the management of Falcon races held in the United Arab Emirates (UAE) and, specifically, in the major championships of Dubai and Abu Dhabi.



Falcon Races Management

What we provide

In the early stages the target was to sell timing equipment.

Today we provide:

- Timing equipment
 - Cronometers
 - Lynx cameras
 - Lidars
 - Displayboards
- Body rental with a team of 15 skilled timekeepers
- Race management software
 - Falcon Manager (registration and race calendar manager)
 - Falcon Race (check in, shuffle, start list, results)
 - TV Graphic (Mispeaker GT)
- MG Rings (RFID rings)
- Cloud services
- Website
- App (IOS and Android)

Falcon Races Management

The falcon races

Telwah

It is the queen of races and the one that involves the largest number of competitors.

It is a classic in line speed race in which the falcon has to cover a distance of 400 metres by flying very close to the ground while staying within the boundary layer as much as possible

Falcon Races Management

The falcon races

Telwah



Falcon Races Management

The falcon races

Telwah : the start area



Falcon Races Management

The falcon races

Telwah : the start area



Falcon Races Management

The falcon races

Telwah : the start area



Falcon Races Management

The falcon races

Telwah : the race



Falcon Races Management

The falcon races

Telwah : the finish



Falcon Races Management

The falcon races

Telwah : the finish



Falcon Races Management

The timing infrastructure

The material

- Rei2-ReiPro
- Lidar with Wireless Linkgate radio transmission
- Lynx cameras
- Micrograph and Microtab

Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

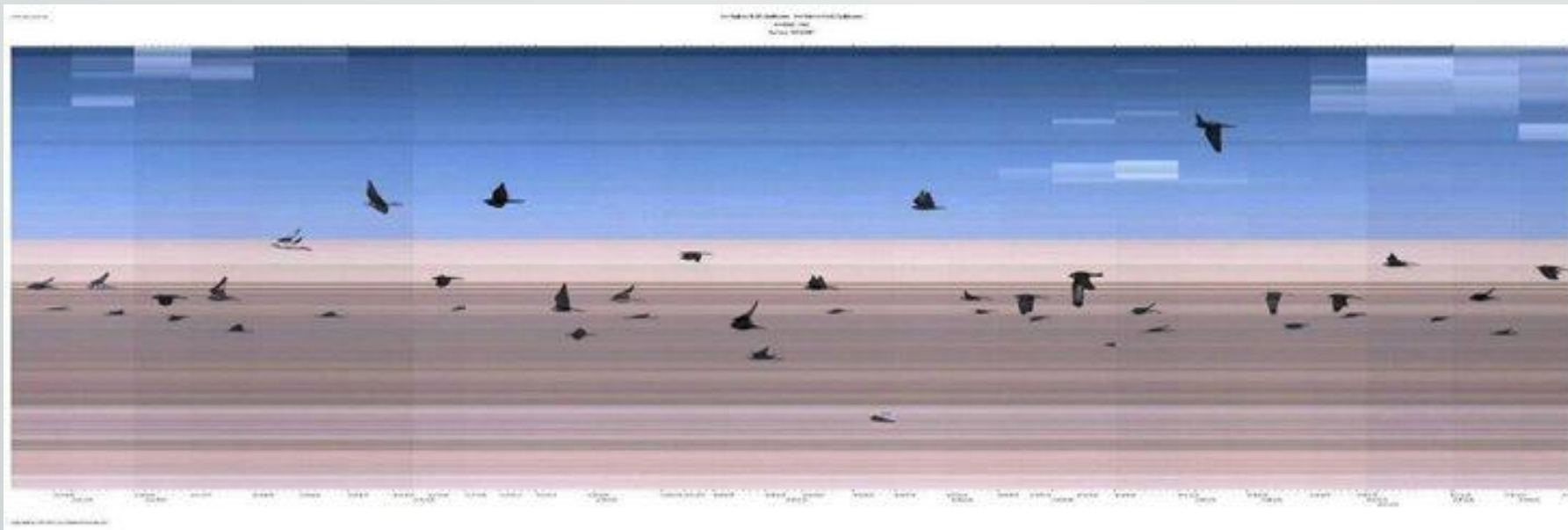
The material



Falcon Races Management

The timing infrastructure

The material

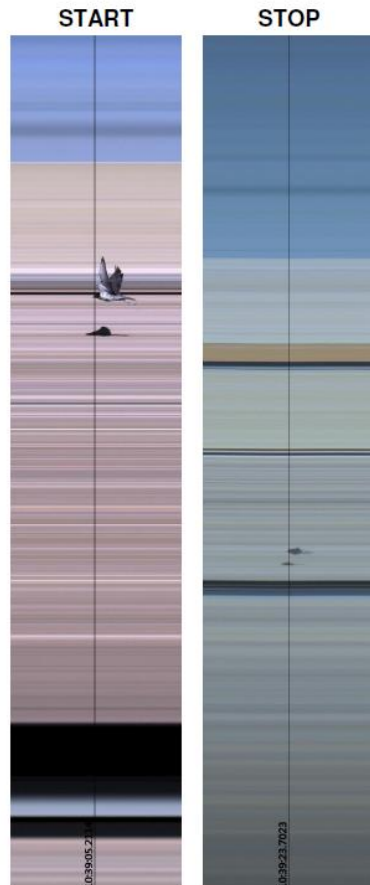


Falcon Races Management

The timing infrastructure

The material

Judge Report:



Race name:

Quarmoosha Jirnas Sheikh - Trophy

Owner:

F3-K

Falcon: 3

4.116

REI2 Times:

START	STOP	NET
10:39:05.2145	10:39:23.7031	18.488

FINISH LYNX Times:

START	STOP	NET
10:39:05.2114	10:39:23.7023	18.490

Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material



Falcon Races Management

The timing infrastructure

The material

T1 F3-3573				MRMFALCON	
محافظة جزائرية 0 المركز				27	الترقيم
الترقيم	الرقم	اسم السائق	اسم السائق	الترقيم	الرقم
1	21	NAS K	مركز	1	21
2	17	NAS-H	مركز	2	17
3	24	MM Team	مركز	3	24
4	20	NAS K	مركز	4	20
5	8	NAS-H	مركز	5	8
6	1	NAS K	مركز	6	1
7	11	المر	مركز	7	11
8	16	NAS K	مركز	8	16
9	15	المر	مركز	9	15
10	5	YLS-M	مركز	10	5
11	4	المر	مركز	11	4
12	3	YLS-M	مركز	12	3
13	19	MRMFALCON	مركز	13	19



Falcon Races Management

The timing infrastructure

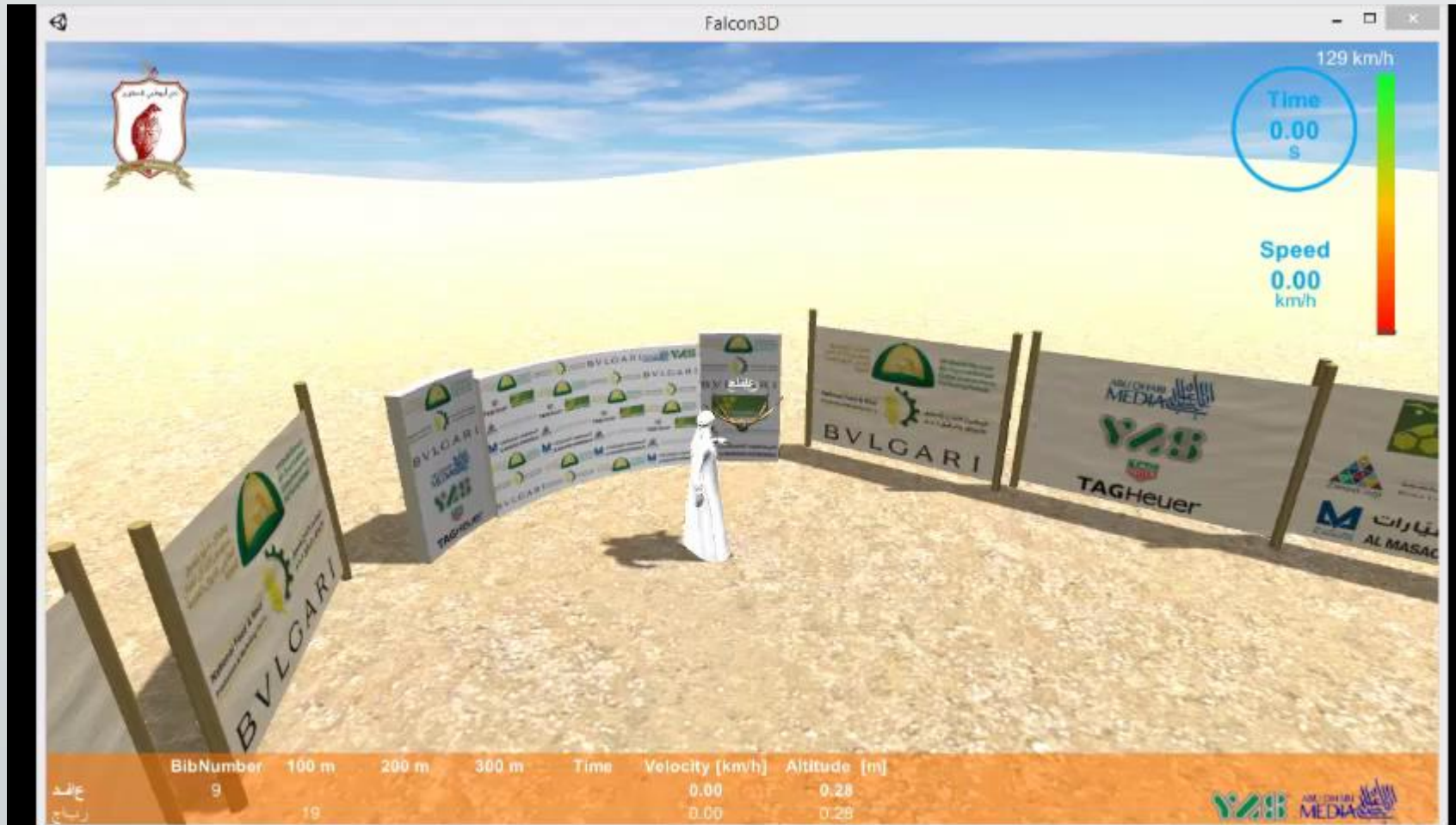
The material



Falcon Races Management

The timing infrastructure

The material

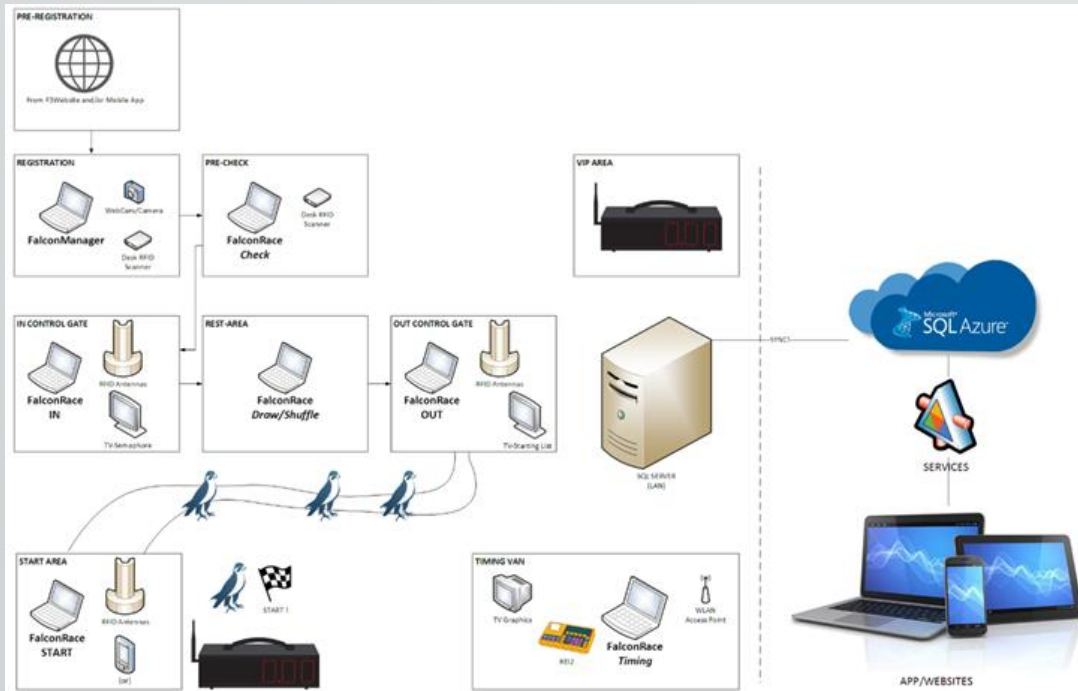


Falcon Races Management

The timing infrastructure

The Software

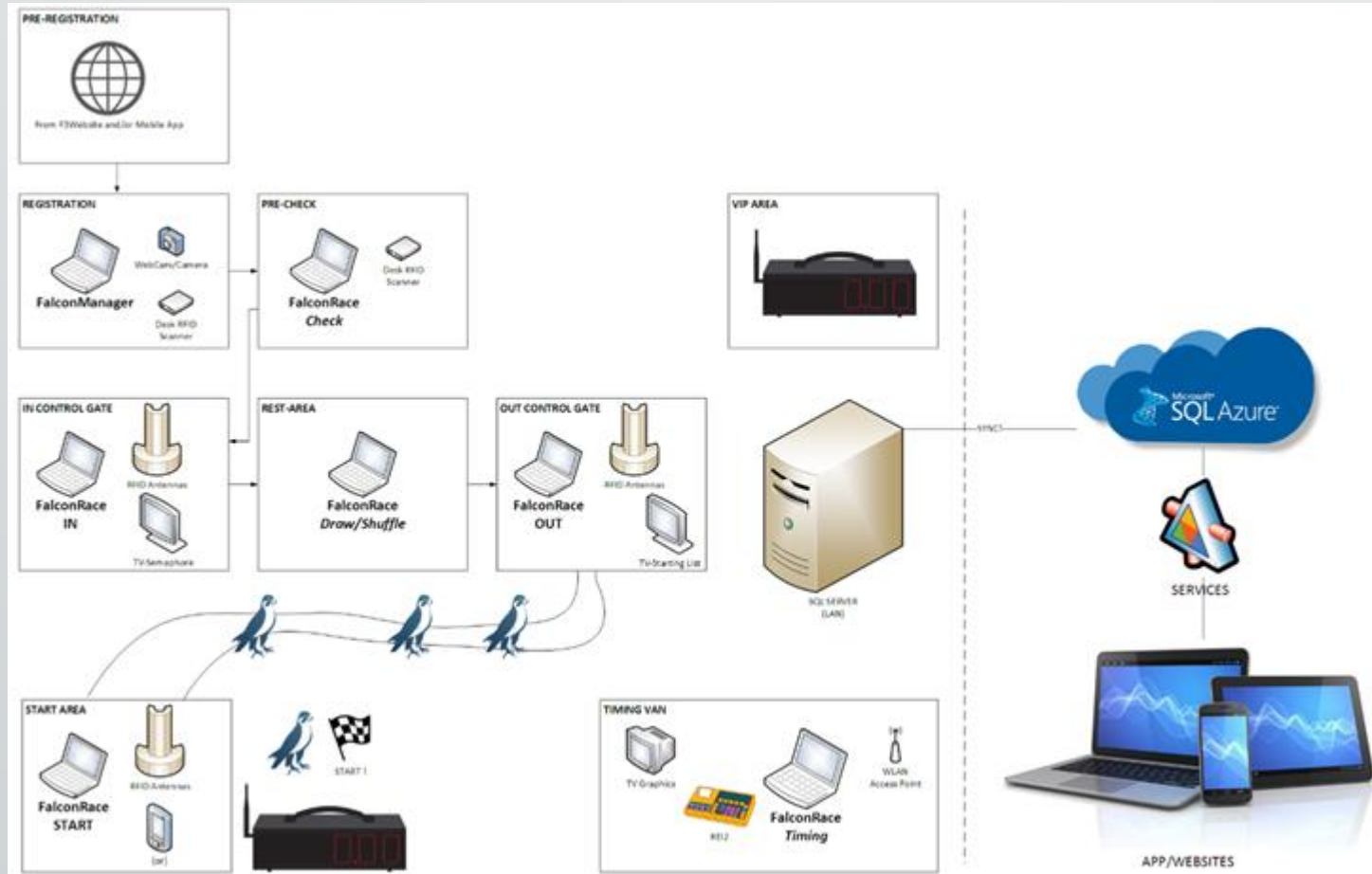
All data is stored in a central database on a server in local clusters, with cloud mirroring, so that it can be used by websites, mobile apps and data-sharing services (APIs, web services, etc.)



Falcon Races Management

The timing infrastructure

The Software

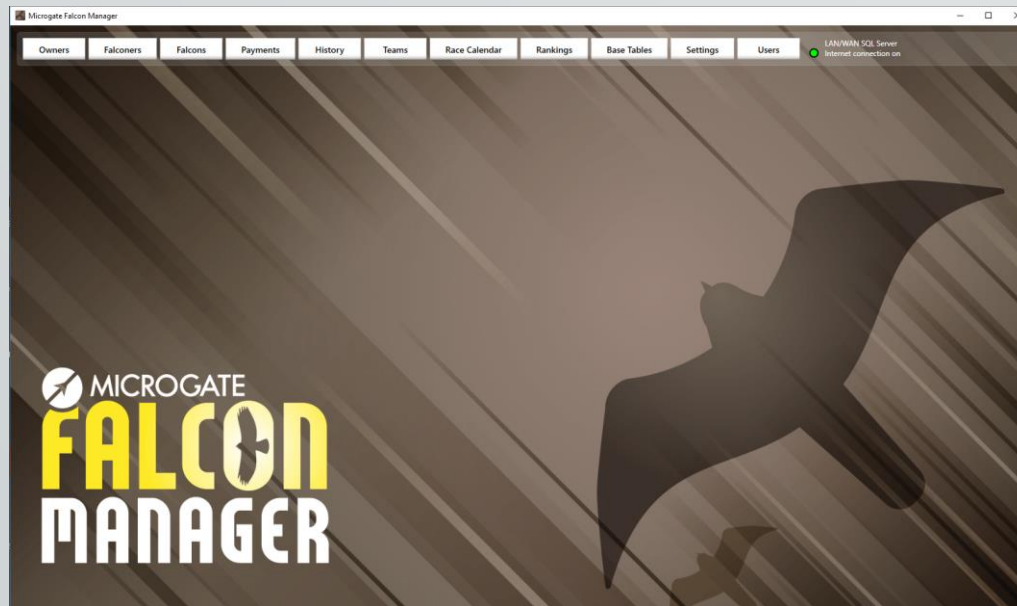


Falcon Races Management

The timing infrastructure

The Software: RaceManager Falcon Edition

- Owners registration
- Falconers registration
- Falcons registration (MG Ring, pictures)
- Race calendars
- Multiseason Statistics



Falcon Races Management

The timing infrastructure

The Software: RaceManager Falcon Edition



The screenshot displays the RaceManager Falcon Edition software interface. The top navigation bar includes tabs for Owners, Falconers, Falcons, History, Teams, Race Calendar, Rankings, Base Tables, Settings, and Users. The main window is divided into several sections:

- Owner Details:** A form for entering owner information, including Name, Date of Birth, Country, Mobile Phone, Email Address, and a photo. A "Filter by: Owner Type" dropdown is visible on the left.
- Falcon Details:** A form for entering falcon information, including Ring Number, Falcon Name, Category, Age Category, Country, Owner, and Falcon. It also includes a "Filter by: Falcon" dropdown and a "Season" dropdown.
- Table:** A table listing various falcons with columns for Ring Number, Name, Category, Age Category, Country, Owner, and Falcon. The table is filtered by "Ring Number" and "Name".
- Buttons:** Several buttons are visible, including "Edit Owner Details...", "Show Falconer...", "Print Register Card...", "Choose Owner...", "Choose Falconer...", "Save", "Show Changes...", "Show Falcons...", "Close", "Export RSR...", and "Export RSR...".

Falcon Races Management

The timing infrastructure

The Software: Falcon Race

- The highlight of race management is entrusted to a custom version of [MiSpeaker](#), a well-known race timing software.
- All the various additional stages are managed by specific modules (MiIn, MiOut, MiStart, etc.).



Falcon Races Management

The websites and Apps





[Race Results](#) | [Starting list](#) | [Location](#) | [Support](#) | [تسجيل في بطولة فزاز للرماية](#) | [Register](#) | [Login](#) | [عربي](#) | [EN](#)



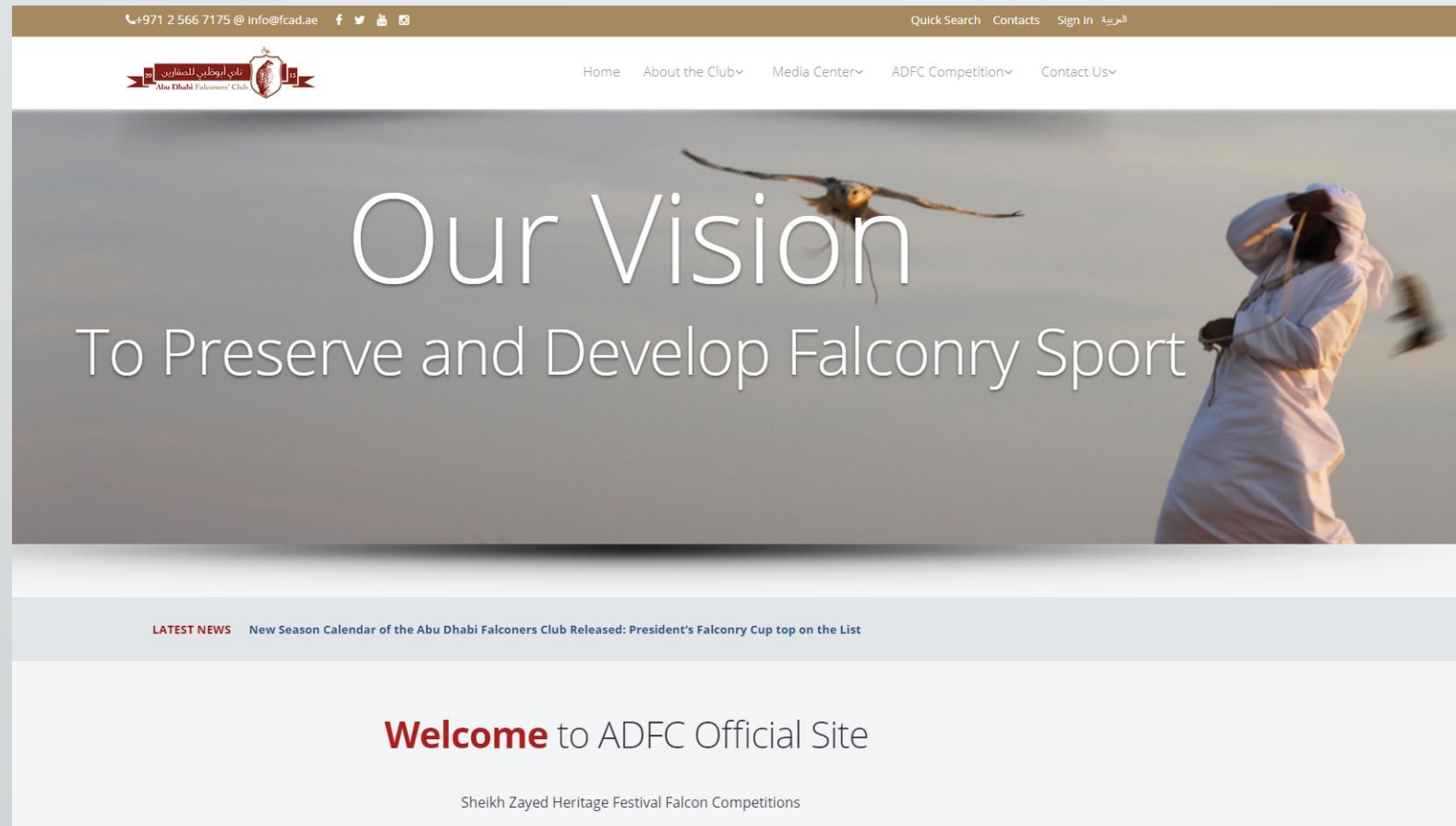
Fazza Championship for Falconry

Fazza Championship for Falconry is the most popular of the various Fazza heritage competitions. Sponsored by His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, the falconry championships have gained tremendous popularity over the years, prompting the organizers to increase the prize fund for the tournaments and introduce new competition categories, thus further elevating the championships' status as one of the most prominent heritage tournaments globally.

The sport of falconry – known locally as “kanas” (hunting) – is an integral part of the heritage of the UAE and stretches back hundreds of years. Falconry originated in the Arabian Peninsula and holds a special place in Arab culture and civilization, where it was practiced as a means of obtaining food.


Falcon Races Management

The websites and Apps



Falcon Races Management

The websites and Apps



FAZZA CHAMPIONSHIPS
بطولات فزاز

Fazza Championship

Microgate Sports

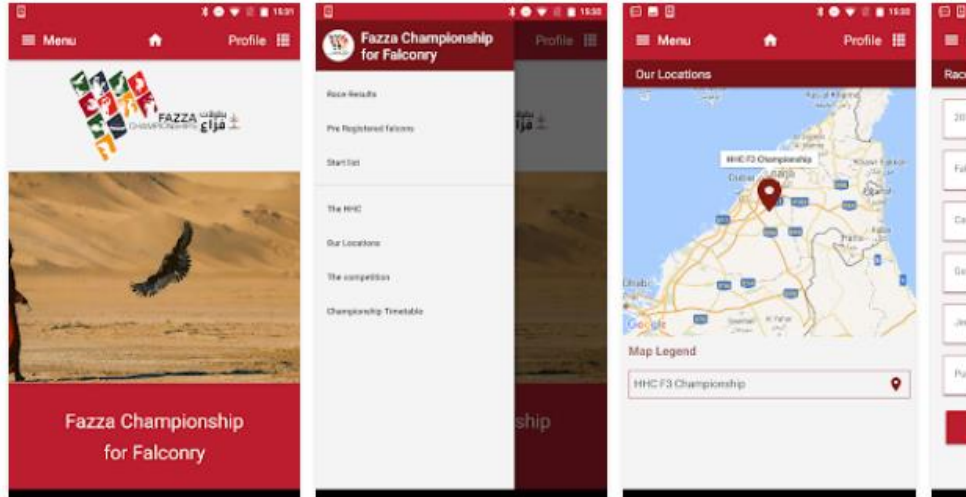
★★★★★ 1

PEGI 3

You don't have any devices

Add to Wishlist

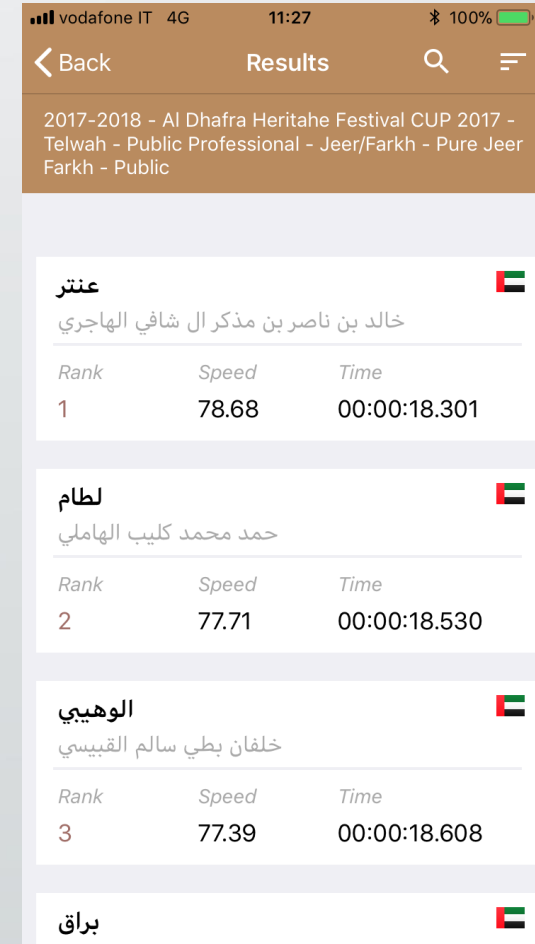
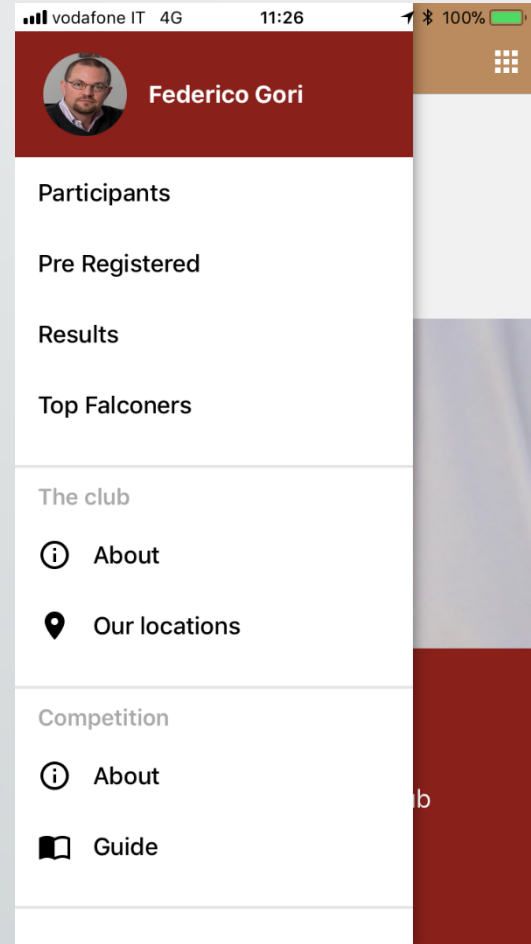
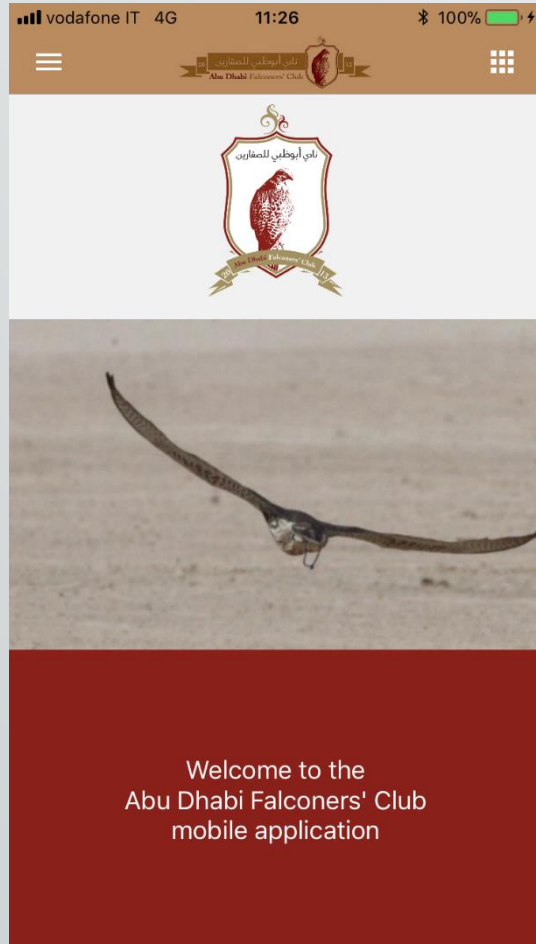
Install



The official and free application for Hamdan Bin Mohammed Heritage Center for Falcon Championship

Falcon Races Management

The websites and Apps



Falcon Races and more Camel Races



Falcon Races and more Camel Races

FinishLynx - [003-1-01]

File Edit Event Image Results Scoreboard LapTime Window Help

(no starts) (no capturable events)

0.0

Event	Event #	Round	Heat #
الثالث - حول محليات - حول و زمل	3	1	1

Start 14:26:37.43

Wind

LapTime 0 1 Manual (0.0,10.0)

Finish

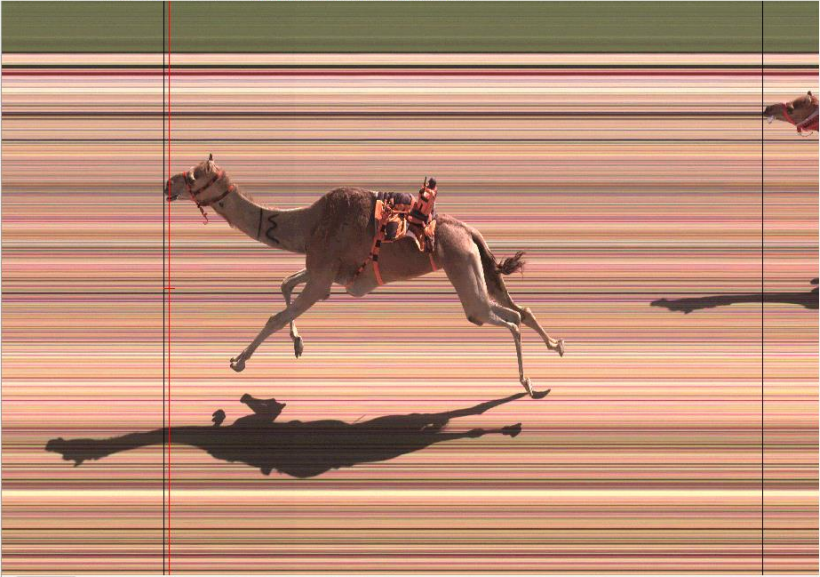

Camera	5000	4000	Zoom 300%	109 (30)	Left
Camera 1					
Camera 3	10	696	Wide 50%	34 (40)	Left

Results

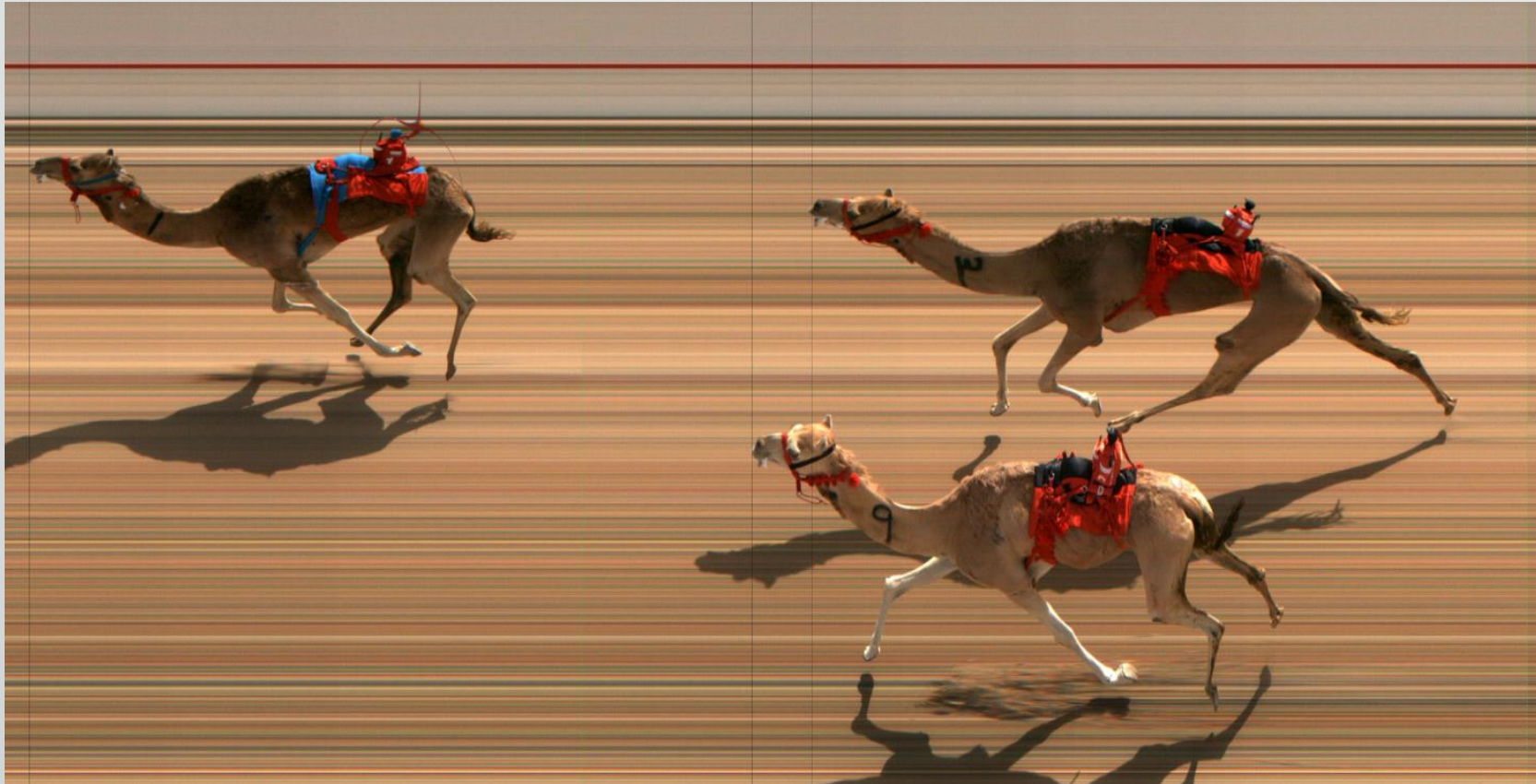
Time/User 1	Affiliation	Last Name	Id	Place
12:47.0211143 - الإمارا	سعيد محمد دري المنصوري	حفيضة	14	1
12:47.994233 - قطر	خليفة حمد خليفة العتيقة	شرازه	24	2
12:48.752684 - الإمارات	محمد راشد بن عذير الكعبي	أثير	22	3
12:51.031000 - قطر	منصور محمد منصور السيف الخبارين	مروقه	3	4
12:52.255813 - الإمارات	حمد محمد سالم الوهبي	عنه	21	5
12:52.301006 - الإمارات	عامر حمد غفصان المنصوري	المنك	23	6
12:52.423497 - قطر	خالد حمد صالح القمرا النابت	سوده	10	7
12:52.763830 - الإمارات	مسلم صالح طرطوم العامري	روعة	13	8
12:52.814655 - الإمارات	مظفر محمد خموشه العامري	الثر يا	1	9
13:02.911555 - الإمارات	سعيد مظفر محمد الرميلى	حميله	18	10
13:03.261901 - قطر	سعود صالح حمد القمرا النابت	هملوله	8	11
13:06.3310402 - الإمارا	سعادة حميد سعيد النياتى	الونه	19	12
13:10.663945 - الإمارات	ناصر محمد آل سالمين المنصوري	شواهين	2	13
13:12.84220 - قطر	محمد طالب عقيل النابت	الوجه	16	14
13:16.131225 - قطر	حمد محمد طالب عقيل	الزبارة	15	15
13:18.797029 - الإمارات	محمد علي جمعه الرميلى	مصحة	11	16
15:03.383285 - الإمارات	سعيد احمد محمد دري الفلاحى	ارهمه	17	17
15:13.5112663 - الإمارا	راشد سيف محمد المنصوري	احترام	6	18

12:47.03 | 25 | 5000 | Camera 1

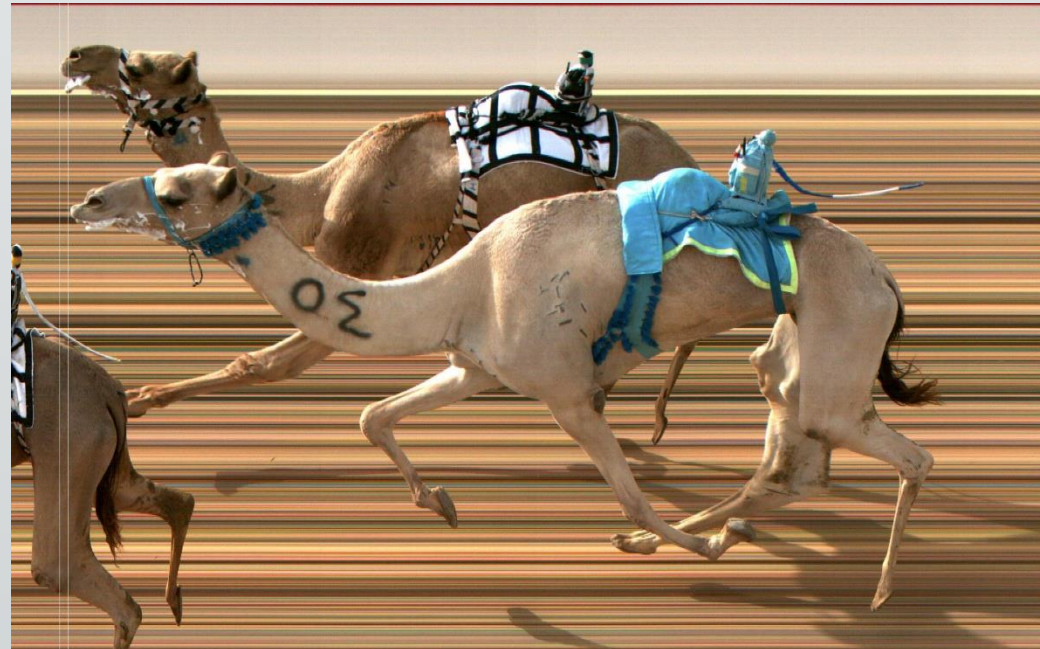
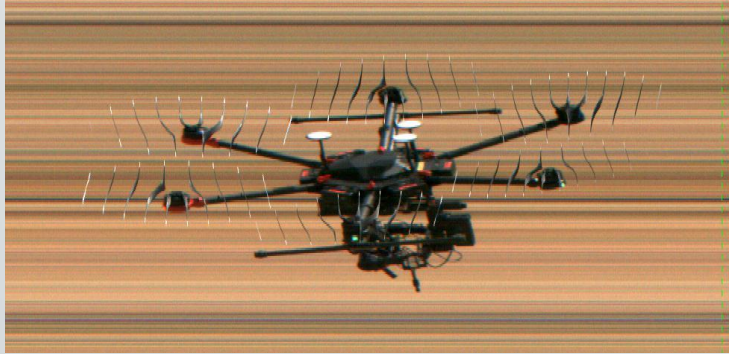
12:47.12 | 100 | Camera 3

Falcon Races and more Camel Races



Falcon Races and more Camel Races



Falcon Races and more



Panoramica Generale



Panoramica Generale



Panoramica Generale



Panoramica Generale



Panoramica Generale

Caratteristiche di base

- Peso: 2,2 Kg
- Dimensioni: 365 x 245 x 78 mm (78mm max, 30mm min)
- Unità misura del tempo: selezionabile fino a 1/10.000 di secondo
- Accuratezza del tempo: 1/50.000 di secondo
- Temperatura d'impiego: -30°C +70°C
- Memoria gare: base 8 GB espandibile fino a 128 GB

L'infrastruttura Hardware

- Architettura del processing
- Sistema operativo
- Le basi tempi
- Il display
- La stampante
- La batteria e l'alimentazione
- La tastiera
- Le linee di cronometraggio
- Le periferiche
- La connettività

L'infrastruttura Hardware :

Architettura del processing

- Architettura basata su due unità di calcolo:
 - **Timing Unit**
 - FPGA
 - Processore NIOS II/e 32bit RISC implementato su FPGA
 - Si occupa di gestire tutti i segnali real time compresa la base tempi
 - Utilizza un bus dedicato per comunicazione con General CPU
 - **General CPU**
 - Basata su SOM (System On Module)
 - CPU: Quad Core Arm9 @800MHz
 - RAM: 1 GB
 - Flash NAND: 512 MB
 - eMMC: 8 GB
 - Extended Range: da -40°C a +85°C
 - 10/100/1000 Ethernet
 - Audio Codec
 - Memoria MicroSD 8GB



L'infrastruttura Hardware :

Il sistema operativo

- Il sistema operativo di Rei Pro si basa su una versione customizzata di Linux che utilizza Yocto Project Framework ottimizzata per sistemi embedded.




Linux

The Yocto Project logo, consisting of the word "yocto" in a lowercase, sans-serif font, followed by a blue dot, and the word "PROJECT" in a smaller, uppercase, sans-serif font below it.

yocto .
PROJECT

L'infrastruttura Hardware :

Le basi tempi

- Oscillatore termocompensato VCTXO 19,2 MHz collegato direttamente alla FPGA che internamente genera 100MHz
 - Aging (primo anno): $\pm 1\text{ppm}$
 - Frequency Stability (da -30°C a $+85^{\circ}\text{C}$): $\pm 1\text{ppm}$
- GNSS chip antenna module 
 - PPS con 30ns accuracy
 - Antenna integrata
 - Switch automatico ad antenna attiva esterna se collegata
 - GPS/QZSS
 - GLONASS
 - BeiDou
 - Predisposto Galileo

L'infrastruttura Hardware :

Le basi tempi

Parameter	Specification			
Receiver type	72-channel u-blox M8 engine GPS L1C/A SBAS L1C/A QZSS L1C/A GLONASS L1OF BeiDou B1			
	GNSS	GPS & GLONASS	GPS & BeiDou	GPS
Time-To-First-Fix ¹	Cold start	26 s	27 s	29 s
	Hot start	1 s	1 s	1 s
	Aided starts ²	2 s	3 s ³	2 s
Sensitivity ⁴	Tracking & Navigation	-167 dBm	-165 dBm	-166 dBm
	Reacquisition	-160 dBm	-160 dBm	-160 dBm
	Cold start	-148 dBm	-148 dBm	-148 dBm
	Hot start	-156 dBm	-156 dBm	-156 dBm
	GNSS	GPS & GLONASS	GPS & BeiDou	GPS
Max navigation update rate		10 Hz	10 Hz	18 Hz
Velocity accuracy ⁵		0.05 m/s		
Heading accuracy ⁵		0.3 degrees		
Horizontal position accuracy ⁶	Autonomous	2.5 m		
	SBAS	2.0 m		
Accuracy of time pulse signal	RMS	30 ns		
	99%	60 ns		



L'infrastruttura Hardware :

Il display

- Mitsubishi 7.0 pollici Color TFT-LCD
- Touch di tipo capacitivo 
- Operating temperature : -30°C +70°C
- Con sensore di luminosità per regolazione automatica Brightness

ITEM	SPECIFICATION
Display Area (mm)	152.4 (H) × 91.44 (V) (7.0-inch diagonal)
Number of Dots	800 × 3 (H) × 480 (V)
Pixel Pitch (mm)	0.1905 (H) × 0.1905 (V)
Color Pixel Arrangement	RGB vertical stripe
Display Mode	Normally white
Number of Color	262k(6 bit/color), 16.7M(8 bit/color)
Luminance (cd/m ²)	800
Viewing Angle (CR ≥ 10)	-80~80° (H), -80~60° (V)



L'infrastruttura Hardware :


La stampante

- Stampante Seiko
- 384 dots per line e 8 dots/mm
- High speed up to 62,5 mm/s
- Operating temperature : -30°C
+70°C
- Nessuna parte in movimento
- Carta
 - Larghezza 57mm
 - Diametro max 55mm



L'infrastruttura Hardware :

La batteria e l'alimentazione

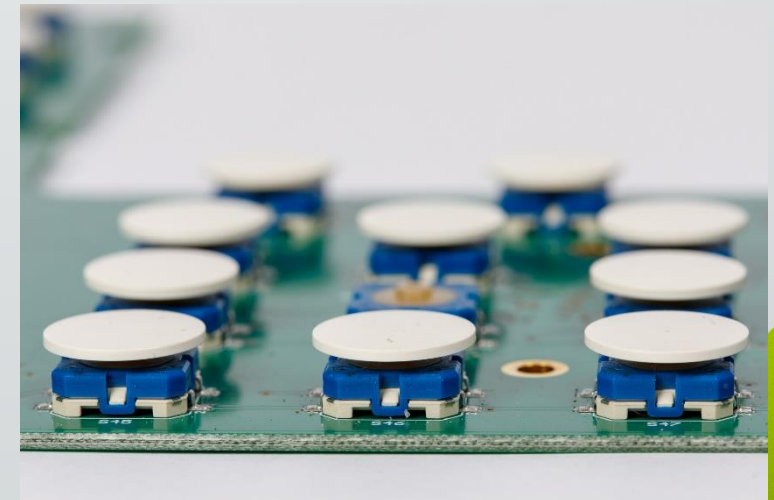
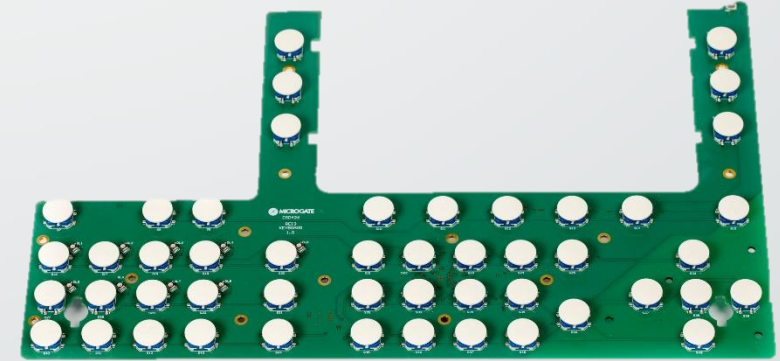
- Batteria agli ioni di litio 
 - Tensione: 7,4V
 - Capacità: 13,6Ah
 - Facilmente sostituibile dall'utente
- Alimentazione 10-30 V DC
 - Stesso alimentatore del Rei2



L'infrastruttura Hardware :

La tastiera

- Tastiera con tasti fisici e copertura in membrana protettiva flessibile.



L'infrastruttura Hardware :

Le linee di cronometraggio

- 4 linee principali su Boccola 4 mm
- 4 linee su presa normata Amphenol 6 poli in parallelo a boccole
- 4 linee su tastiera (indipendenti)
- Le linee fisiche hanno soglia di Shmidt-Trigger configurabile in alto e basso
- Le linee hanno noise filter configurabile (per evitare rimbalzi segnale tipo cancelletto di partenza o pulsanti)



L'infrastruttura Hardware :

Le linee di cronometraggio

- 16 linee via radio su 5 canali di frequenza diversa (due ingressi linkpod nativi e 3 sulle seriali)
- 80 linee tramite espansione Linkpod (identico a Rei2)



L'infrastruttura Hardware :




Le periferiche

- 3 linee seriali completamente configurabili
 - Computer A
 - Computer B/Rei2 Net
 - Displayboard
 - Tutte con linee separate RS232 e RS485 con alimentazione +5V limitata a 150mA
- 5 input analogici 0-5V
 - Sensori di temperatura, umidità e anemometrici
- 6 I/O digitali 0-5V
 - Segnale sincronizzazione GPS in/out
 - Gestione semafori



L'infrastruttura Hardware :

La connettività

- 2 prese Ethernet 
 - Connessione a rete LAN
 - Rei Pro Net (non necessita di uno switch)
- 1 USB Device 
 - Connessione a PC
- 4 Prese USB Host 
 - Tastiera esterna
 - Mouse
 - Chiavette USB
- 1 Uscita audio MP3 



-



Il nuovo approccio software

Considerazioni iniziali

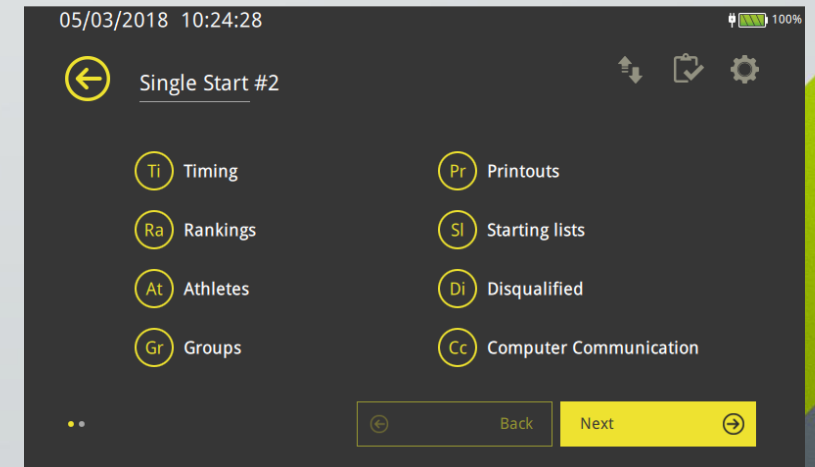
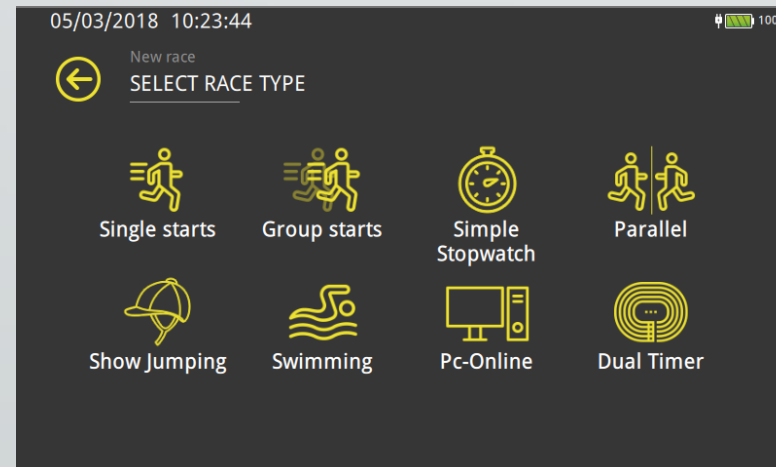
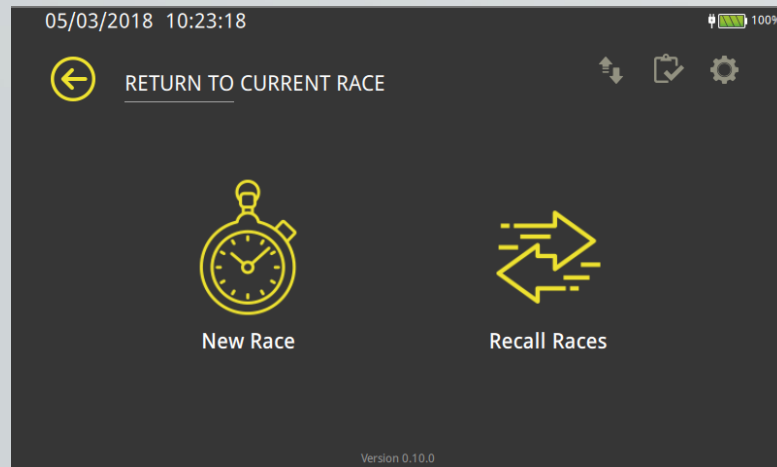
- Miglioramento navigazione nei menu
- Semplificazione impostazioni e configurazioni
- Importanza della continuità operativa per utenti REI2
- Miglioramento correzioni e funzioni di edit
- Portabilità delle configurazioni

Il nuovo approccio software

Le soluzioni adottate

Miglioramento navigazione nei menu:

- Utilizzo icone e testo esplicativo
- Utilizzo navigazione touch
- Icone dedicate e sempre presenti per :
 - Sincronizzazione
 - Test Hardware
 - Configurazioni



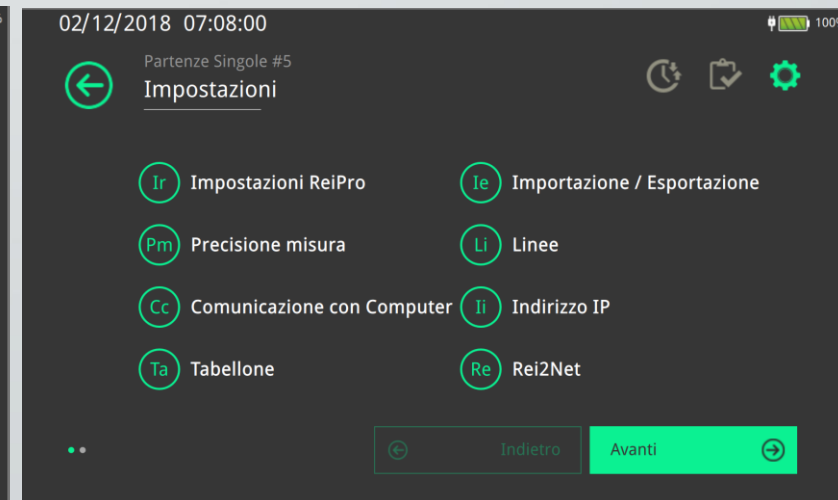
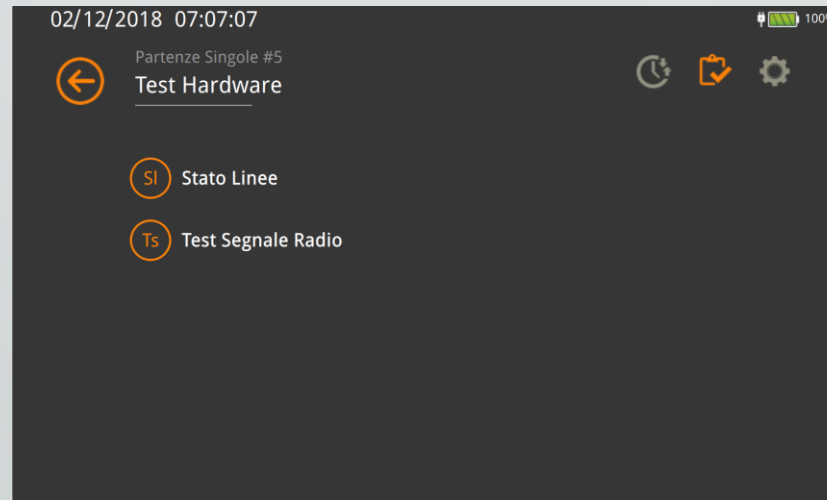
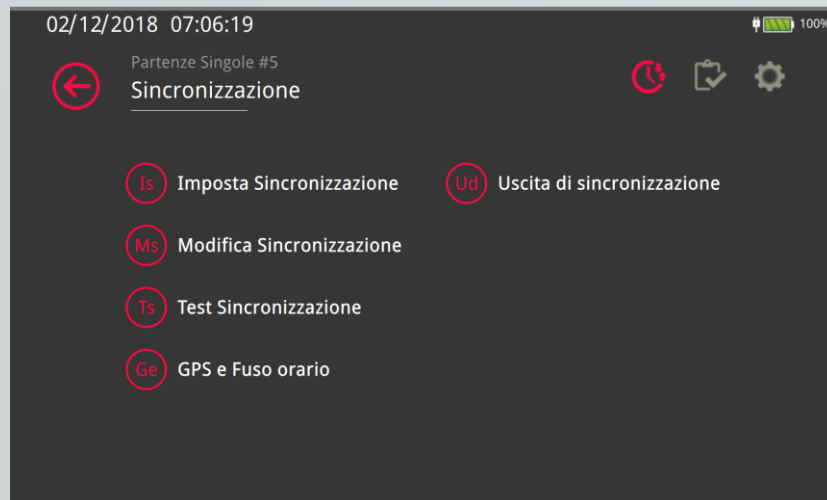
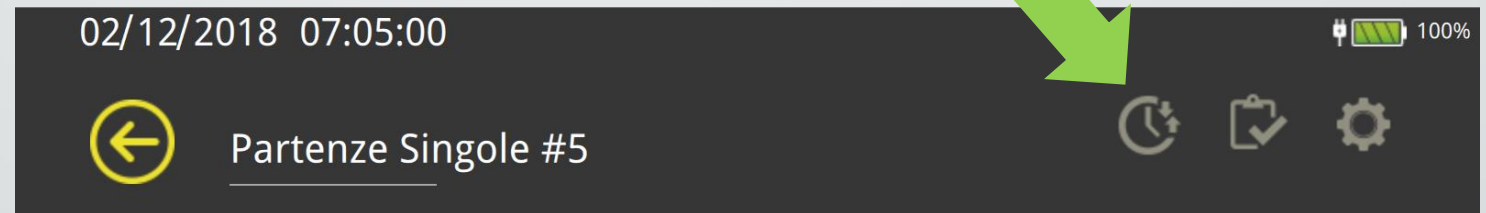
Il nuovo approccio software

Le soluzioni adottate

Semplificazione impostazioni e configurazioni

Utilizzo Icone dedicate con colori specifici per:

- Sincronizzazione
- Test Hardware
- Configurazioni

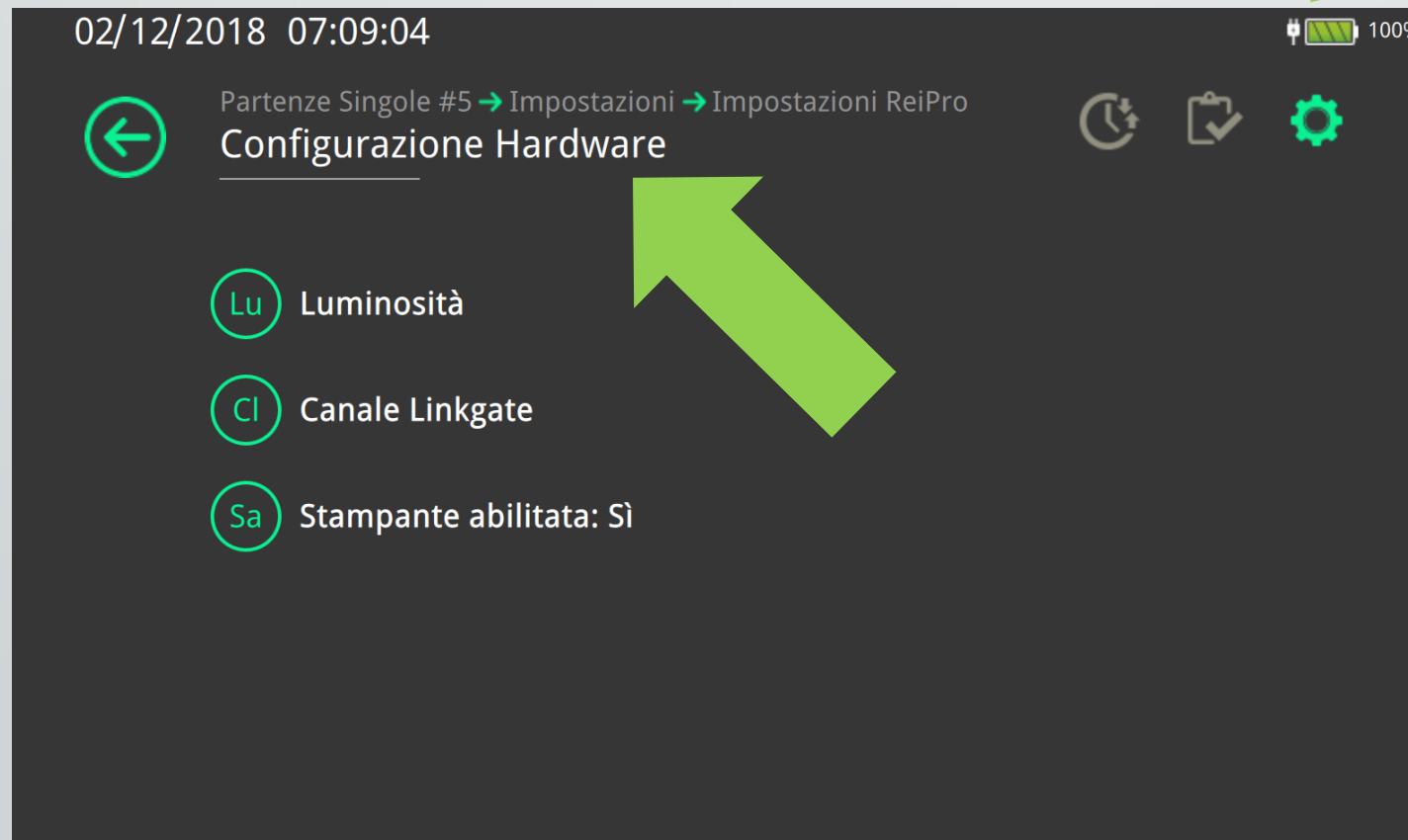


Il nuovo approccio software

Le soluzioni adottate

Semplificazione impostazioni e configurazioni

- Utilizzo della status bar
- Utilizzo del navigation pane

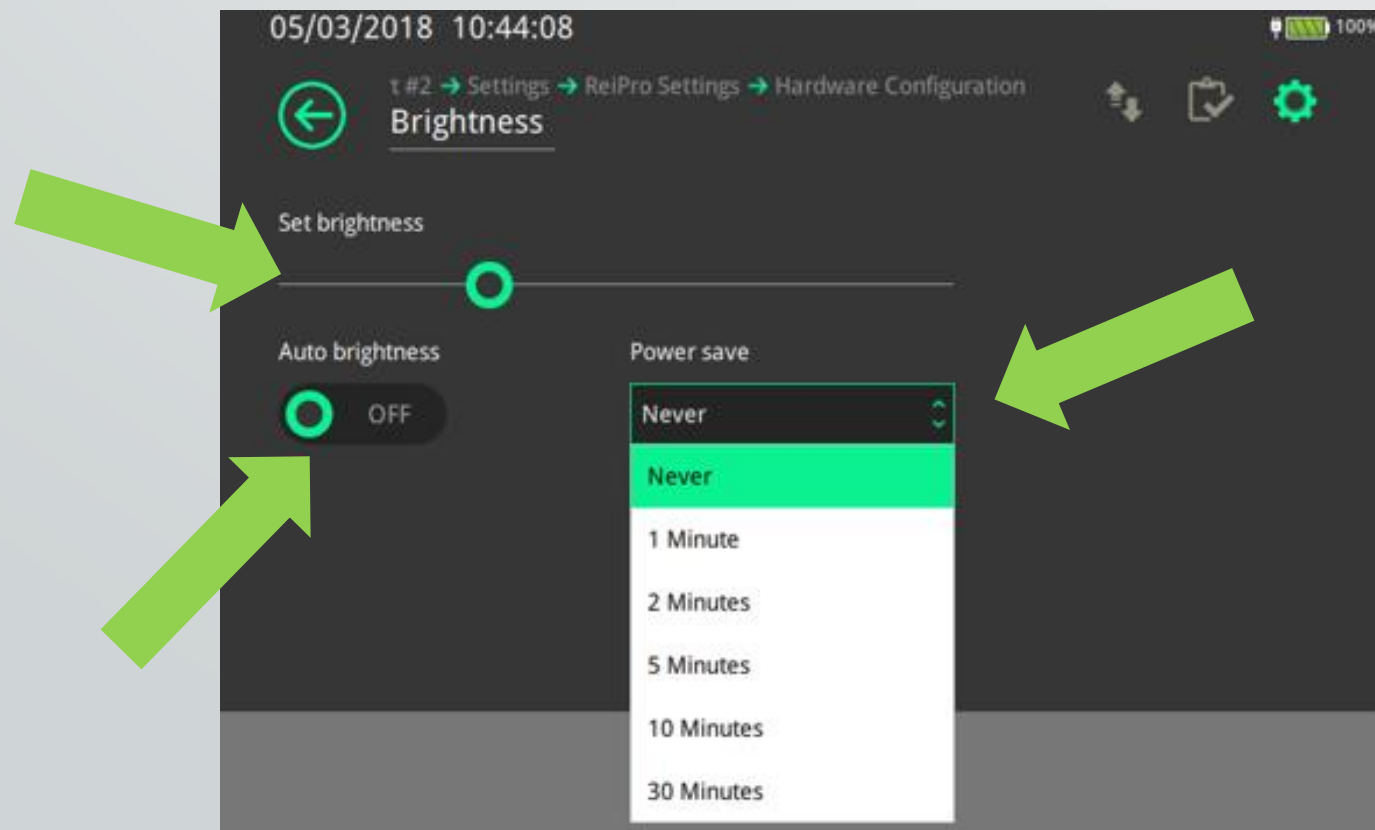


Il nuovo approccio software

Le soluzioni adottate

Semplificazione impostazioni e configurazioni

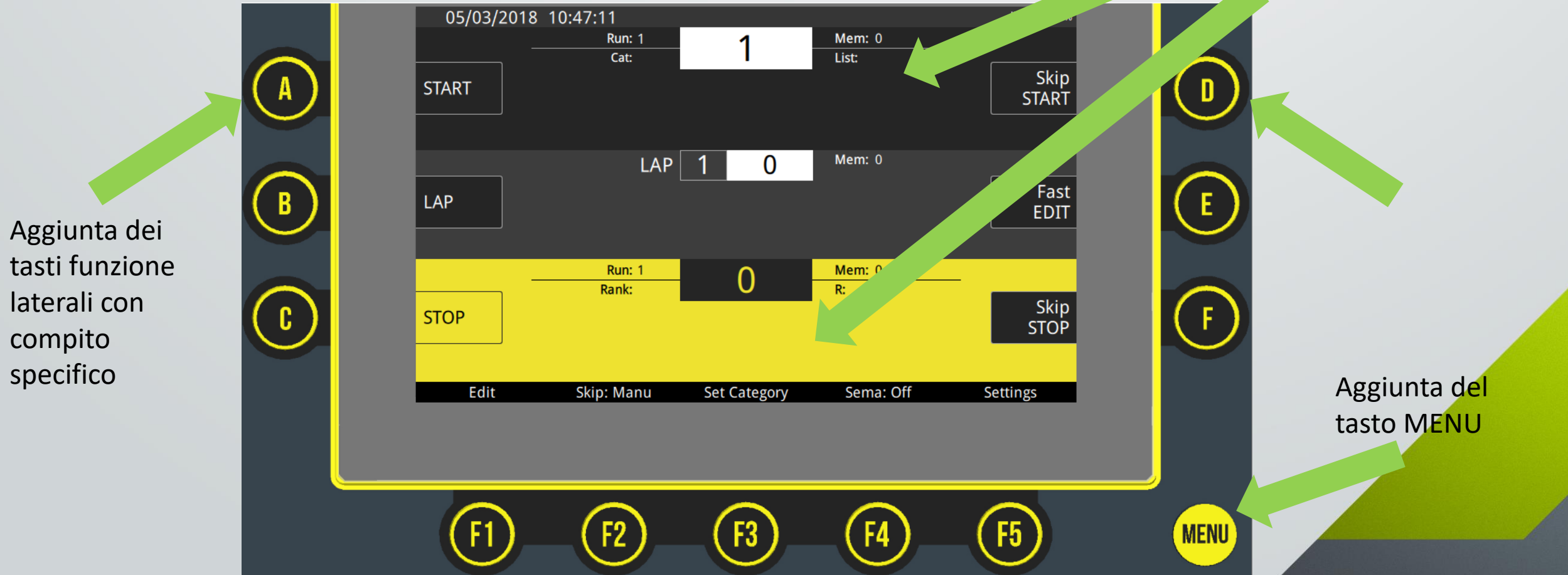
- Utilizzo di elementi grafici
- Utilizzo scelte a tendina



Il nuovo approccio software

Le soluzioni adottate

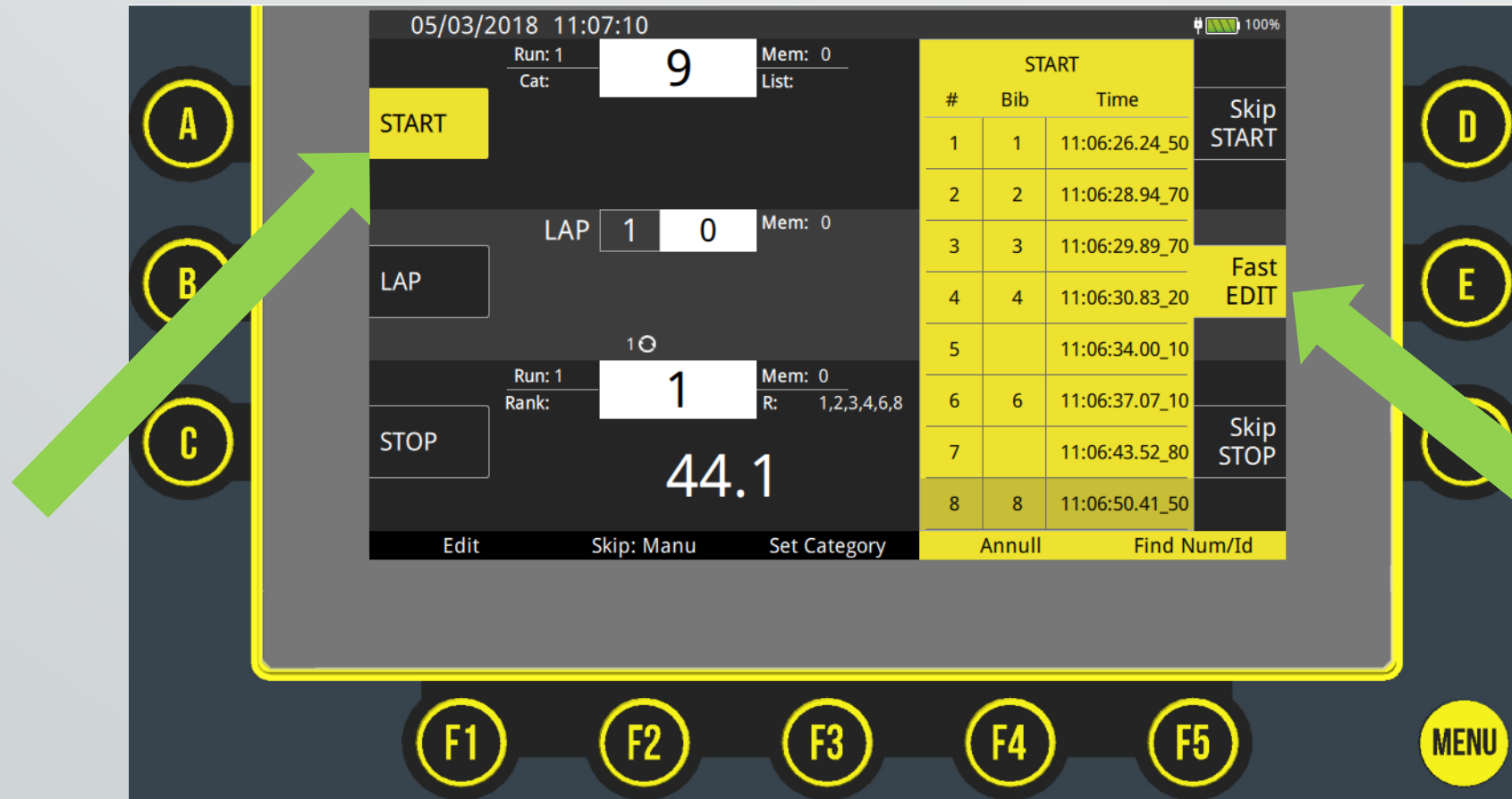
Importanza della continuità operativa per utenti REI2



Il nuovo approccio software

Le soluzioni adottate

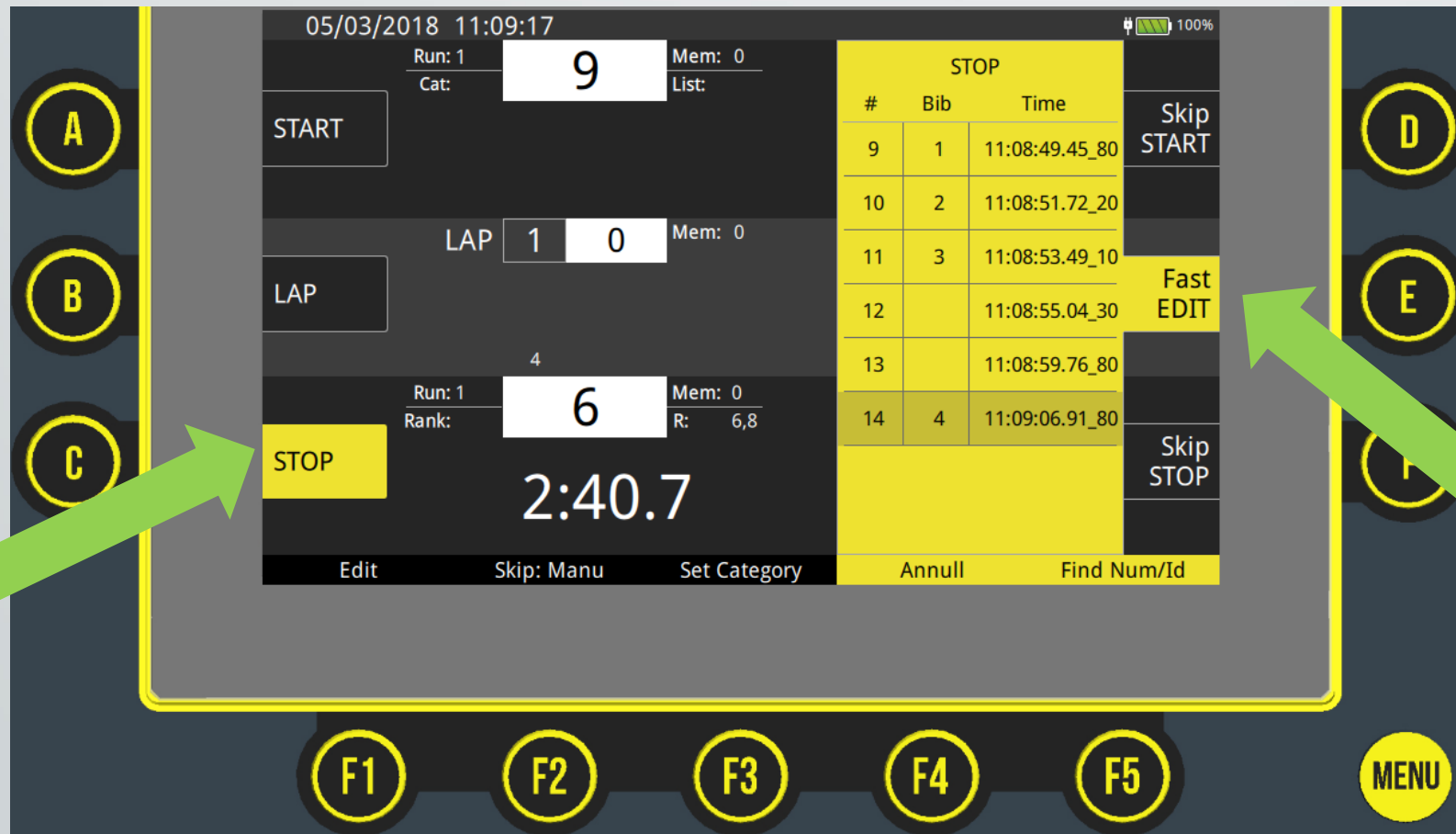
Miglioramento correzioni e funzioni di edit il FAST EDIT



Il nuovo approccio software

Le soluzioni adottate

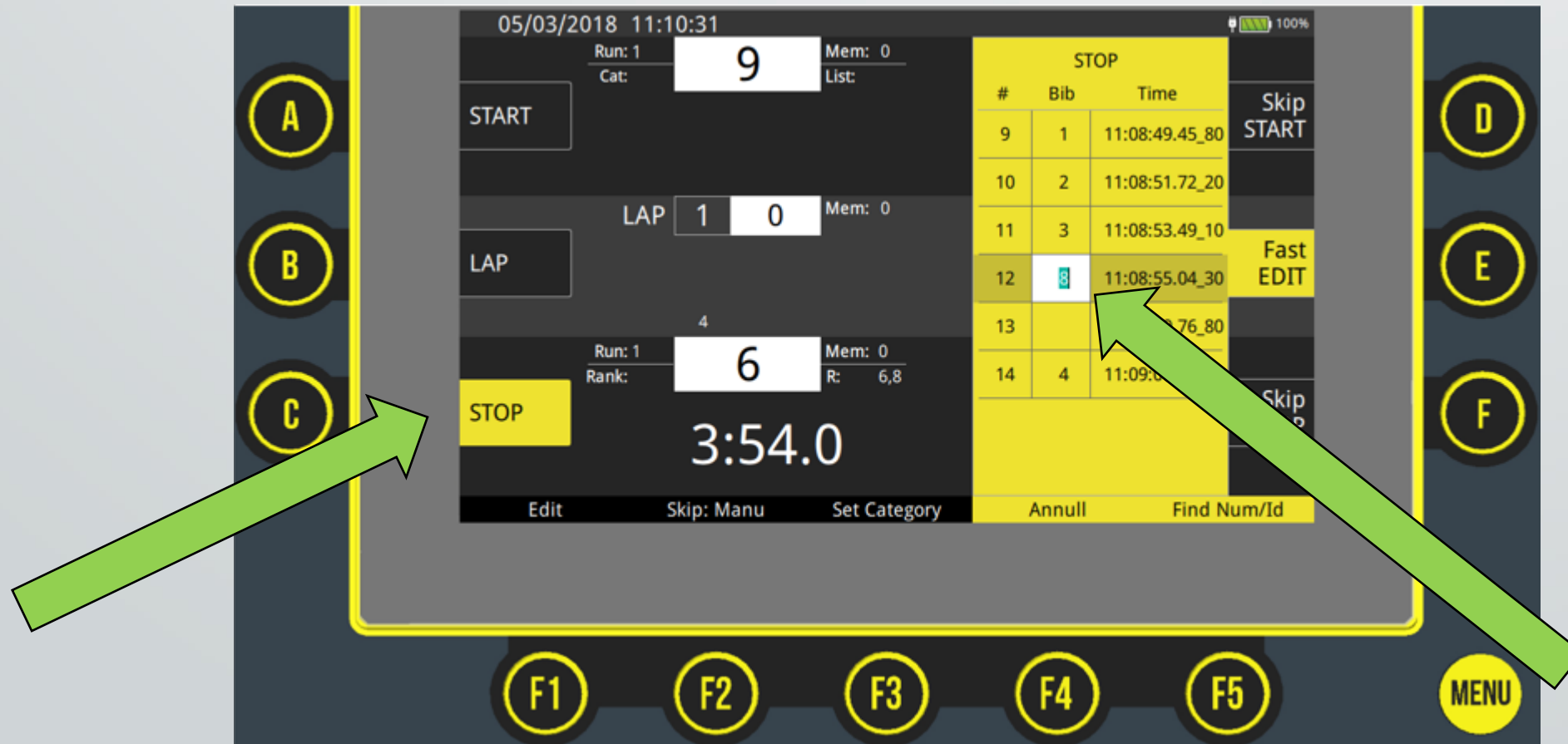
Miglioramento correzioni e funzioni di edit il FAST EDIT



Il nuovo approccio software

Le soluzioni adottate

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Il nuovo approccio software

Alcune features interessanti

- Il simulatore su PC
- ReiPro over IP (private feature)
- La funzione di autocalibrazione della base tempi tramite GPS

The screenshot displays the ReiPro software interface, which is a race simulation tool. The main window shows a race in progress on 17/03/2018 at 05:27:23. The interface includes several buttons for controlling the race: START, LAP, STOP, Skip START, Fast EDIT, Skip STOP, and MENU. The race data is displayed in a central area, showing the current lap (1/0), the current rank (9), and the current time (9.3). The interface also features a sidebar with buttons A, B, C, D, E, F, and F1-F5. Below the main window, there are two tables: 'OnlineStartingList' and 'OnlineRanking'.

#	Bib	Name	Start Time
1	3		
2	2		
3			

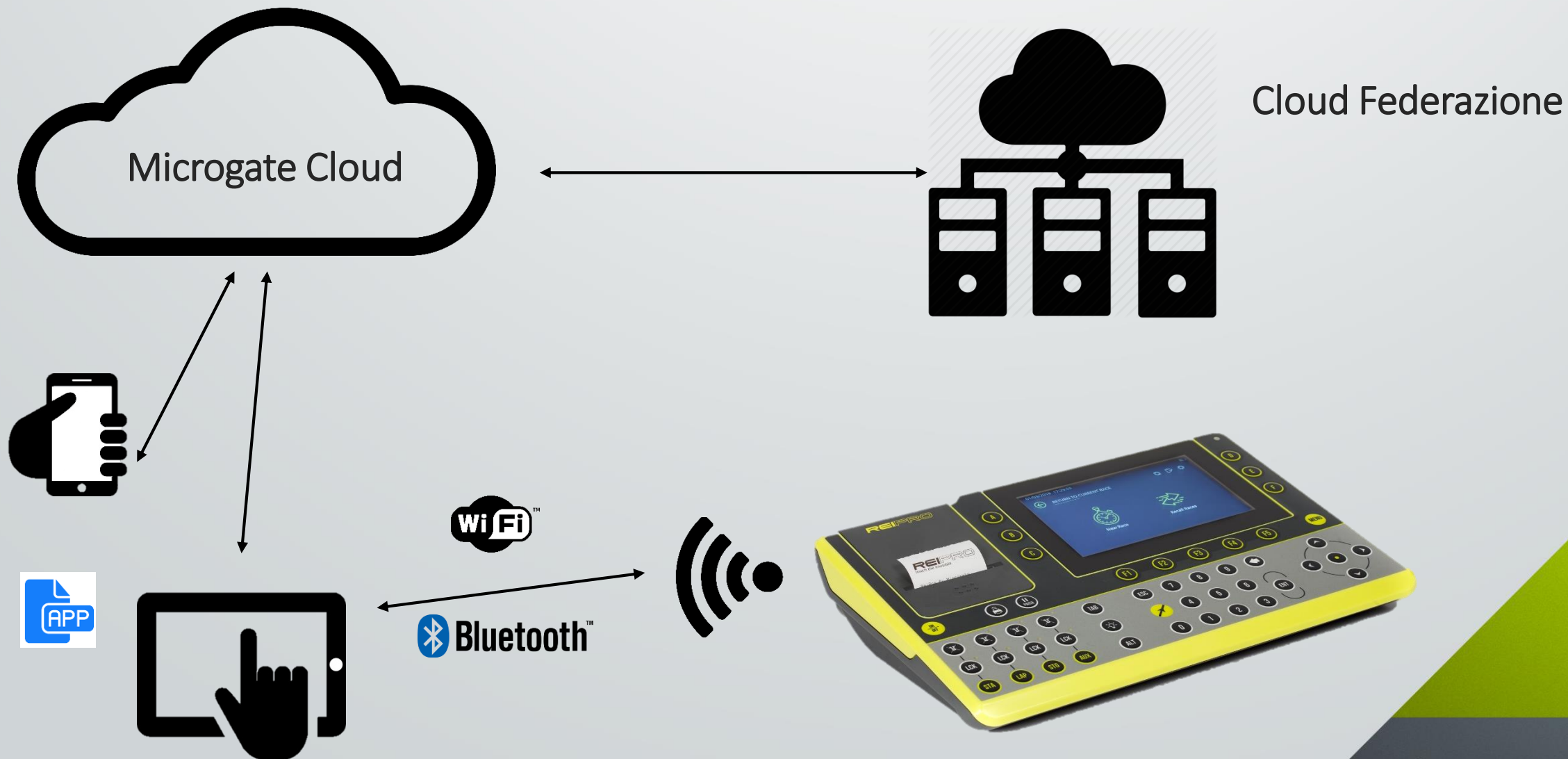
#	Bib	Time	Name
1	5	18.60	
2	67	19.95	
3	54	21.65	

Il nuovo approccio software

Cosa potrebbe riservarci il futuro

- Possibilità di connessione diretta a Internet (To be Verified)
- Possibilità di connessione stampanti USB e di Rete
- Possibilità di video recording over IP o over USB: la VAR del cronometraggio

La comunicazione con il mondo esterno





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