TimeTronics

MacFinish 2D 100

SPORT TIMING SYSTEMS

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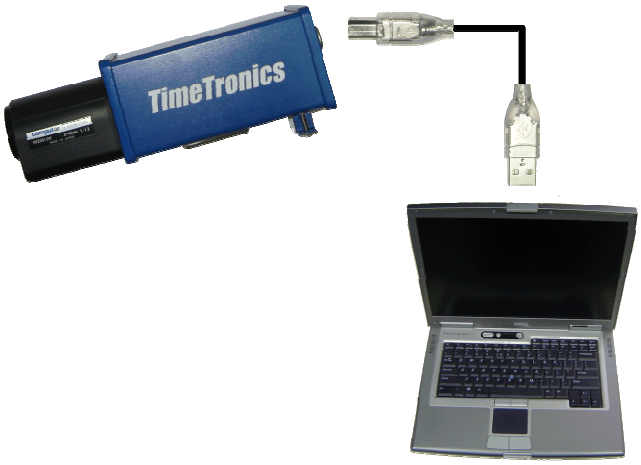
TimeTronics proudly presents the **MacFinish 2D 100** camera, **THE** worldwide innovation in photofinish timing for 2009! The MacFinish 2D USB uses all the knowledge from our MacFinish II generation in combination with the latest technology in sensor development. The 2 dimensional (2D) sensor known in the digital photo and digital video market is now used to build a state of the art photofinish system.



Camera – Computer connection = USB 2.0

For this camera we have chosen a USB connection. USB allows us to stream the photofinish data at a very high speed from the camera to the computer. A 5m active USB cable is delivered with the system.

The main advantages are:

=> 3 way motorized lenses available
Auto focus - Auto iris - Motorized zoom
=> **All** start signals are registered at any time
=> Enhanced alignment procedure: instant video image of the finish line
=> Light sensitive and affordable lenses
=> Dynamic choice in vertical pixels versus capture speed
up to 2500 lines per second - up to 1280 Vertical pixels
=> Fully battery powered
=> Optional VideoID
=> …

Specifications	MacFinish 2D 100
Hardware:	
PC-connection	USB 2.0 (max 5m)
Sensor	2D sensor
Memory Built-in	No internal memory
Number of pixels (vertically)	Scalable from 496 up to 1280
Number of colors/pixel	16 millions
Acquisition rate	Up to 1.390 lines per second
Synchronous time	1 microseconds time base
Camera:	
Optics (lens)	C-mount
Lens control	Club: manual Pro: 3-way motorized for zoom, focus and iris
Camera power	Powered by interface (12Vdc)
Camera Alignment	2D view in software
Camera cable	Active USB or USB 2.0
Camera readout during race	possible
Start Registration	All start registered
Maximum length of camera cable	5m

* Specifications and design can be changed without prior notice

Aligning the camera? It's a piece of cake?

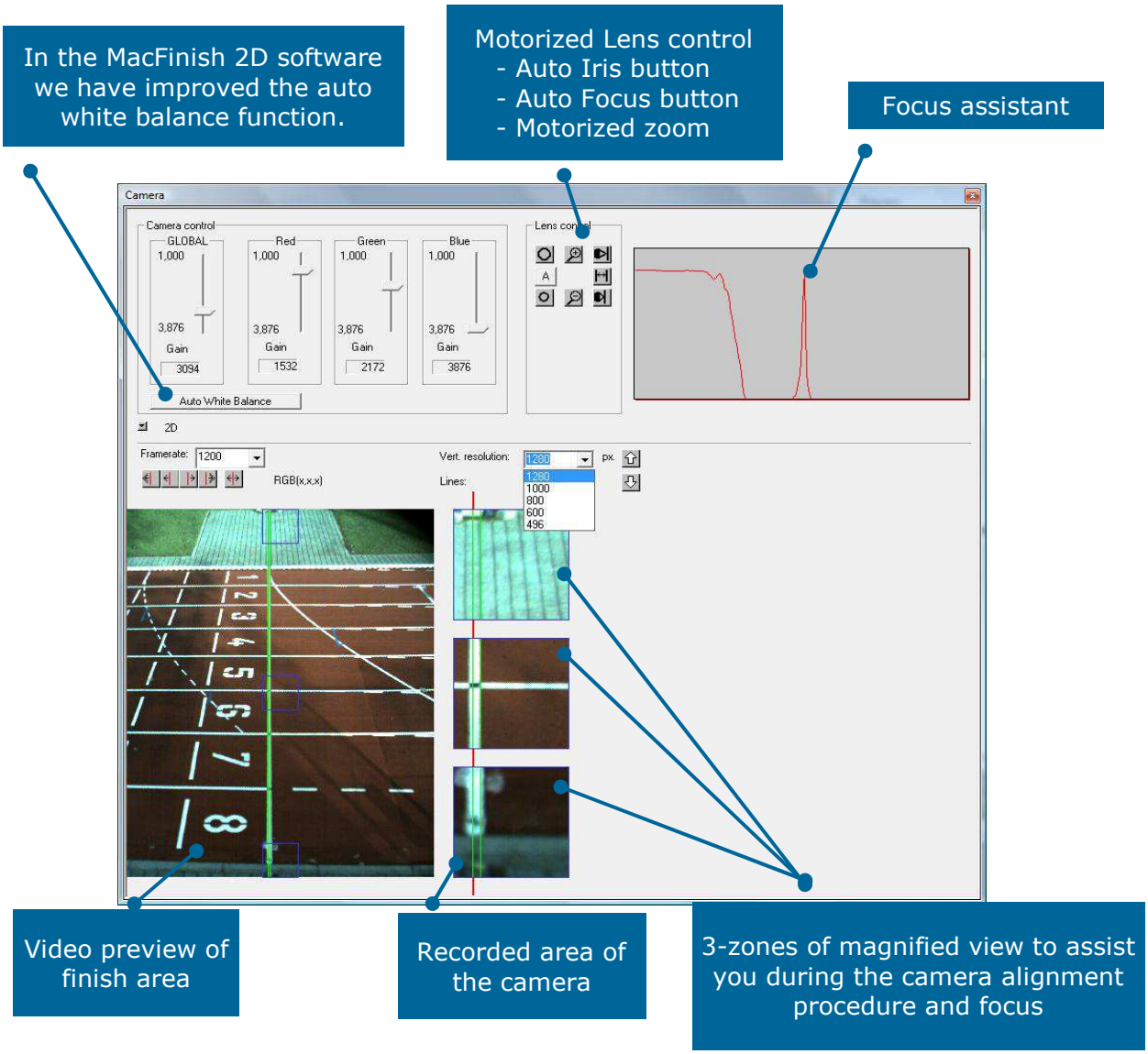
One of the major advantages of the MacFinish 2D is the **2 dimensional video view** to align the camera before the race. In the past a certain handiness was needed to find the finish line. Most of you will remember the operator turning his camera from side to side to align the camera. With our MacFinish 2D USB a perfect camera alignment can now be achieved much easier and much faster than in the past.

Place the camera in extension of the finish line and open the camera **control window** to have a 2-dimensional video view of the finish line.

The camera can be turned manually or with the software control functions until you have the finish line right in between the 2 vertical green lines in the left video window.

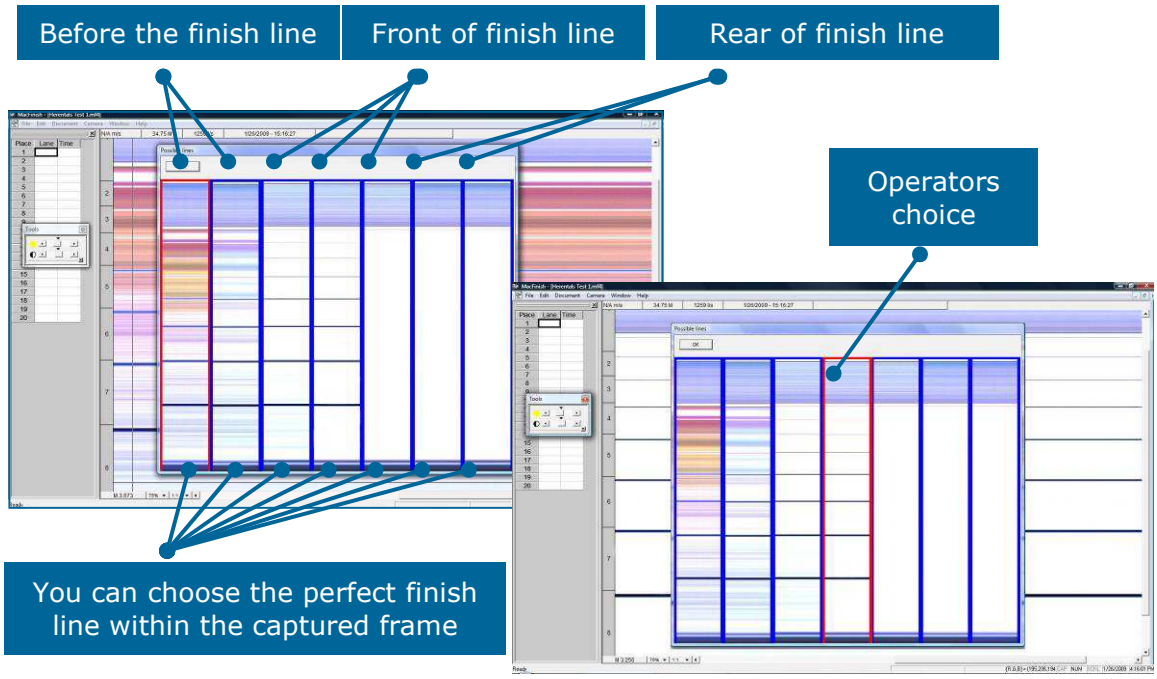
At the same time you have a zoom of 3 critical points on your right hand side to give you a detailed view.

Adjust the focus manually with the focus assistant if you have a manual lens or just auto focus with 1 click of a button if you have a 3-way motorized lens.



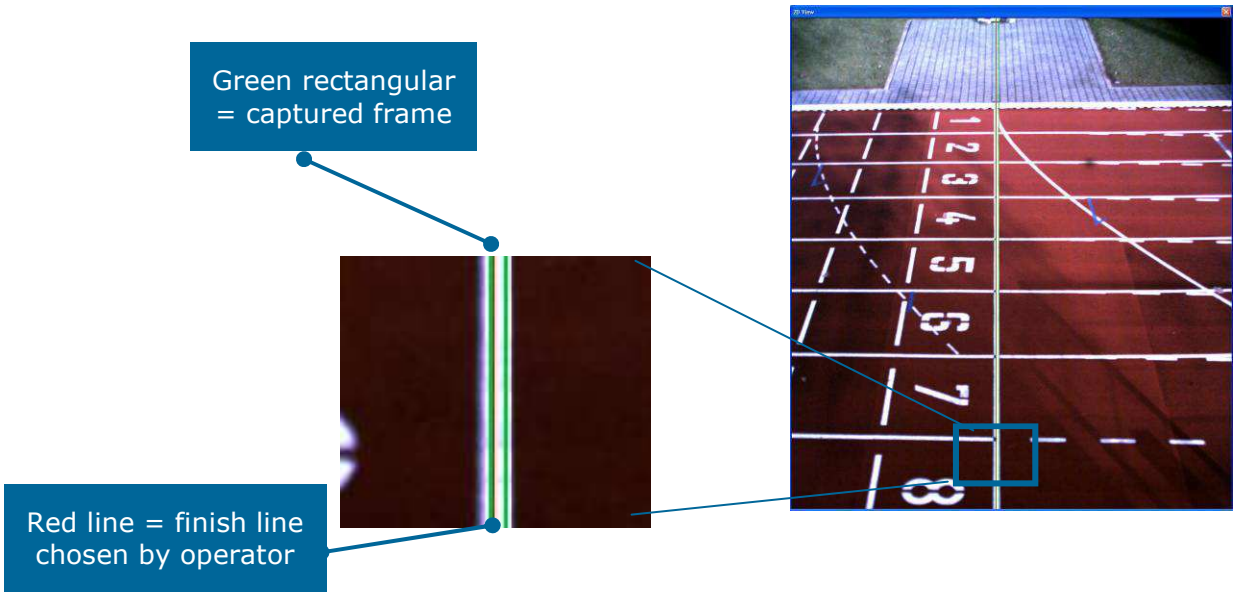
Minor time corrections even after the race!

With the MacFinish 2D USB camera we are **not capturing lines but frames** and out of this frame you can choose the optimal line which corresponds with the finish line. This makes the alignment of the camera even easier. Even more spectacular is that you can make small adjustments after the race! Of course your camera has to be sufficiently aligned before the race, to make sure that the required line is located within the frame window



Finish line alignment control

Every time you make a photofinish picture we save a camera alignment control picture. With this picture the operator can verify the correct position of his camera. This picture will also help TimeTronics or other experienced photofinish operators to train new operators. Based on this photo the correct recommendation can be given. This picture is only visible after the race.



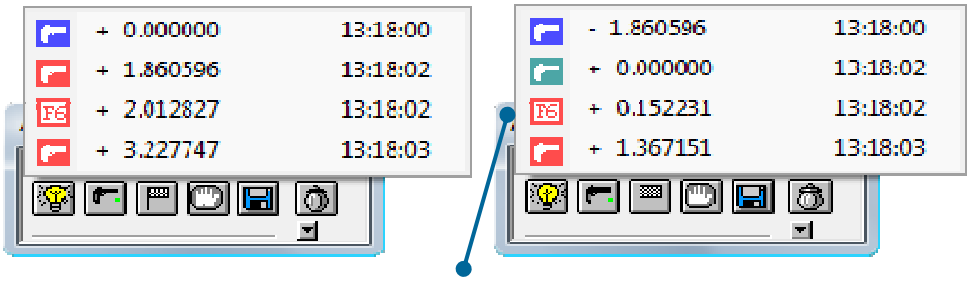
Never miss a start signal again:

Good communication between the starter and photofinish operator is essential for every meeting at any level. But sometimes unpredictable events can happen which can start the photofinish equipment too early or too late. To prevent that, we record all start pulses. If needed afterwards, but also during the race, you can choose the correct start pulse. Your times on the photofinish picture, as well as the running times on the displays will be corrected automatically. The photofinish operator has to press F6 at the gun start. This is just a time stamp, not an electronic start of the photofinish. It will help the operator to choose the correct start pulse in case several start pulses were recorded. The electronical start pulse which is closest to the F6 signal will definitely be the right start pulse.

All starts are registered

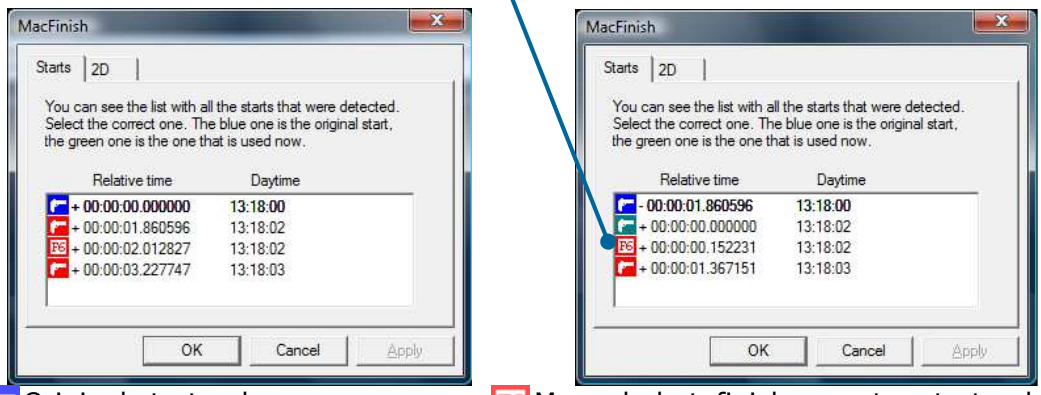
=> Early start (MacFinish was not Ready)
=> Late start (False signal from start detection, before the real start)
=> Select another start while race is running
=> Scoreboard runs at selected start time
=> Recorded image has times related to selected start time
=> Electronic time confirmation by operator's manual time stamp (F6)

During the race:



Because the photofinish operator pressed the F6 button at the moment of start he knows that the start pulse of 13:18:02 will be the correct one. He only needs to click on the correct start pulse and all times will be calculated with that start pulse. The start pulse will be coloured green to confirm the action of the photo finish operator and the results will be indicated as "cxxxxx".

After the race



Original start pulse
Start pulse chosen by operator
Manual photofinish operator start pulse
Not used start pulse

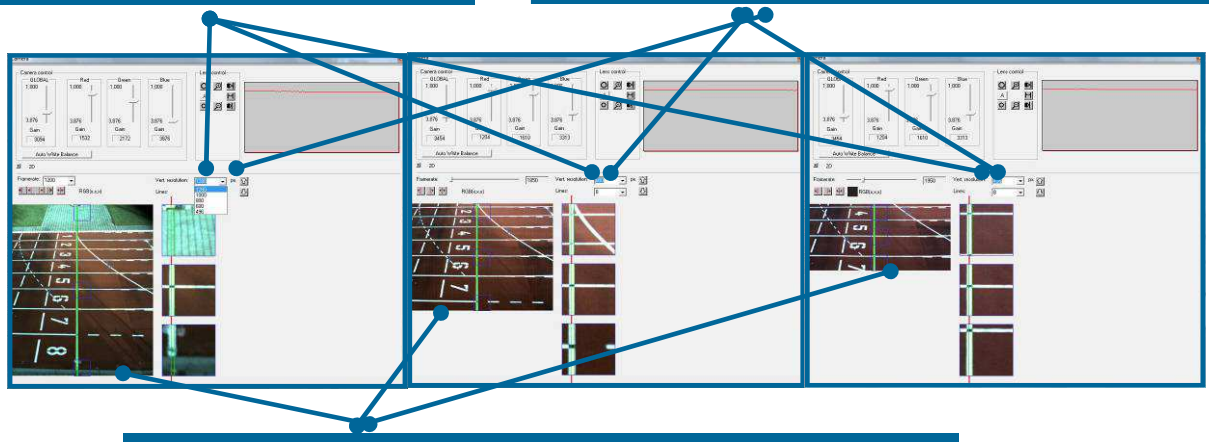
Vertical pixels, Frame rates and photofinish lines:

With the MacFinish 2D USB you can dynamically adjust the number of vertical pixels to the capture speed of the photofinish according to your specific needs!

Framerates (fps)		Photofinish lines			
		8	16	24	32
Pixels	1280	1350	900	750	650
	1080	1500	1100	850	750
	880	1700	1250	1050	850
	680	2000	1550	1250	1050
	496	2500	1900	1550	1300

You can choose between 496, 600, 800, 1000, 1280 vertical pixels.

If you have selected less than 1280 vertical pixels you can move up and down the zone of interest.



The live video window will adjust itself according to the setting you have chosen for the vertical resolution.

Optional 3-way motorized lenses to assist the operator:

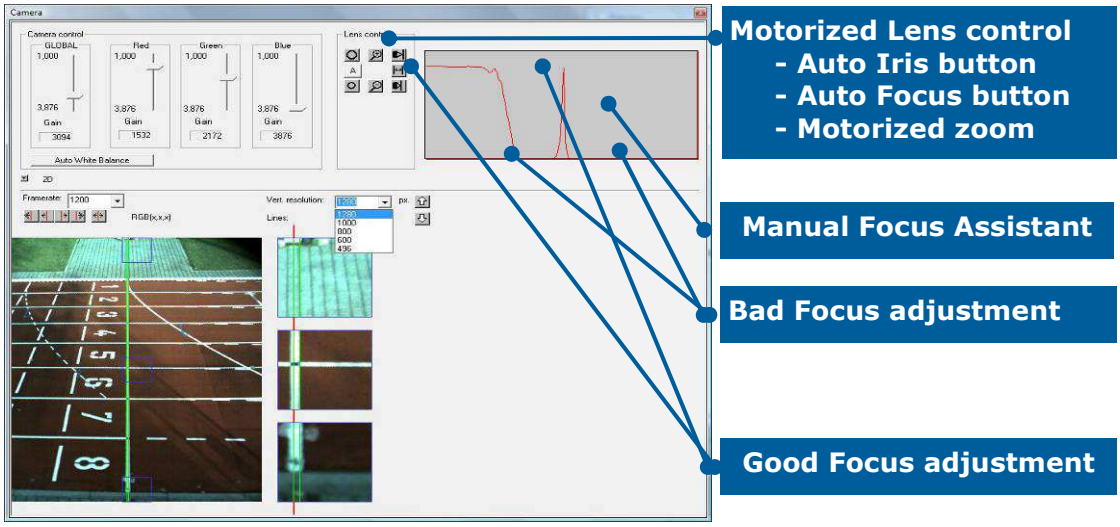
For the MacFinish 2D USB generation we have chosen to use **C-mount lenses** which are more affordable than the F-mount lenses. We deliver as standard an f1.2 lens which needs 5 times less light than an f2.8 lens. As in the past, TimeTronics will ask you questions about the typical setup of the camera, so as to define the most suitable lens for your purpose.

With the **Software 2D Pro** you have the possibility to **remotely adjust the** zoom, focus and iris. Plus you have even more! You can **automatically control the iris and focus on the finish line.**

The **auto focus** can be done in the same camera alignment window. Once your camera is aligned at the perfect position, one click on the mouse button will be enough to auto focus. The **auto iris** option will adjust the iris to the light intensity of the moment, sun, clouds, or sunset!

Manual Focus Assistant:

The manual focus assistant helps the operator to perfectly focus the camera! A continuous scan of the focus (in the Camera Control window) gives you a real time feedback of the focus. The higher the value, the better the focus. And the better the focus, the sharper the recorded photo finish picture!



Results even when your race is not completely finished:

Live readout of the photofinish image can help the photofinish operator to start analysing the photofinish image before the race is totally finished. During the race; for example after the first 3 participants finished their race, you can define the podium and send the data to the stadium commentator, broadcasting companies etc. The system will continue recording the image and will add the rest of the image instantly as you need it.

The MacFinish 2D USB is a photofinish system comprising the MacFinish 2D USB camera and the TimeTronics Interface Box, situated close to the PC, and is fully battery powered.

Comparison MacFinish 2D 100 and MacFinish 2D 200

	Typical use	Software	PC-connection	Sensor Type	Internal Memory
 MacFinish 2D 100	Semi professional	MF 8.x	USB	2D	No
 MacFinish 2D 200	Professional	MF 7.x	Ethernet	2D	Yes, Upgradable to 1 or 2 GB

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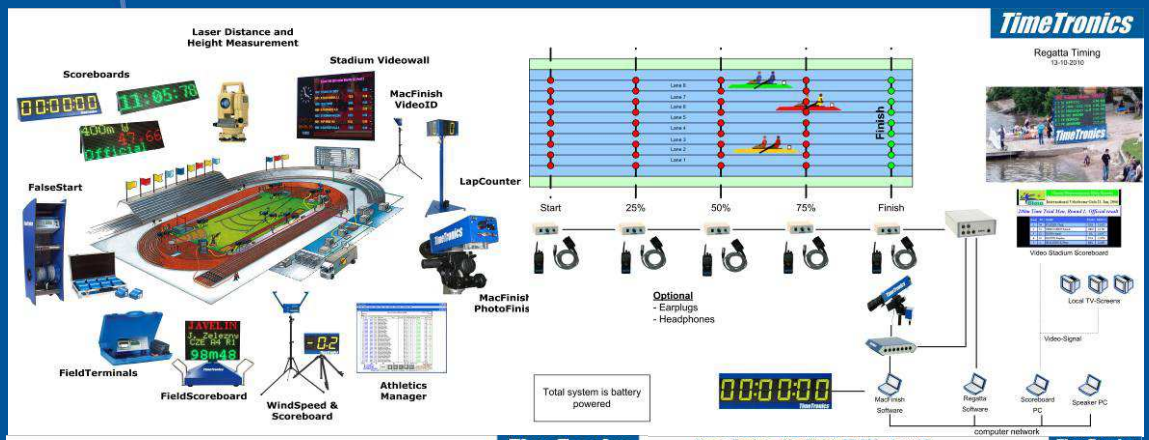

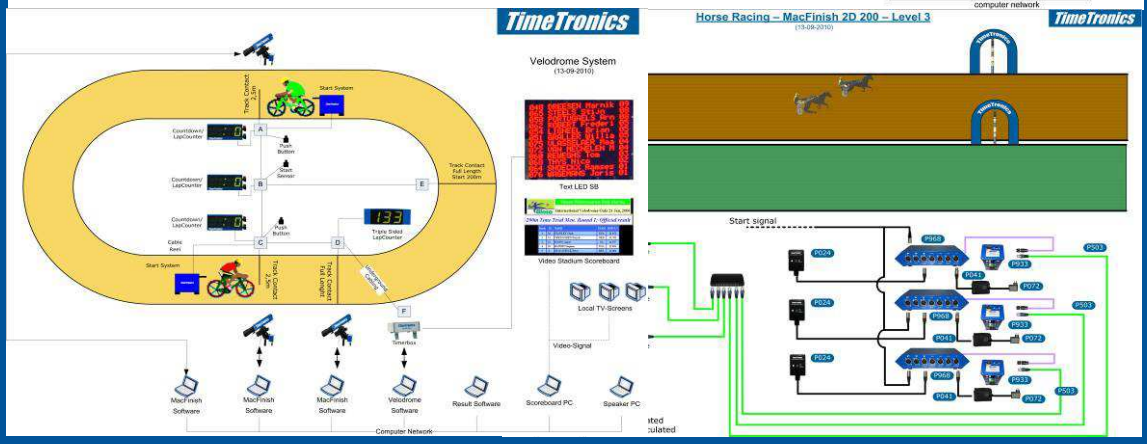

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