SAGA-3RT

Presentation

The new movements analysis system **Saga-3RT** was designed to be easy to use and to provide a great adaptability. The best proof is the use of smart cameras connected to a computer with only a simple Ethernet cable. To add a camera, it's only necessary to connect it to a standard Ethernet switch and to insert it in the synchronisation chain of the cameras. These cameras, associated to the **SAGA-3RT** software running under Windows, constitute a powerful, easy to use and economically advantageous solution to all needs of motion capture and analysis.

The cameras

Each camera contains a powerful DSP processor which is able to find in real time the locations of a great number (>>100) of markers at a frequency up to 240/400 Im/sec. This computing power reserve is useful to find the location of the markers by analyzing the images in grey levels and also to compress the images so that they can be transferred to the computer over Ethernet (for display purpose).

Characteristics

- CCD sensor: 640 x 480 pixels resolution
- frequency: 240 Im/sec at full resolution, 400 Im/sec at half résolution
- projector of 240 Infra-red Leds (850 nm)
- C-mount lens: from 4,8mm to 25mm
- maximum number of markers >> 100
- VGA video ouput on each camera
- compressed video live thru Ethernet
- Ethernet connection 100 Mibts/sec
- external power supply 24V
- Size: 190(L) x 175(H) x 150(W)

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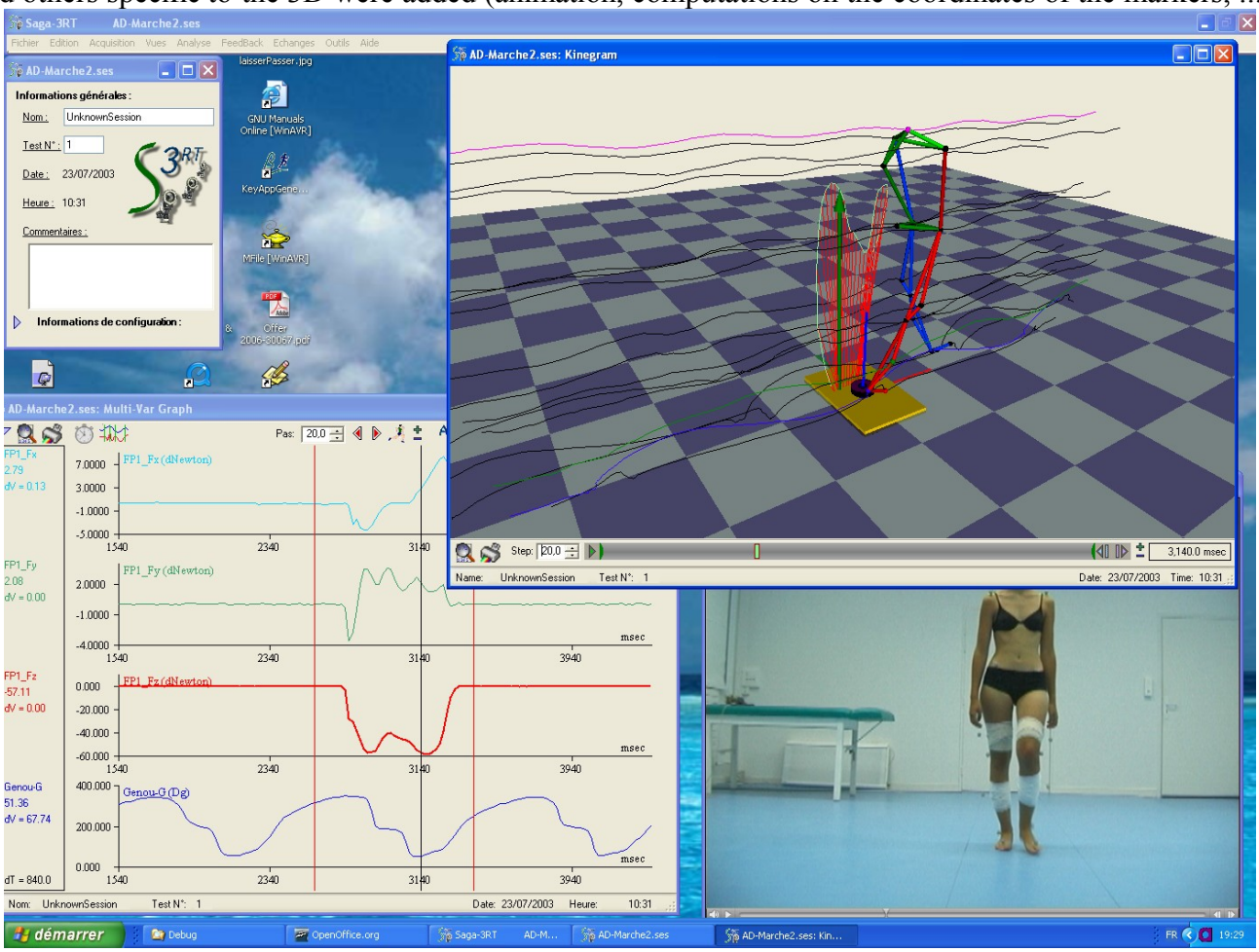
The Saga-3^{RT} software

The **SAGA-3RT** software is able to manage a theoritical maximum number of 255 cameras connected to a standard Ethernet switch. The calibration of the cameras is done by using the **CALH2** method which contains 2 phases: one consists to move a wand equiped with 2 or 3 markers, and the other consists to define the 3D axis system with 3 markers only (no need of a calibration frame). The 3D reconstruction is automatically done in most cases. Saga-3RT is also able to acquire signals provided by external sensors like forces platforms, EMG, footswitches, ... Of course, SAGA-3RT is also able to manage the wireless data recorder **MobiEMG-WL**, which is able to capture and transmit the data of 16 sensors by Bluetooth at a distance of 100m. Like **Ivan** and **CameraMix**, SAGA-3RT can capture video streams supplied by DV camcorders and to extract photographies and static measurements from these images.

SAGA-3RT includes numerous functionalities to analyze and to display the collected data. Thus, all the functionalities present in Ivan (filtering, graphs displaying, feedback, ...) are also included in SAGA-3RT, and others specific to the 3D were added (animation, computations on the coordinates of the markers, ...).



Of course, all the data acquired or processed by Saga-3RT can be exported into files of various formats (txt, csv, C3D, avi). Thus, it is possible to use external softwares like (Visual-3D,...) with data captured with Saga-3RT.