

# AiryLab

## Genika Workstation

Off the shelf multi camera image acquisition solution



The Genika workstation is an integrated solution for synchronized multi angle image acquisition. Genika Trigger software manages up to three cameras simultaneously on a single laptop to deliver images that are synchronized between each other for further 3D or multi angle analysis.

Cameras are connected through USB3, GigEthernet or both :

- 1 or 2 cameras either USB3 or GigE
- 2 x USB 3 and 1 x GigE or
- 2 x GigE and 1 x USB3

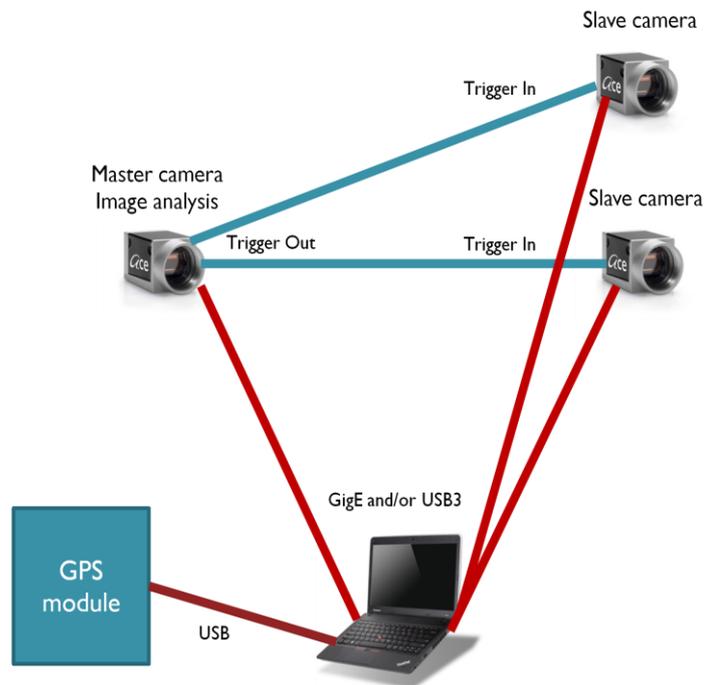
A camera maybe be slave or master. The master camera analyses the image stream and commands the

slave cameras for acquisition when a smart trigger has been detected in the master camera images.

The hardware trigger from the master camera insures a high precision synchronization for both the slave camera images: acquisition starts within 100 $\mu$ S for all slaves.

Cameras may also be triggered together by an external signal, all being in slave mode.

An optional GPS external module with PPS output can resynchronize the images within the image files with a precision of 1ms against the GPS time.



## Solution description

- Lenovo Thinkpad X230 or W530 Intel Core i7,
- 8 or 16 GB RAM,
- 1 or 2 SSD (128 to 480GB per unit),
- 2 or 3 cameras with Sony, E2V or CMOSIS sensors. USB3 or GigE interfaces,
- Standard or telecentric optics,
- Hardware trigger wiring, USB3 or GigE cables,
- Optional GPS module.

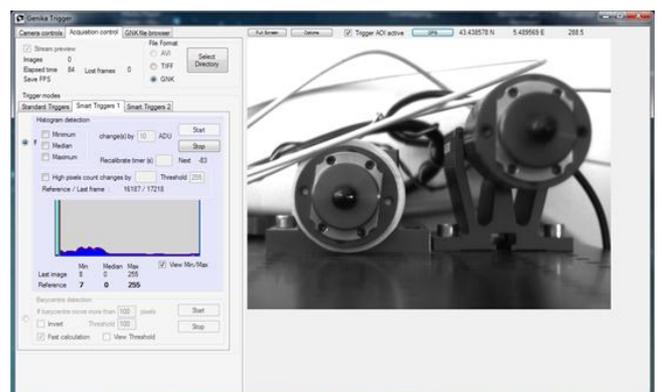
## Performances

Master camera : up to 200 MB/s on the fly stream analysis depending on the smart trigger.

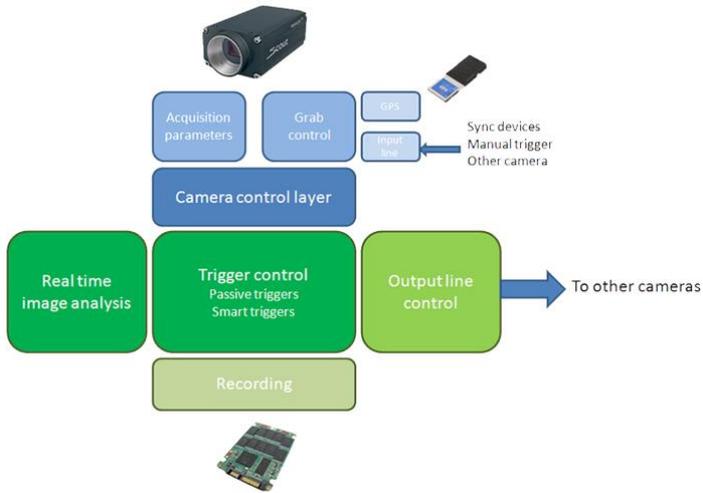
Image acquisition : up to 300MB per SSD

## Applications

- Movement detection
- Movement analysis (center of gravity)
- Flash detection (flashes, impacts, signaling...)
- Stars and particles detection and count
- Hardware trigger
- Animation (sequence)
- Slow motion (up to 1000 fps)
- Light change detection (Median)
- Low/mid frequencies phenomenon analysis (Acoustic, material, interferometry...)
- Low speed process (life science)
- Multi camera acquisition and synchronization
- Geographical survey (road/rail surveys)
- Stereoscopy and trajectory analysis



# Features



## Image to disk

- AVI, TiFF & SER Format
- Crash proof GNK file format
- GNK file browser and conversion to TiFF
- External browser for two simultaneous GNK files
- GPS Geotagging
- Timestamping in GNK and SER file
- SER file browser, conversion to AVI/TiFF and FITS

## Camera management

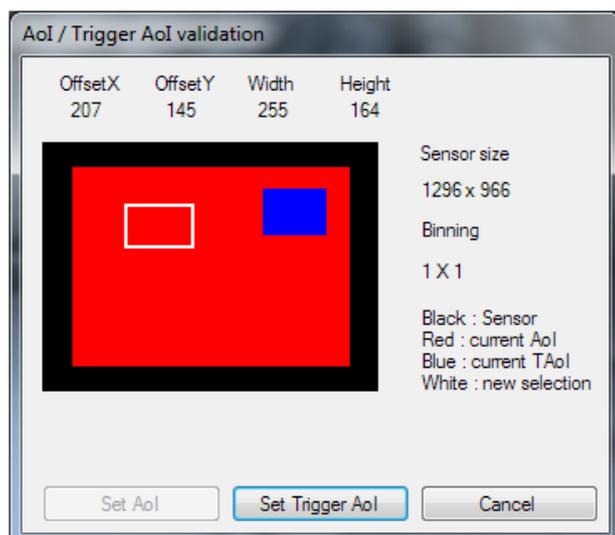
- AVT GigE & Firewire B/W
- Basler GigE & Firewire B/W
- IDS uEye GigE & USB B/W
- Multiple cameras (one instance per camera)
- IDS pixel clock management

## Image acquisition

- FPS display and set
- Shutter/Exposure/Gain/Gamma/Offset
- 8, 12 et 16 bits Modes
- Variable zoom level
- Binning
- Lin/Log and HDR modes
- Histogram with Min/Med/Max
- Image averaging

## AoI

- On screen selection of AoI and Trigger AoI

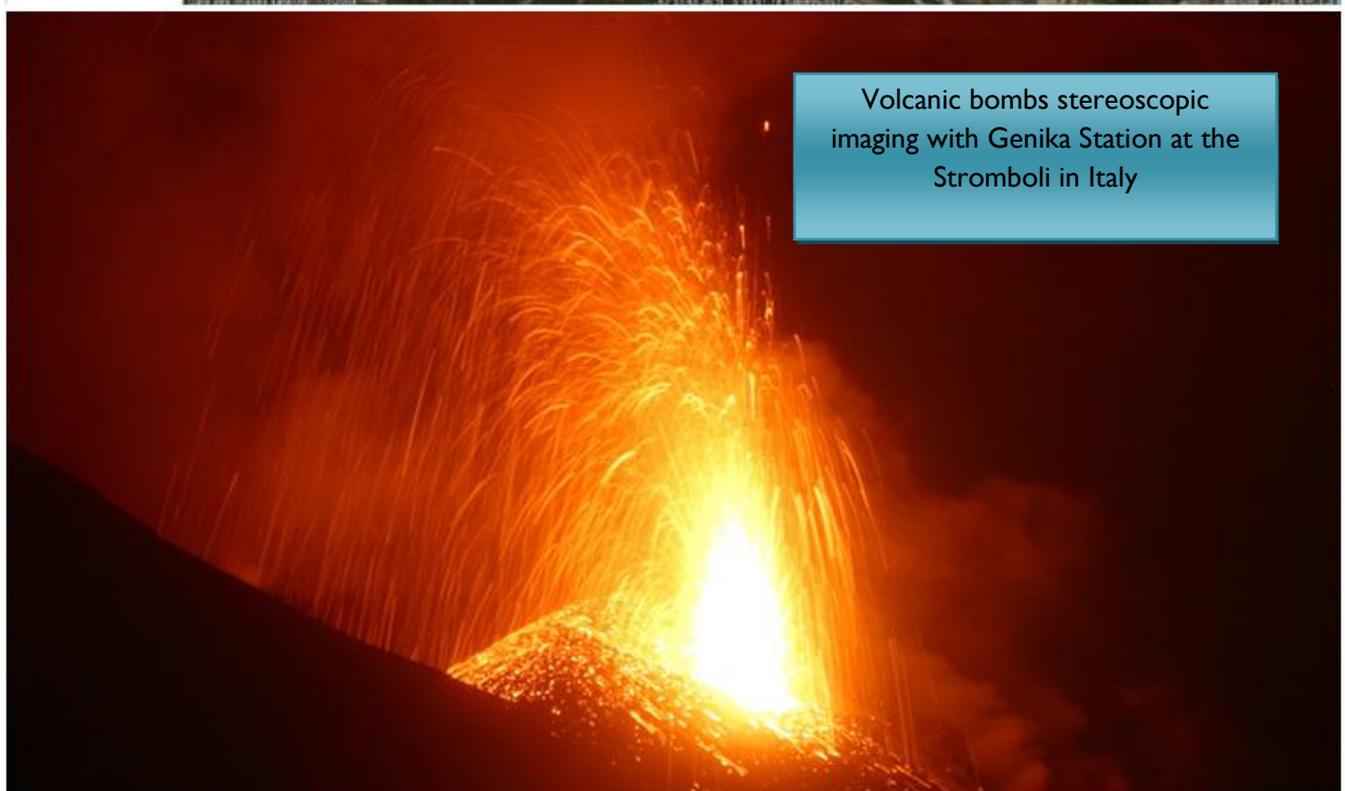
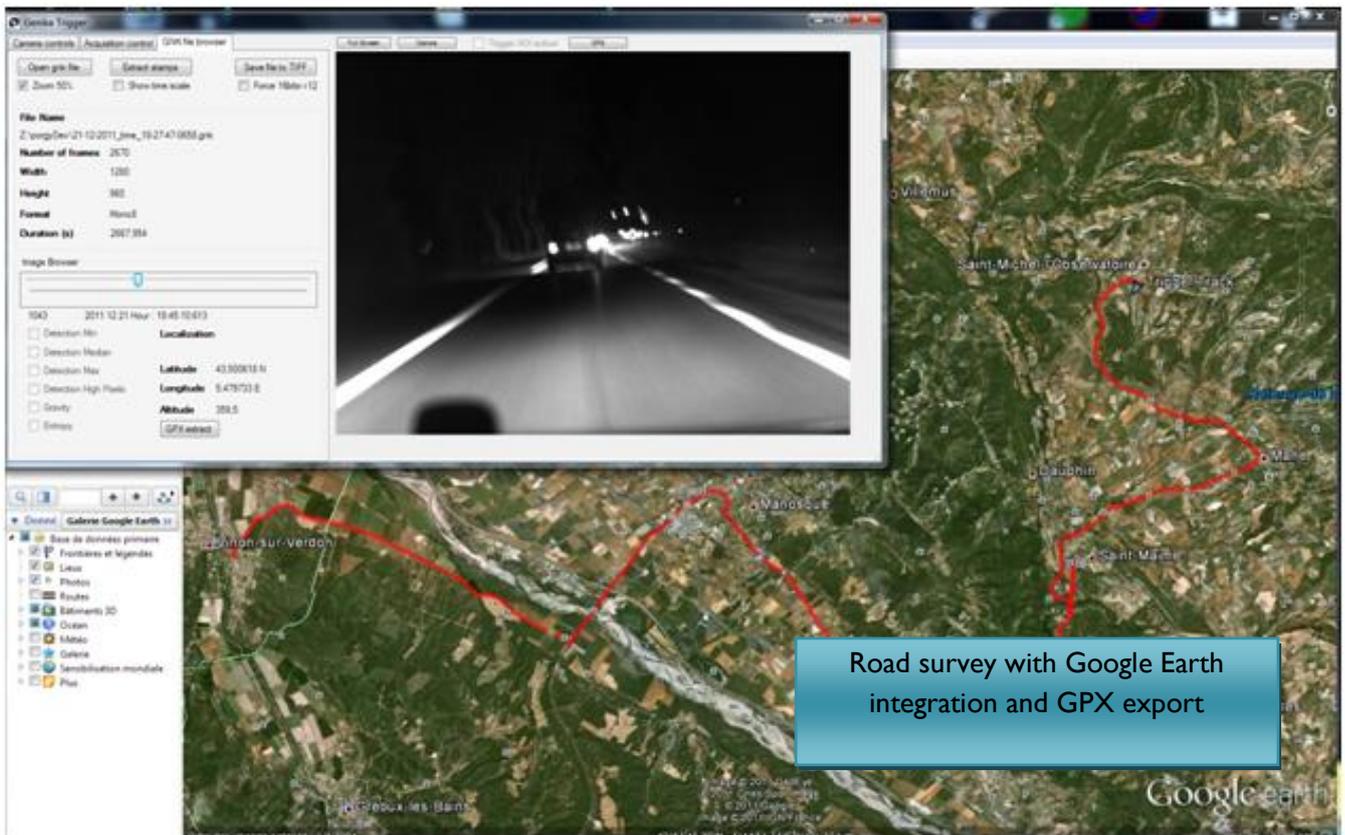


## Triggers and Smart triggers

- Free run with time/frame # limits
- Repeatable sequences
- Hardware trigger with burst capabilities
- Histogram and hot pixel analysis with recalibration over time
- Center of gravity movement with threshold
- Entropy with threshold and recalibration over time
- Trigger out management for multi camera sync
- Selectable number of image acquired when a trigger set off
- Particles/stars detection and counting

## Utilities

- Microcontrast analysis wizard for focusing and noise analysis tool
- GPS NMEA Support
- Pulse per second GPS signal acquisition and GNK file resynchronization
- GNK to GPX export
- Google Earth integration
- On screen ruler



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