

by Gexcel



FUNCTIONS

Have a look at the HERON® main functions:
Mapping and Tracking

MAPPING

```
graph TD; M((MAPPING)) -.-> R3D[REAL TIME 3D SURVEYING]; M -.-> G[GEOREFERENCING]
```

**REAL TIME 3D
SURVEYING**

GEOREFERENCING

TRACKING

```
graph TD; T((TRACKING)) -.-> R[REAL TIME LOCALIZATION]; T -.-> C[CHANGE DETECTION]
```

**REAL TIME
LOCALIZATION**

**CHANGE
DETECTION**

MAPPING

```
graph TD; M((MAPPING)) -.-> R3D[REAL TIME 3D SURVEYING]; M -.-> G[GEOREFERENCING]
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**REAL TIME 3D
SURVEYING**

GEOREFERENCING

TRACKING

```
graph TD; T((TRACKING)) -.-> RL[REAL TIME LOCALIZATION]; T -.-> CD[CHANGE DETECTION]
```

**REAL TIME
LOCALIZATION**

**CHANGE
DETECTION**

NO MORE :



GNSS



TARGETS



TROLLEYS



CALIBRATION STOPS

UNIQUE PLUS :



REAL TIME VISUALIZATION & CHECK



3D LOCAL MAPS GENERATION



HIGH ACCURACY (GLOBAL OPTIMIZATION)



GEOREFERENCING



HIGH RESOLUTION SCANS INTEGRATION

Focus on these features





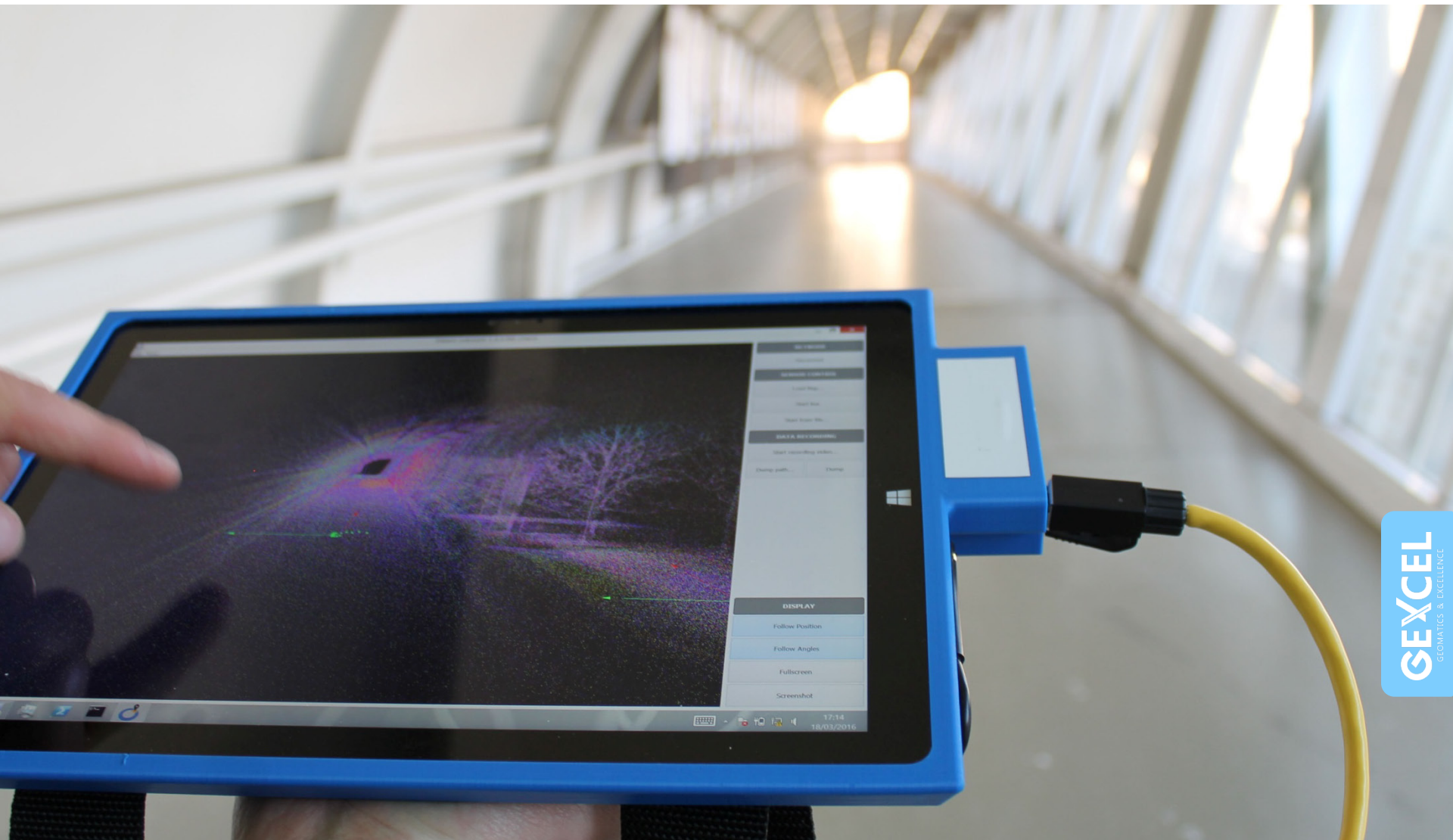
REAL TIME 3D VISUALIZATION

any previous information of site requested





REAL TIME CHECK OF RESULTS



Real time 3D visualization



Real Time 3D visualization

HERON[®]

HERON[®]
GEXCEL

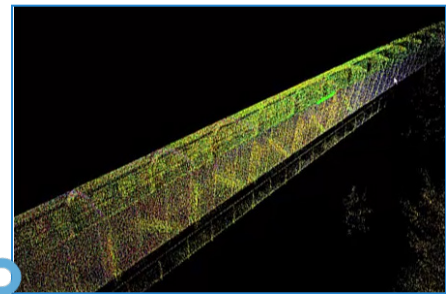
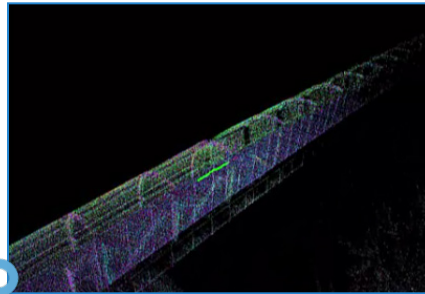
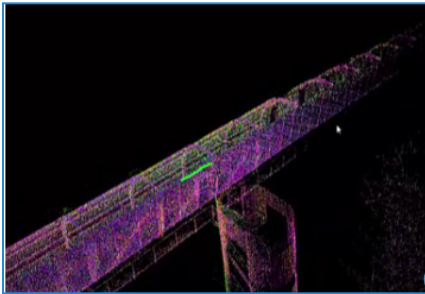
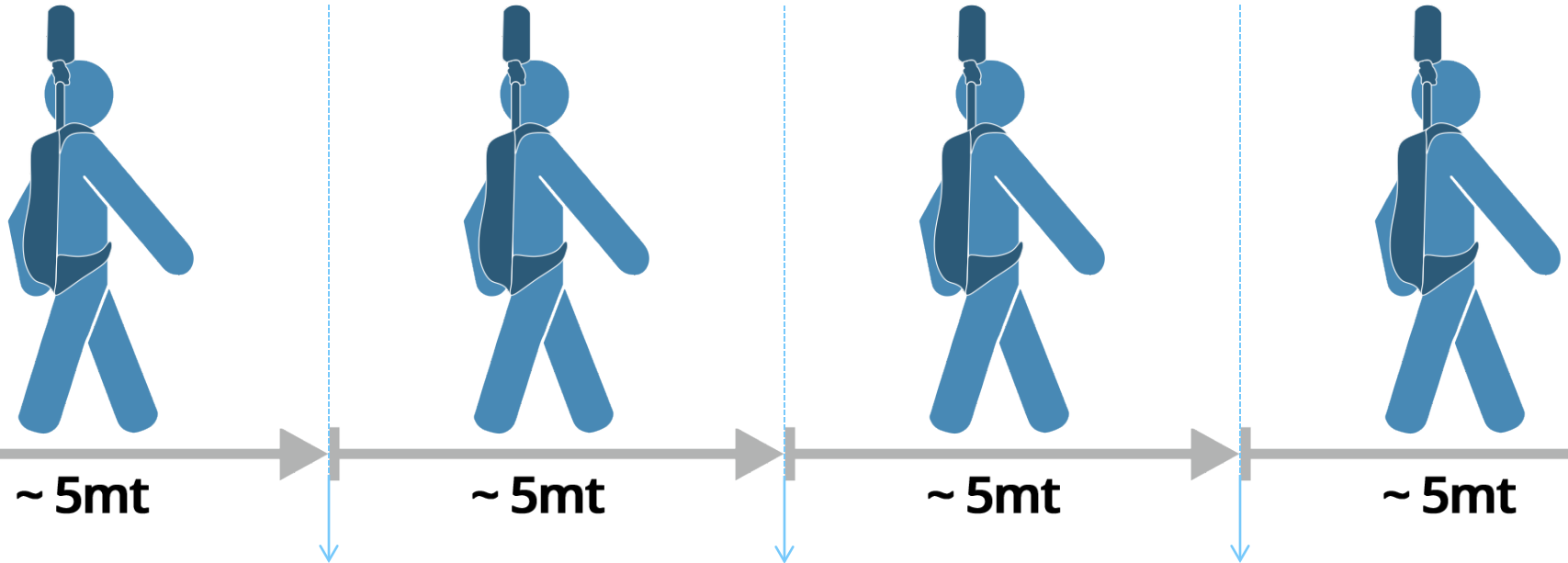
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3D LOCAL MAPS

*used to run the 3D optimization process
(to increase the global accuracy)*





Local maps generation

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HERON
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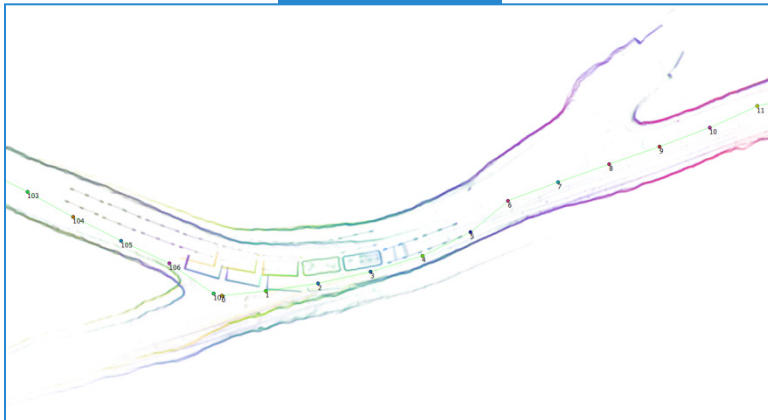


GLOBAL OPTIMIZATION

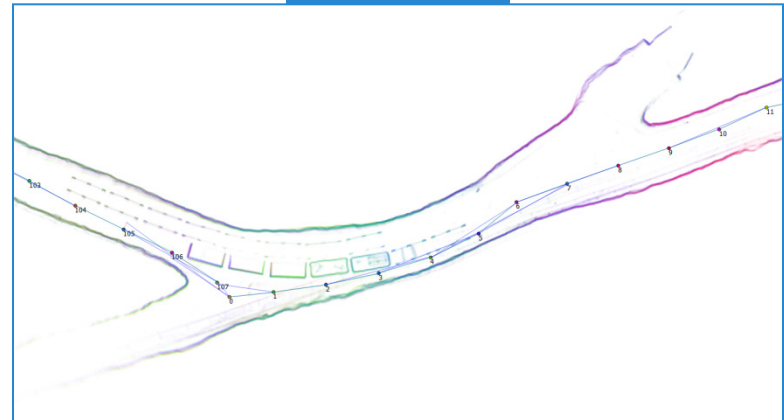
for a final accuracy better than 5cm



BEFORE



AFTER



3D survey optimization

HERON[®]



Local maps connections

HERON®

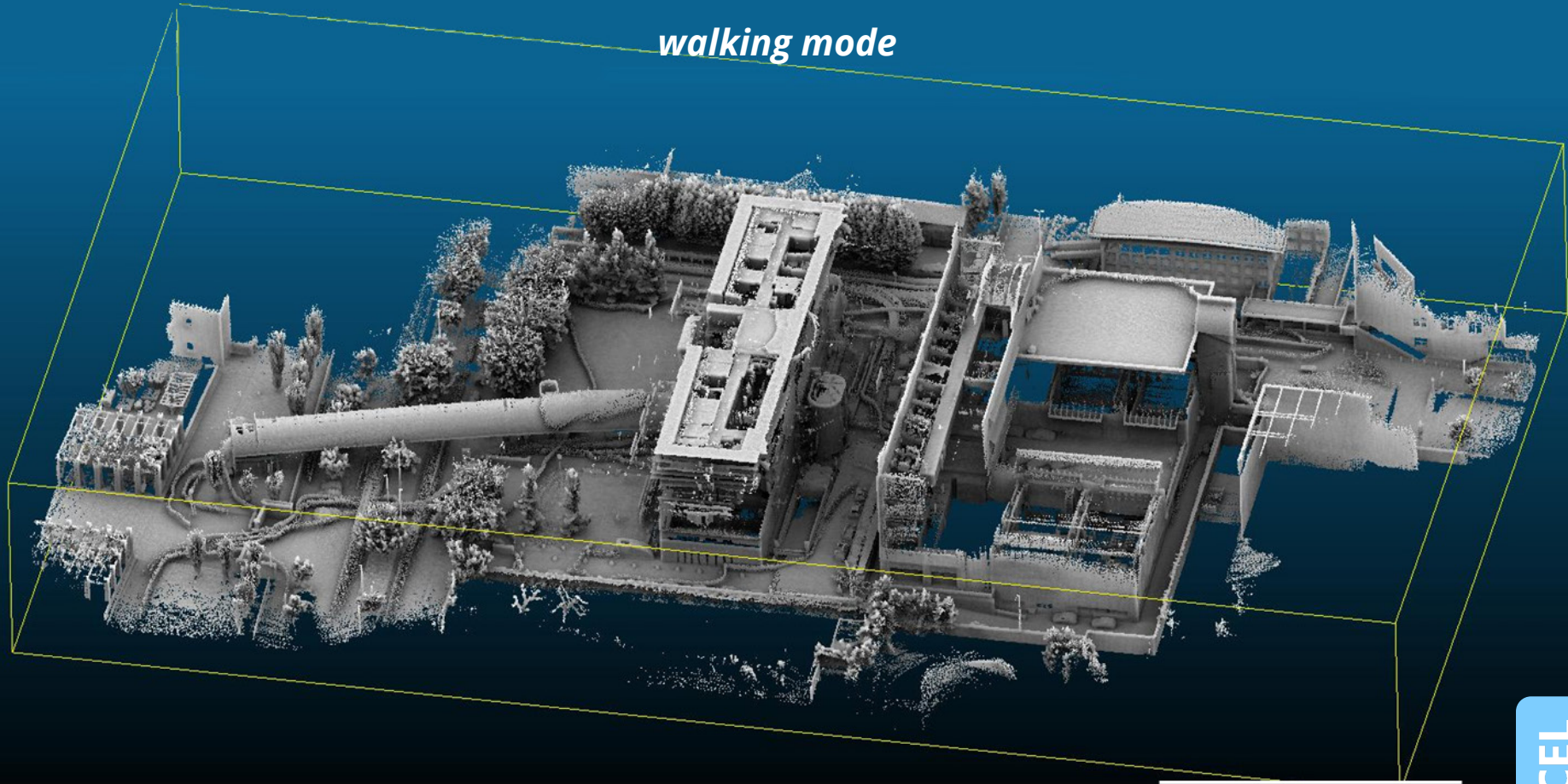
HERON
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FINAL RESULT: 3D MAP GENERATION

walking mode



100 Meters

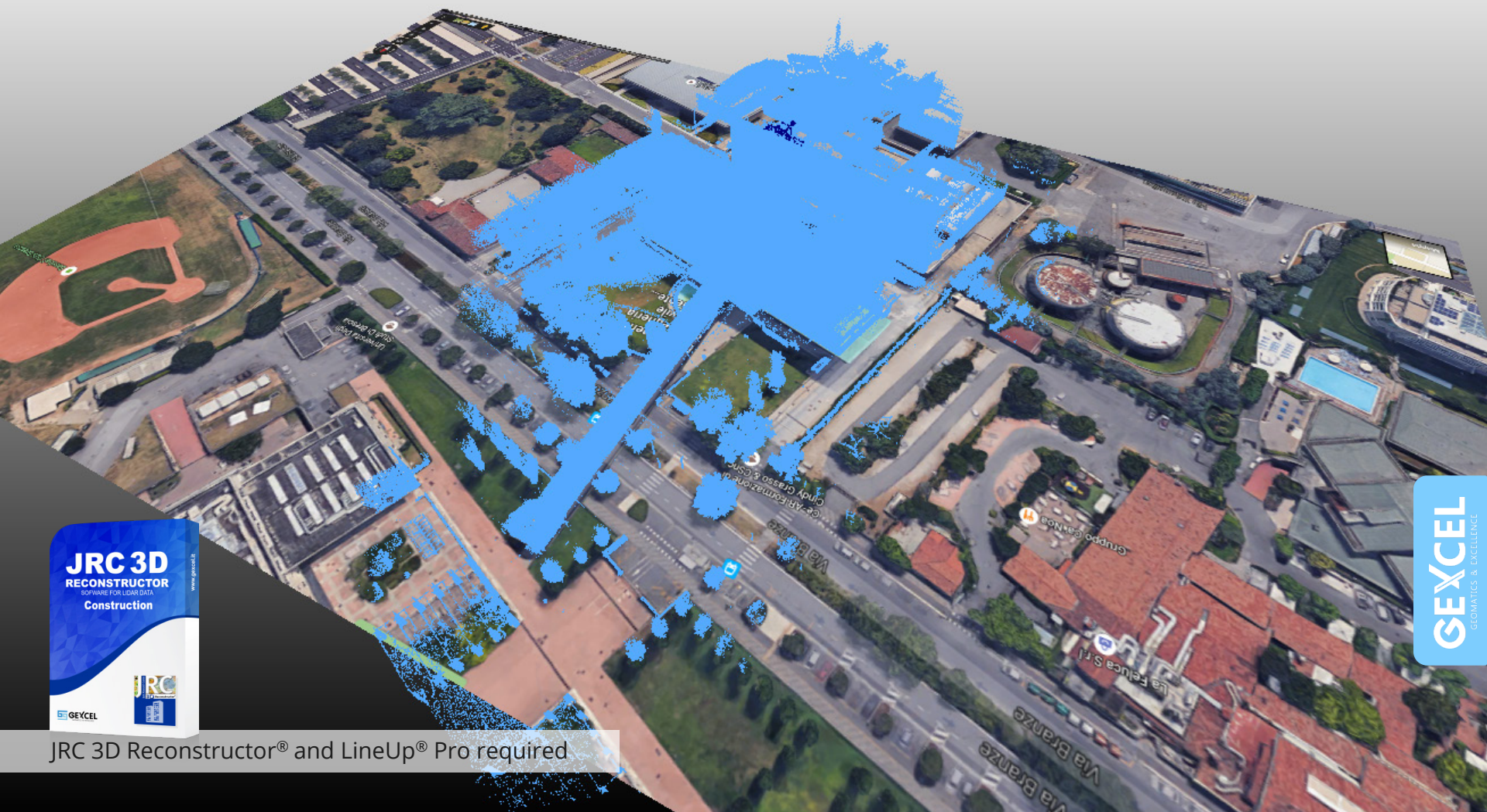
Surveying time: 1h, 35min – walking mode

Gexcel Headquarter (4 levels + underlevel)
University building (6 levels + underlevel)



GEOREFERENCE THE MODEL USING FEW CONTROL POINTS

data fully compatible with JRC 3D Reconstructor®



JRC 3D Reconstructor® and LineUp® Pro required

GEXCEL
GEOMATICS & EXCELLENCE



HIGH-RES TRIPOD SCANS AUTOMATICALLY INTEGRATED ON THE HERON® MODEL

thanks to JRC 3D Reconstructor®



JRC 3D Reconstructor® and LineUp® Pro required

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GEOMATICS & EXCELLENCE



High-res tripod scans integration

HERON.®

HERON
GEXCEL

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MAPPING

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graph TD; M((MAPPING)) -.-> R3D[REAL TIME 3D SURVEYING]; M -.-> G[GEOREFERENCING]
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**REAL TIME 3D
SURVEYING**

GEOREFERENCING

TRACKING

```
graph TD; T((TRACKING)) -.-> R3L[REAL TIME LOCALIZATION]; T -.-> CD[CHANGE DETECTION]
```

**REAL TIME
LOCALIZATION**

**CHANGE
DETECTION**

UNIQUE PLUS :



REAL TIME LOCALIZATION



CHANGE DETECTION



ACCURACY

Focus on these features





REAL TIME LOCALIZATION



Let's see when it's useful



MONITORING

automatically define your position and monitor the progress of the work

i.e. UNDERGROUND MINES AND TUNNELS

- Automatically localize the Heron® position; start mapping; update the 3D map; check the daily excavation works and volumes.

i.e. CONSTRUCTION

- On weekly/daily base, automatically update the 3D model and check the progress of the work.
- Let investors and managers monitor the work advancement from remote locations.

MAPPING SUPPORT

automatically define your position and start mapping where you want

Some applications example:

- Manage multi-surveying activities on big mapping projects.
- On a big industrial/construction/buildings surveying project, it is easy to localize the Heron® position and start mapping from the point you desire.
- On big unknown sites, starting from a known position, the Heron® will drive you in the desired location.

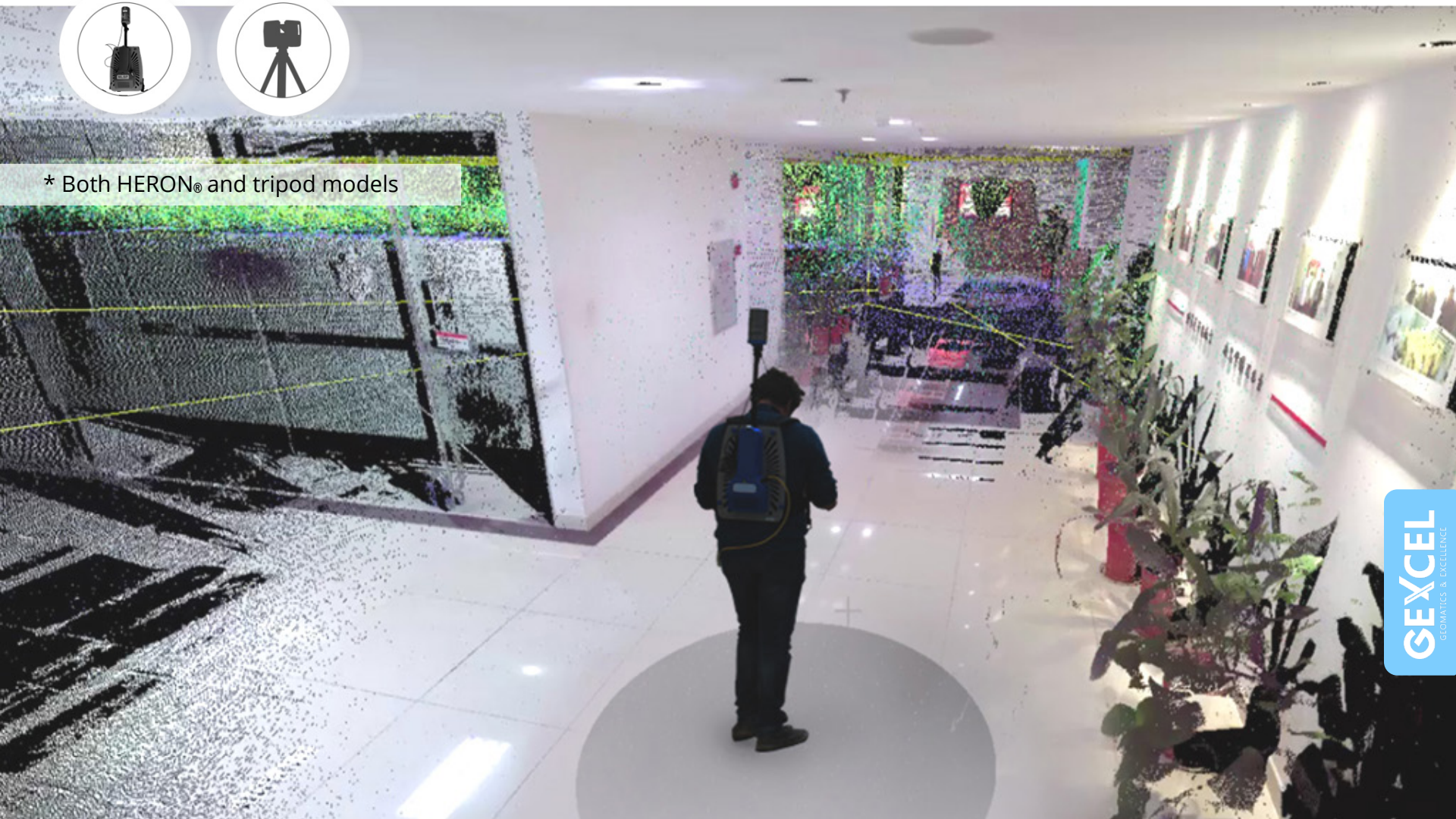
Let's see the localization workflow



Load in the HERON® system a 3D point cloud model of your site.
It will be a landmark for your new acquisitions.



* Both HERON® and tripod models



HERON® will compare the 3D point cloud model with the new acquisitions and it will give you the right position in real time.





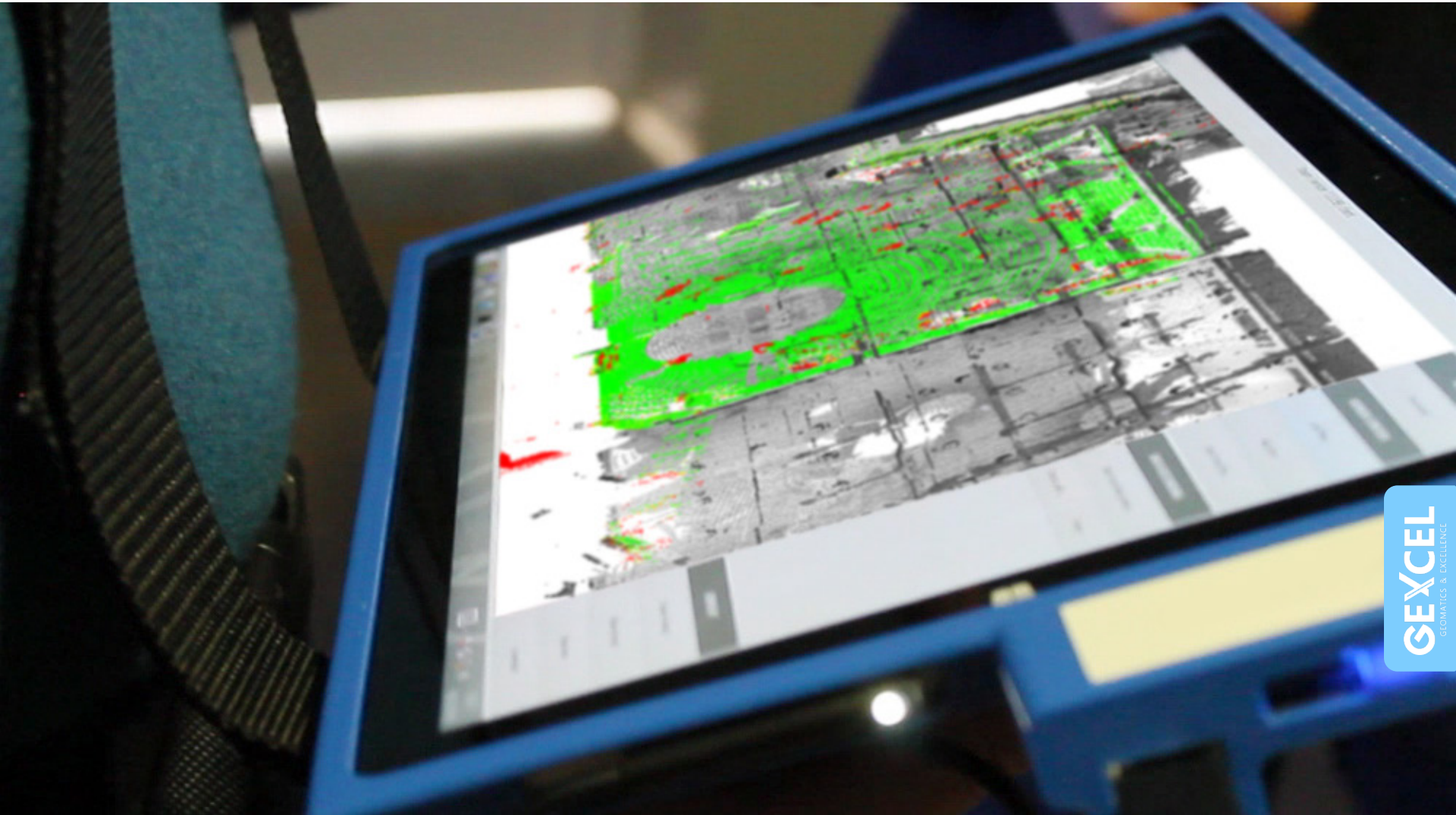
CHANGE DETECTION

*easily check in real time the changes
between the actual geometry and the previously surveyed one*

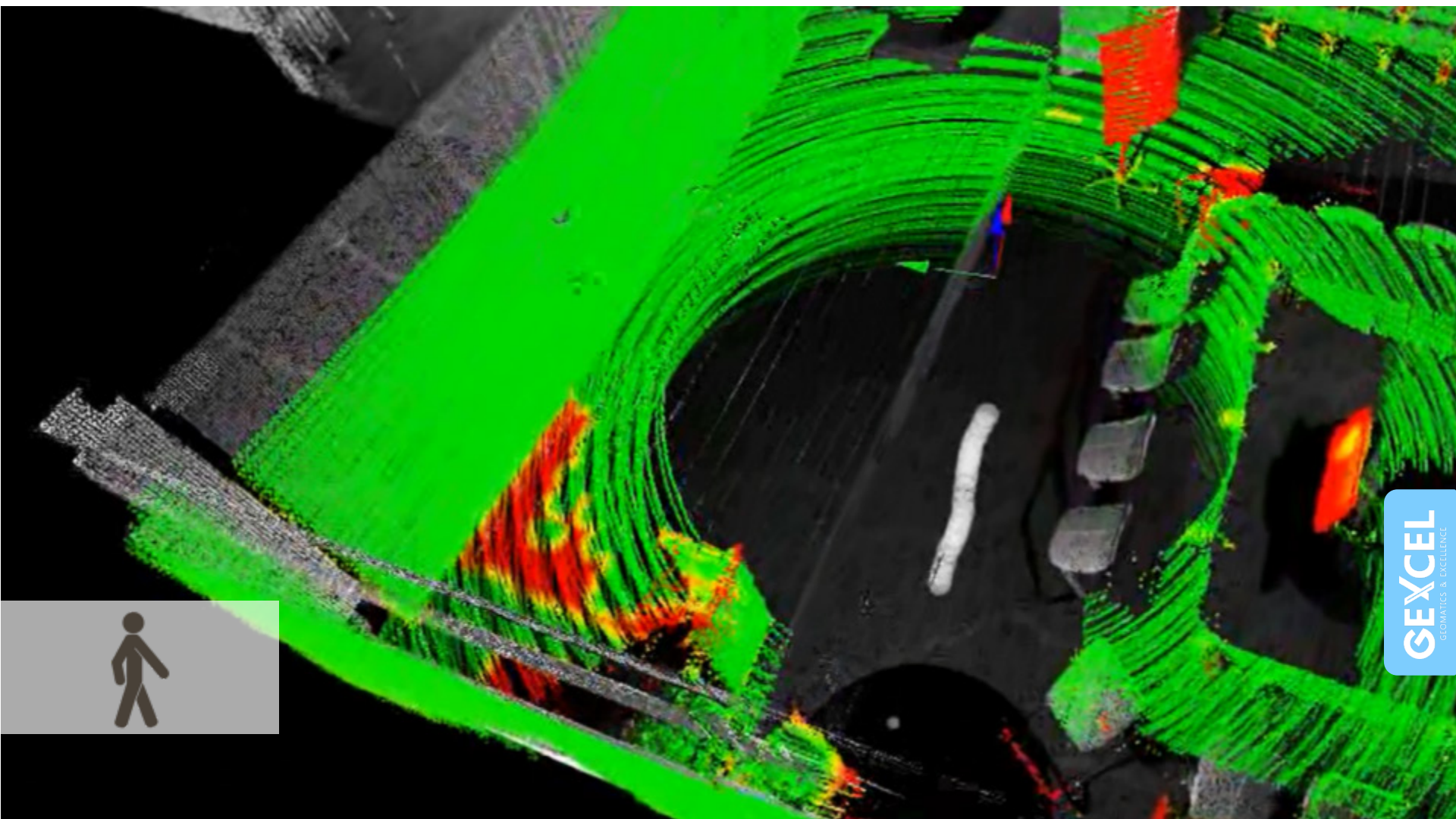
Some application examples:

- HERON® can monitor in real time changes happened in an industrial site.
- Where a change is detected, high resolution scan can be realized to update the high resolution model.

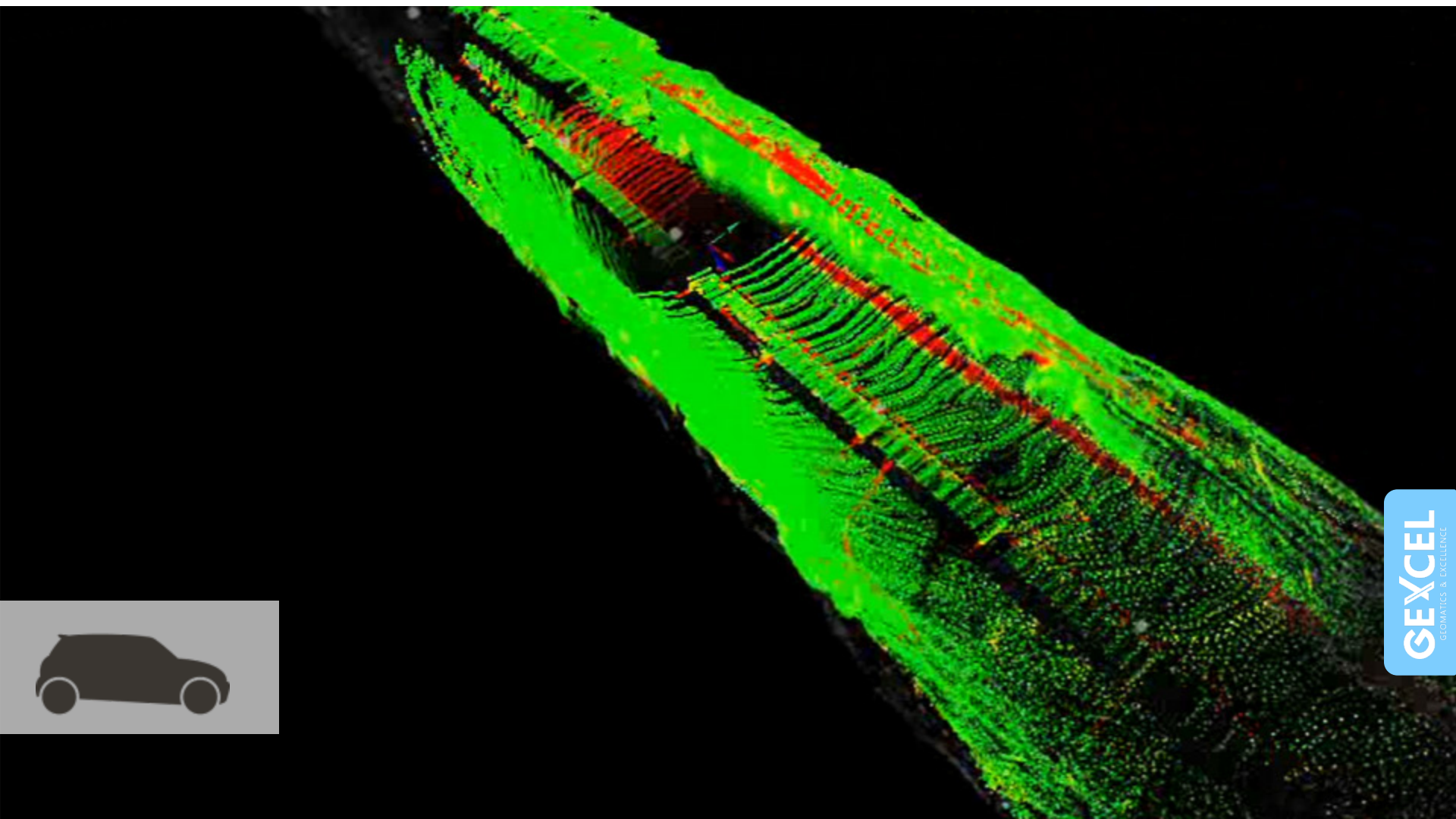
Check and visualize (in red) on your touch-screen pc any 3D difference between a reference model and the new real time acquisition



REAL TIME CHANGE DETECTION



REAL TIME CHANGE DETECTION

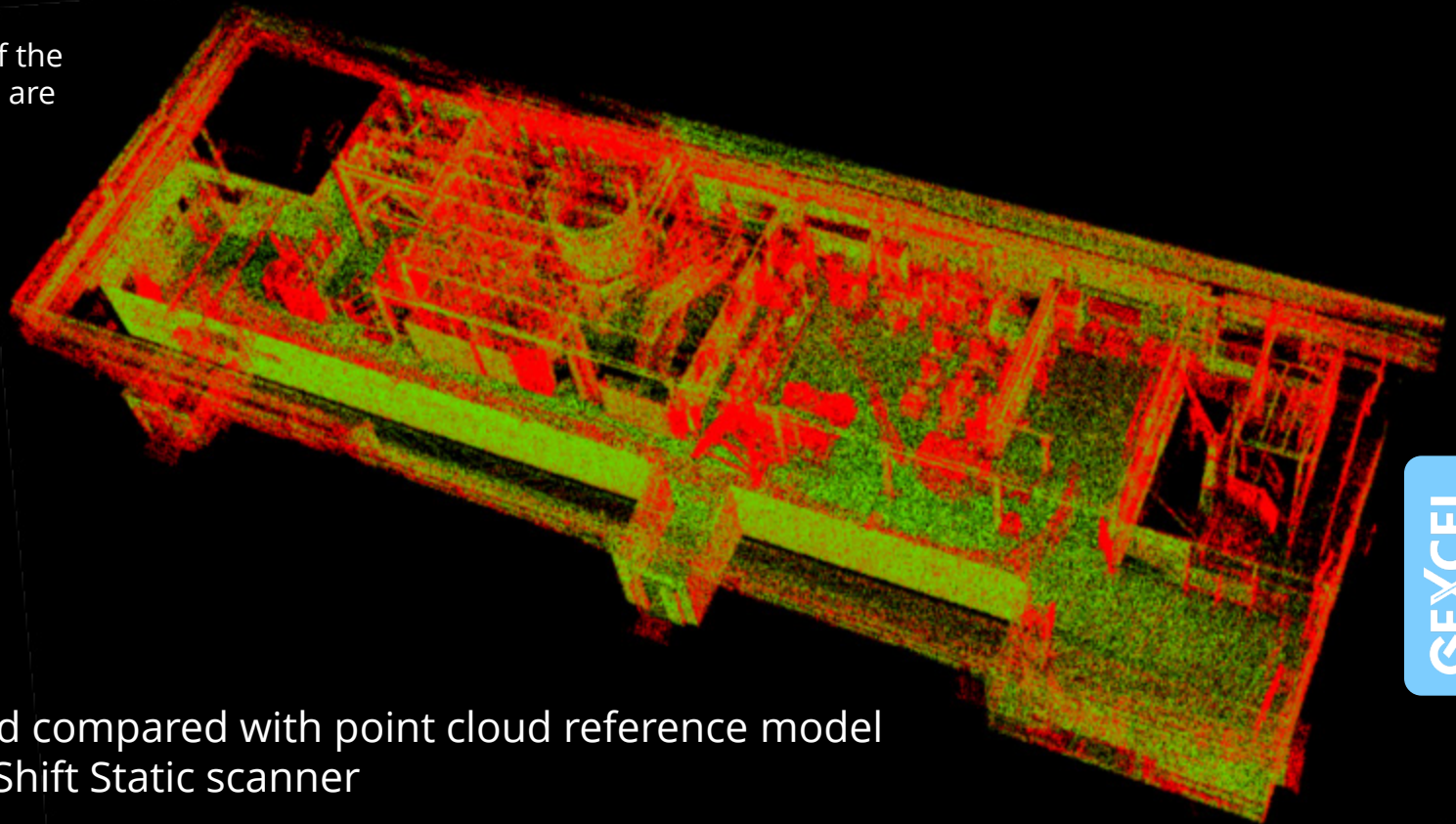




ACCURACY

*differences check accuracy **better than 2cm***

1. Presence of new elements in the map: containers, boxes, ...
2. Global correction of the map (perimetral walls are shaded in green)



Color scale:

0 cm ... >5 cm

Heron poin cloud compared with point cloud reference model made by Phase Shift Static scanner

THANK YOU!

For more information

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