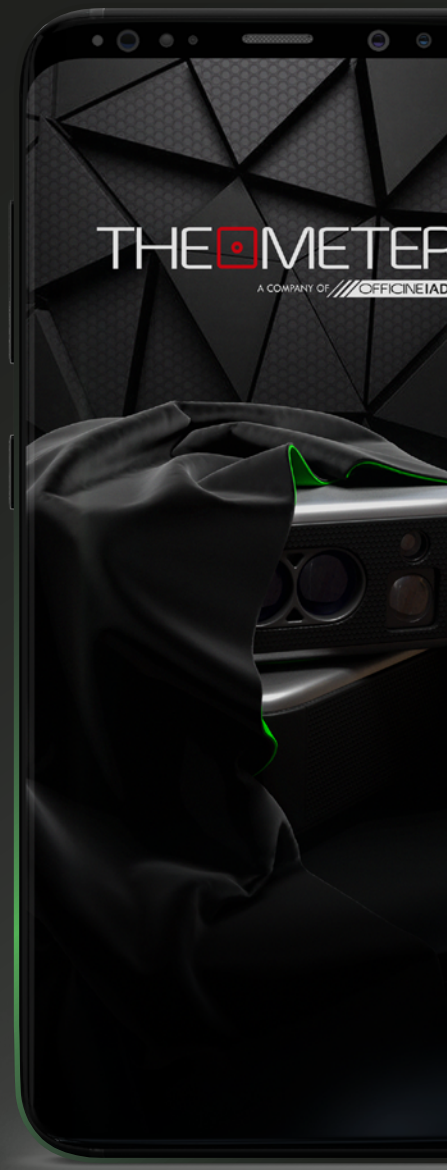
THE MODES: AUTOMATIC

GUIDE



INDEX

TIP ADVICE

Welcome to the **Automatic Mode** guide, we will explain all the functionalities; alternatively you can also watch our video tutorials of the modes, you can find them on our youtube channel or by scanning the QR code on the right!

YouTube

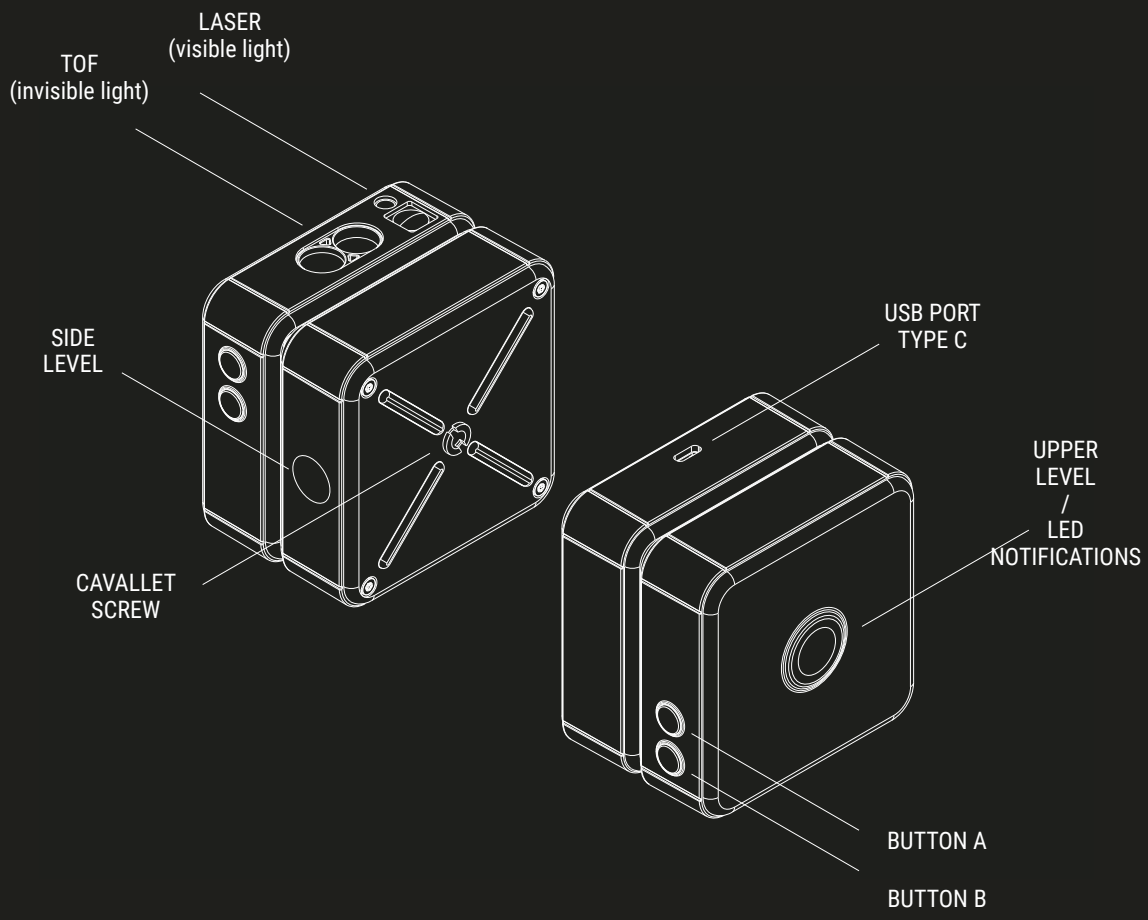
SCAN ME!

Automatic Mode

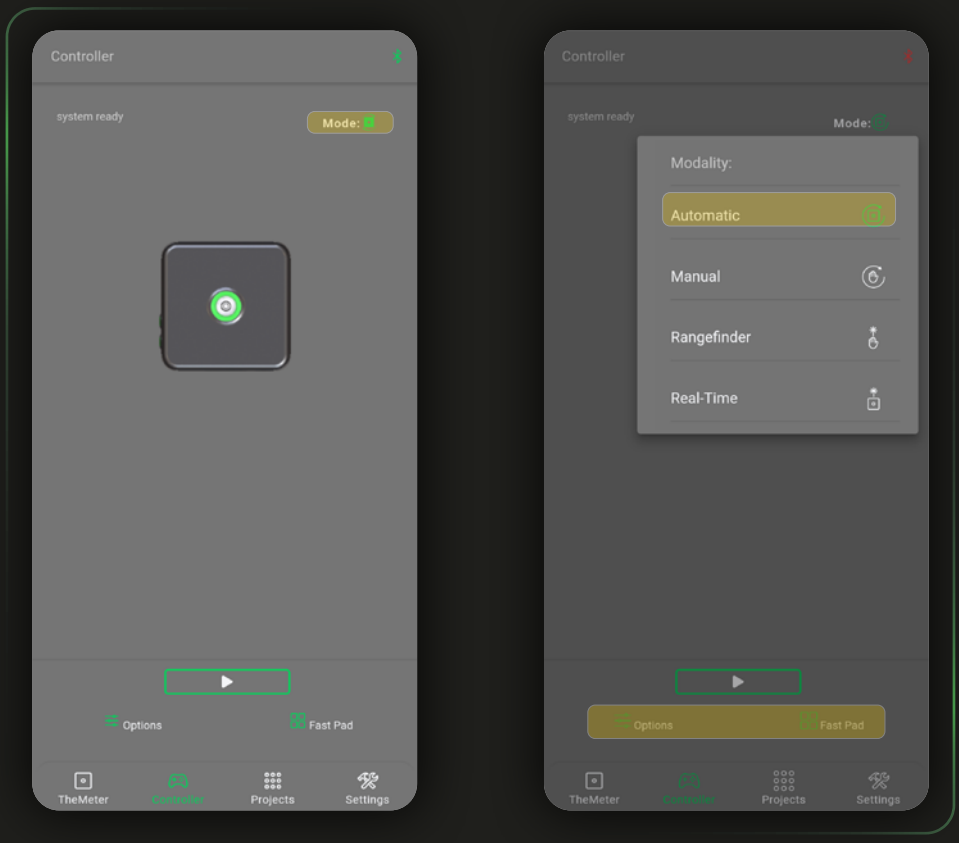
With this mode, your **CUBE** performs surveys and sections of your spaces autonomously by rotating 360°, returning a planimetric point cloud. Through the app you will have a preview in points, to which you can add markers and comments; The DXF file will also contain several simplifications of the survey via polyline

To start, turn on your **CUBE**, holding down the button A until the LED turns green, then click CONNECT on the App

What is your **CUBE** made up of? Here below the hardware component list



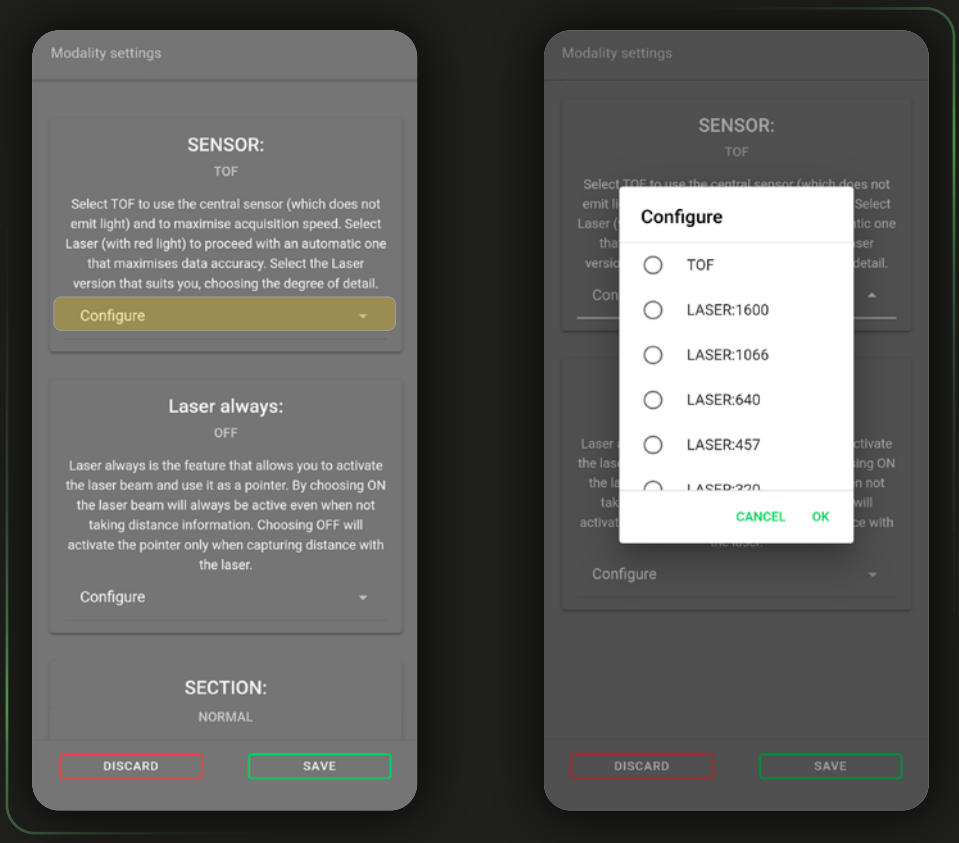
Switch to Controller screen and select the automatic mode by clicking on **Mode:**



From this screen you can to take your measurements and manage settings and mode functionalities via Options and Fast Pad

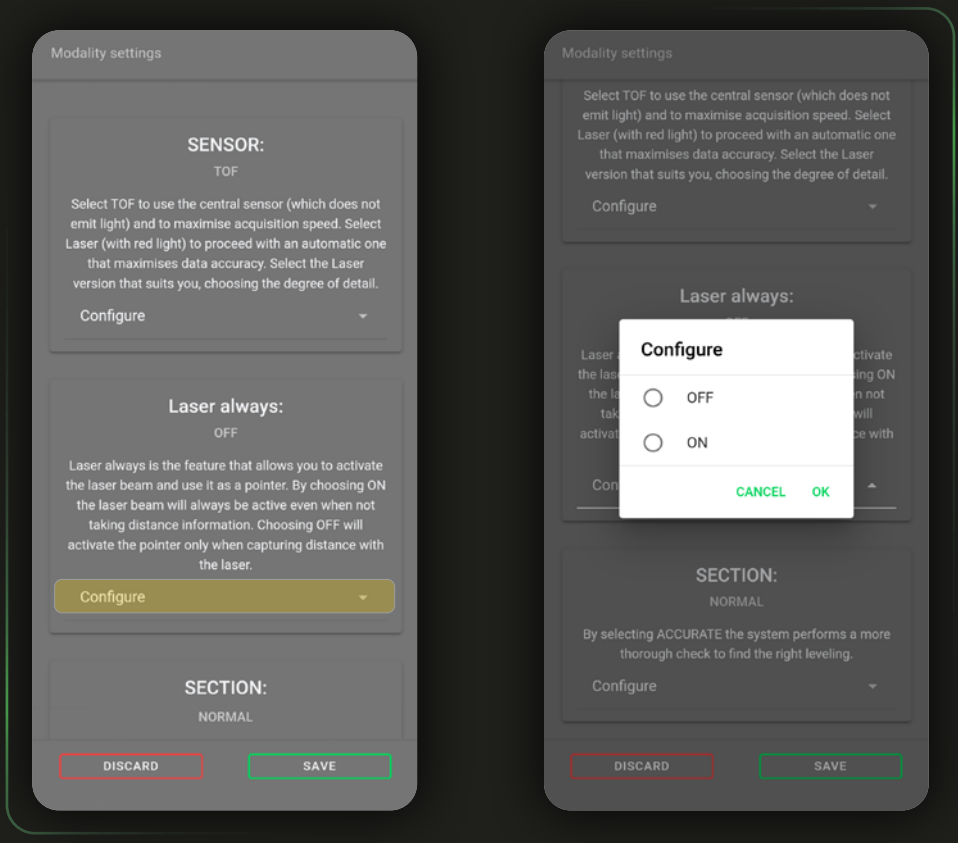
OPTIONS

In Options you can set which type of sensore to use for automatic scanning, choosing between TOF or LASER at various scan densities



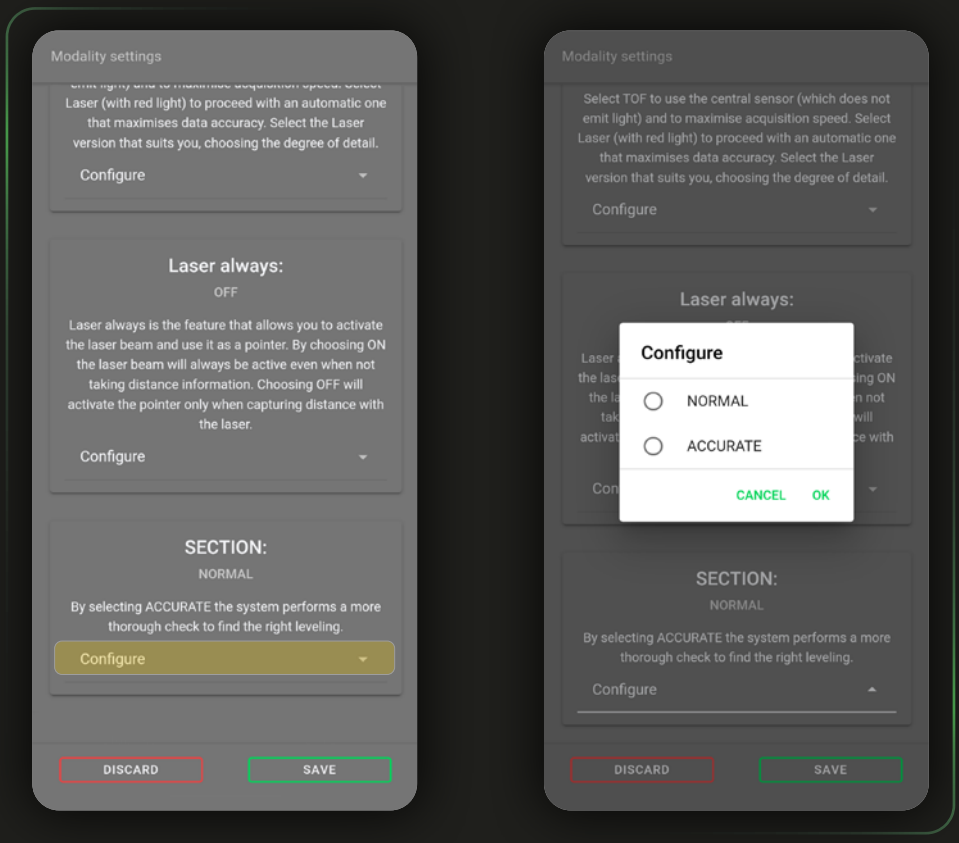
LASER mode allows much more precise scanning, but the capture of each point is slower, so depending on the density chosen, scanning times are longer than with TOF

Also you can set the laser pointer to be switched off or on (Laser always OFF / ON) during the automatic SCAN



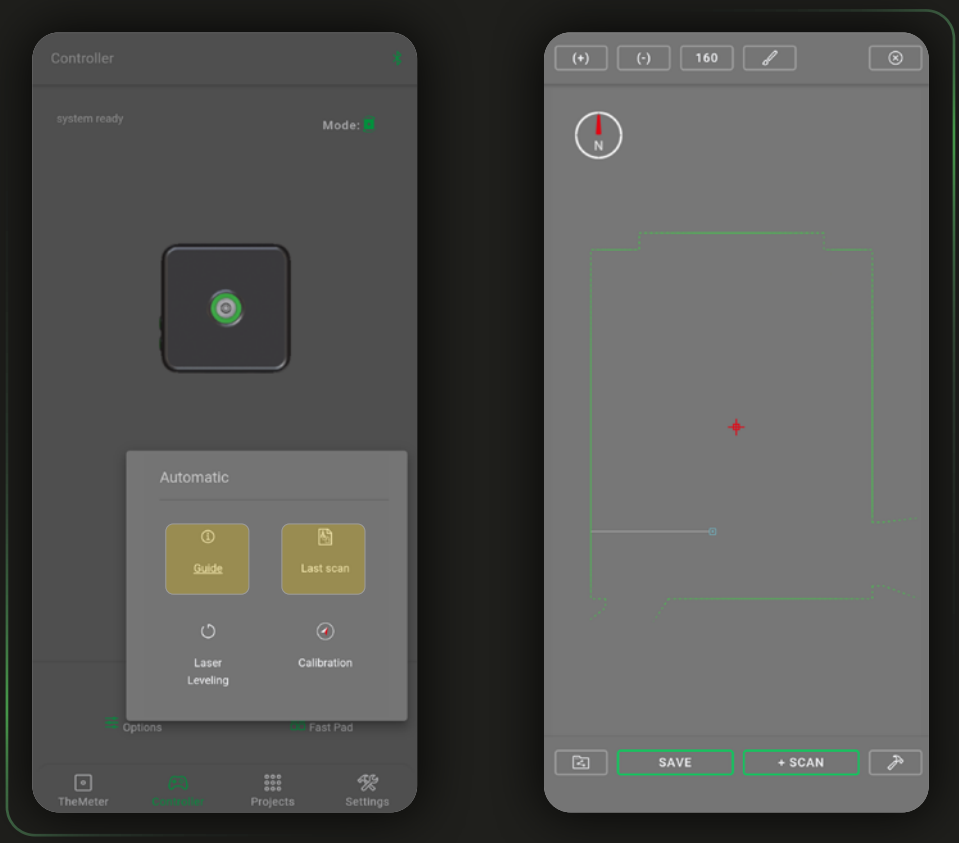
TOF, the tool by which the device performs the automatic measurements, is not visible to the human eye, and does not allow the evaluation of the acquisition path

Through calibration in section you can set the method by which **CUBE** will identify the ground line in sectional surveys; in Normal mode the calibration is carried out through a faster rotation



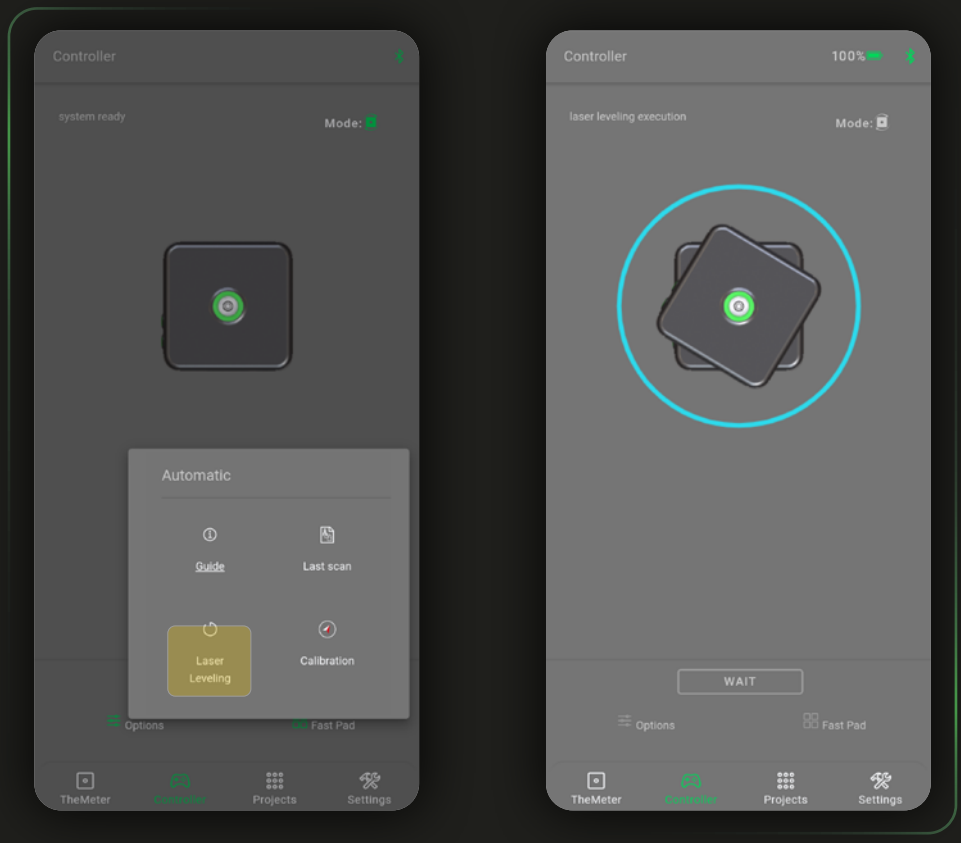
In Accurate mode it performs a full calibration by performing a rotation of 360°, positioning the ground line as accurately as possible in the scan

In Fast Pad you can find four available buttons: Guide ⓘ refers to the online guide of currently active mode, Last survey allows you to open the last scan performed



You can review it, save it, or expand it by multiple SCAN, and interact with it by using all the features available in the app, which we will explain in detail later in the guide

Activating the Laser Level will make the head of the **CUBE** perform a 360° rotation with the laser on, so that you can check at what height the device will perform the survey and evaluate the scan path before launching a survey

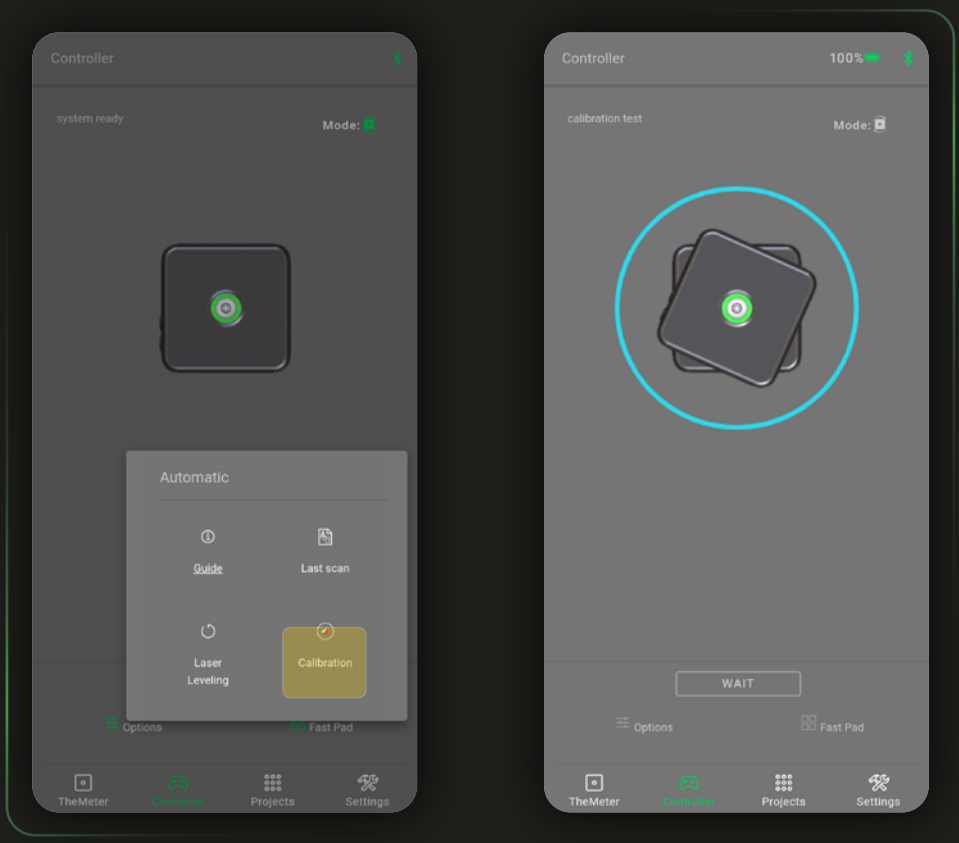


Consider for evaluation a deviation of
+/- 10 cm from the visible laser pointer

10cm

10cm

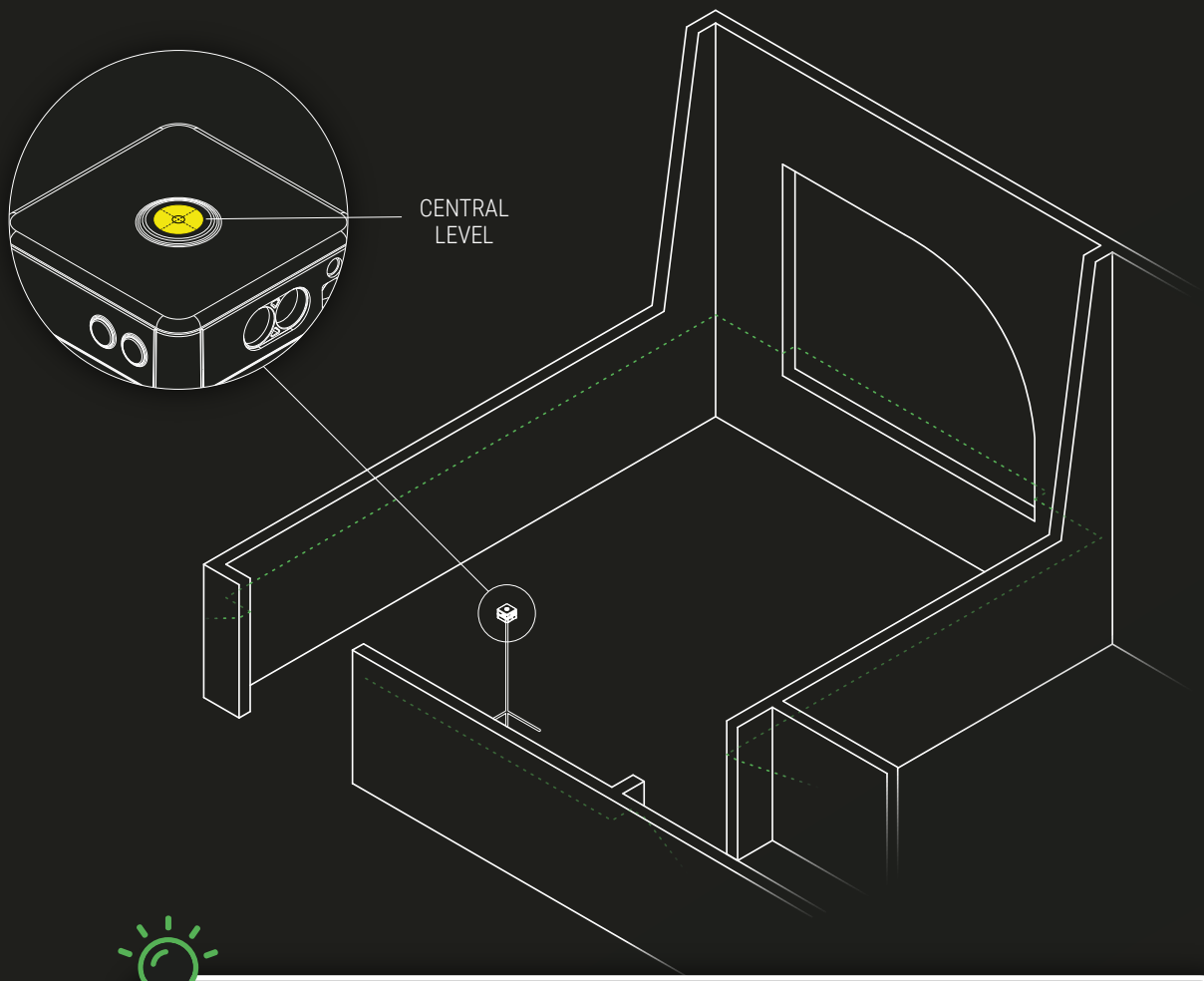
With the last button you will start the calibration test of the compass; if it is successful you will be able to continue with your scans without any problems, otherwise the app will alert you if the **CUBE** orientation is not correct.



At this point you can choose to perform a manual calibration of the device (see device guide), or to continue with your surveys but having the wrong North indication within the surveys

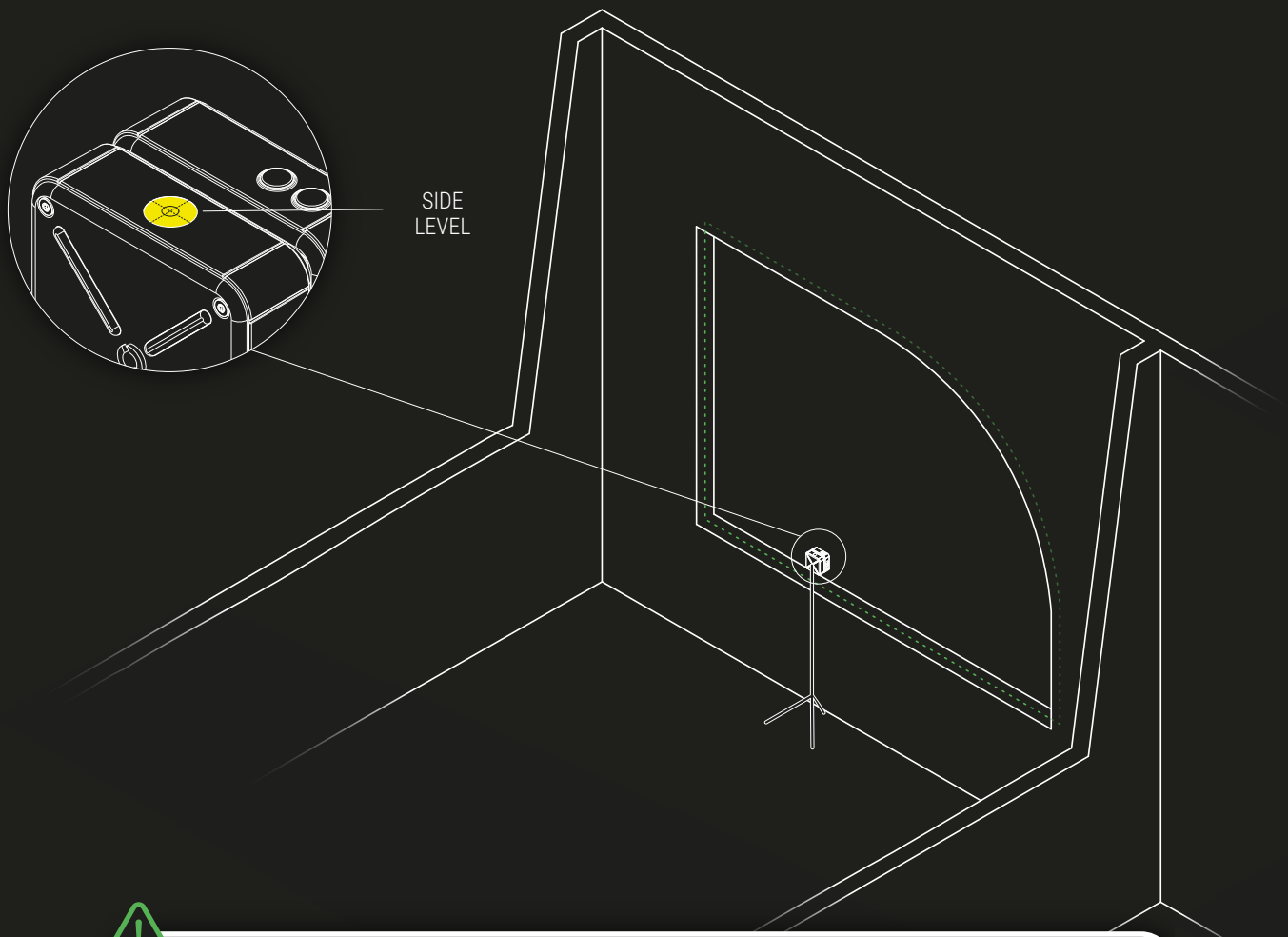
SCAN

Once you have chosen your settings and made the necessary checks, click ▶ to start automatic SCAN



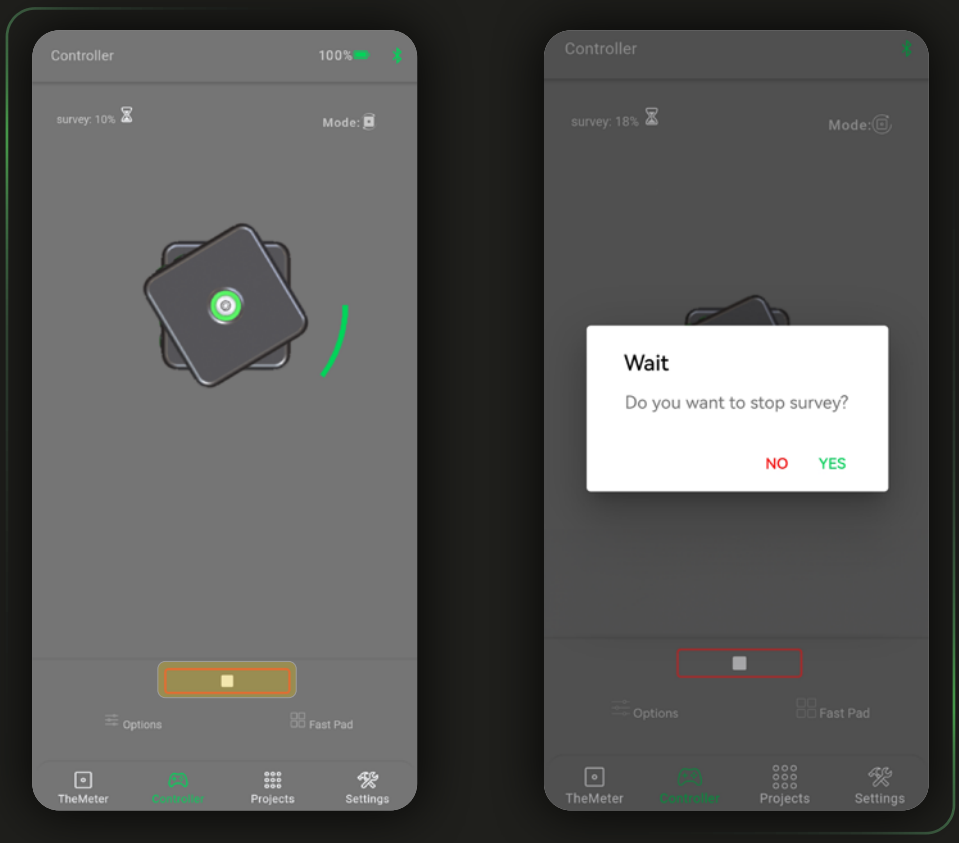
Place your **CUBE** ensuring correct levelling of the device, at the most useful point to take all the details of your scan.

With the same mode you can also perform sectional surveys, it will be necessary to rotate the orientation of your **CUBE**, placing it with the side level upward



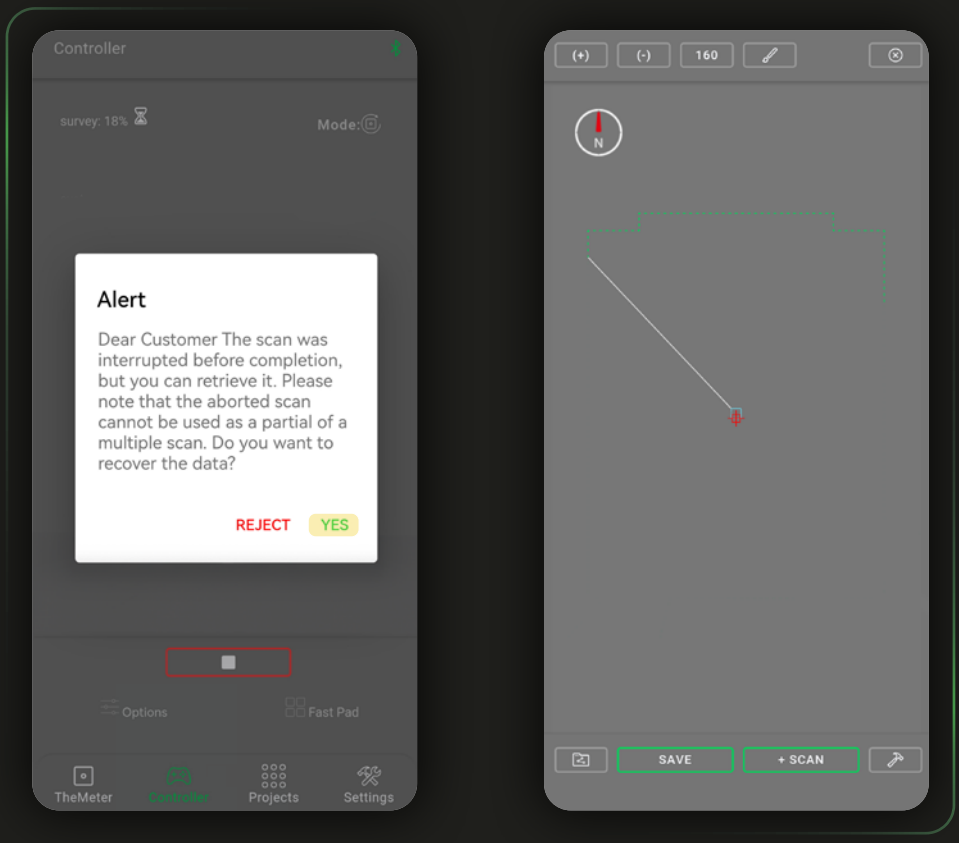
Scans are always returned in front view to the central level; In this case the section will turn out to be reversed (see p.13)

The survey is performed at 360 degrees and captures a detailed preview which, once the Scan is finished, will be downloaded from the **CUBE** for viewing



Until the process is complete you can stop the scan at any time by clicking on ▪ and then on **YES**

Then will appear a pop-up that will allow us to retrieve the data collected from the scan, which is useful during surveys in which we need to survey only a partial architectural and not the entire environment

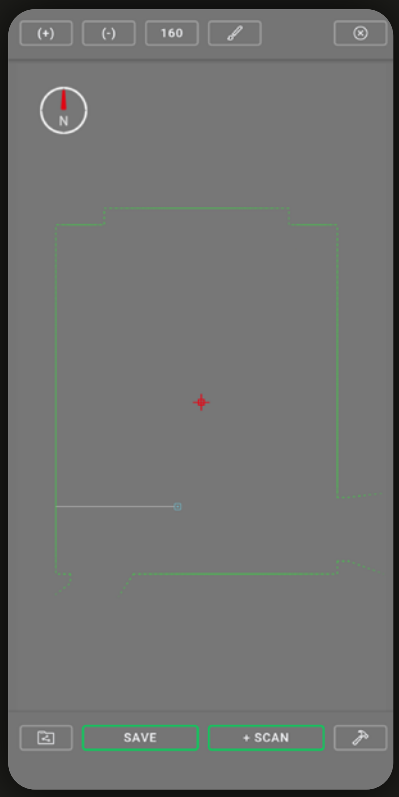


Click **YES** to view the result of the partial scan

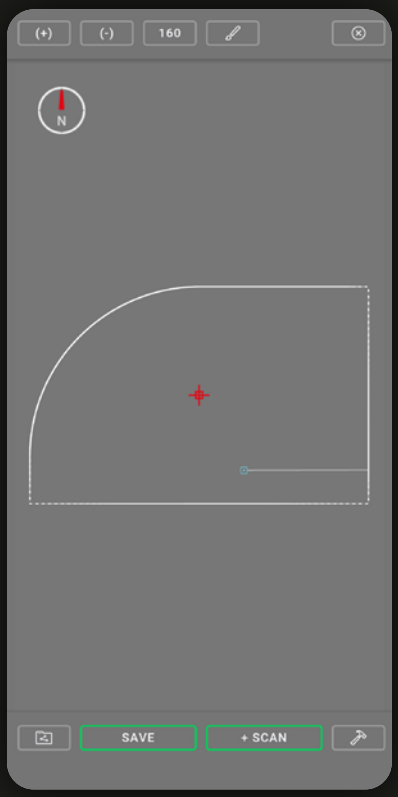
PREVIEW

Instead, once the scan is finished a preview of the result will be displayed and you can Interact with it. It's oriented with North upward and it's green in case of the floor plan. It's with the floor downward and white in case of section

Floor plan

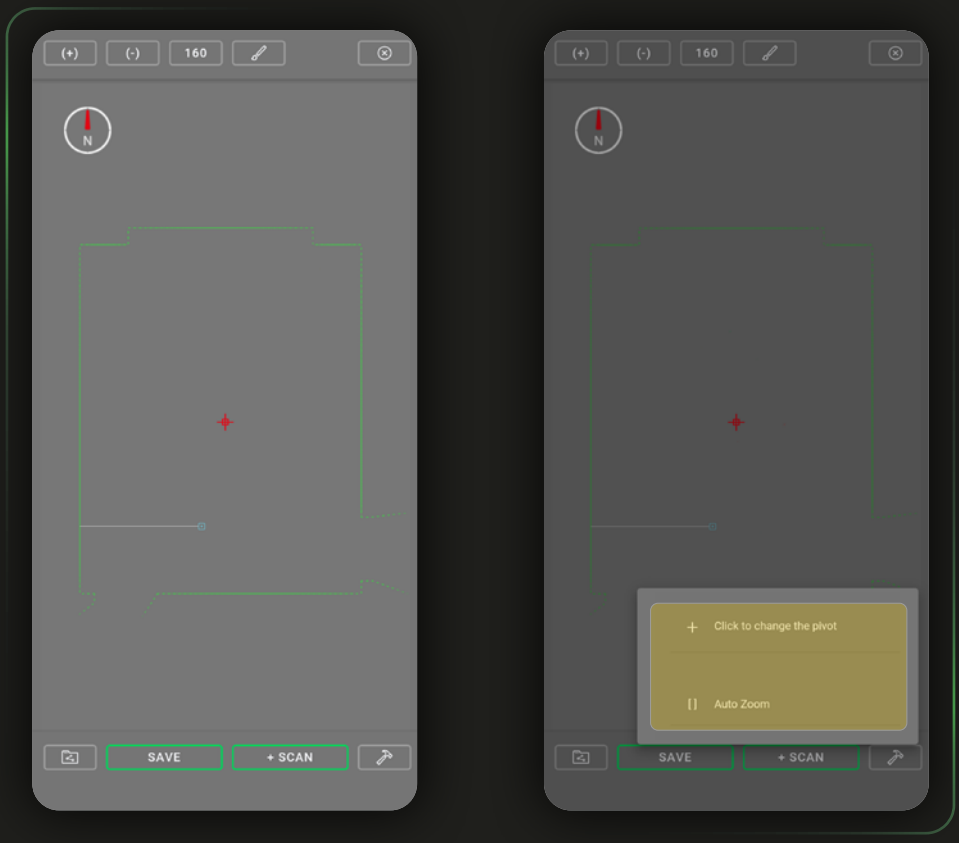


Section



An estimate of point reliability is returned in the preview through a color scale from Green/White (reliable) to Yellow, Orange and finally Red (less reliable)

Once we have the preview, we can move around in it as if it were a photo, using the touchscreen to move and zoom in

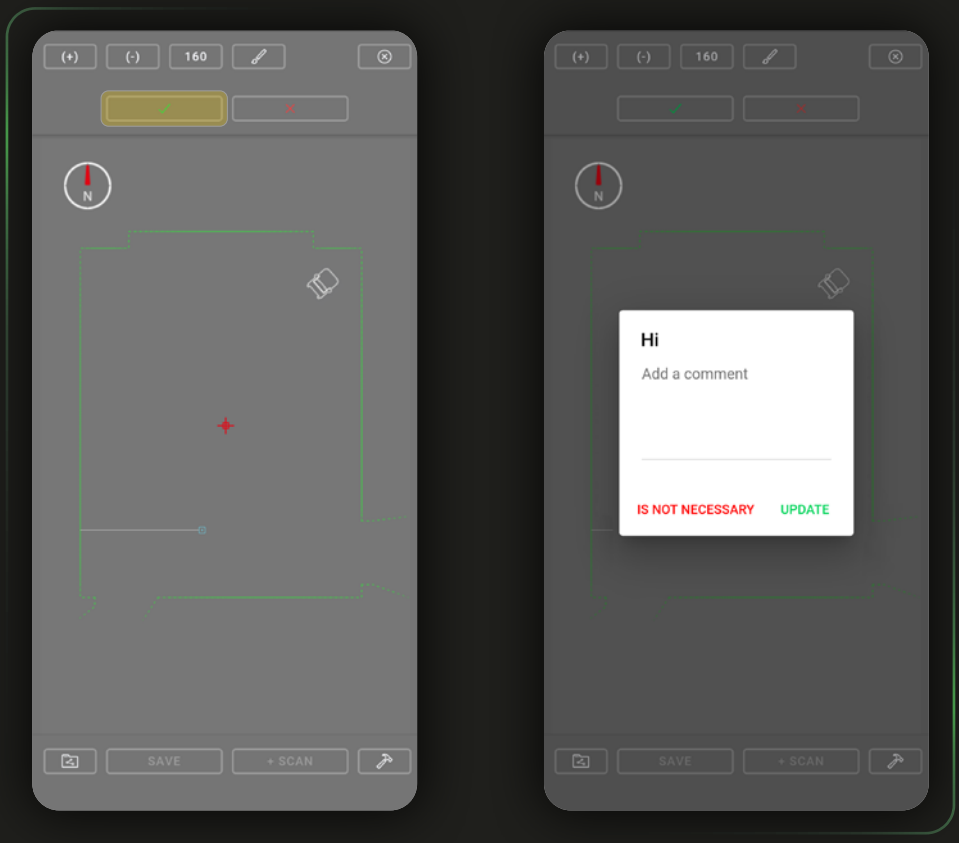


The button gives you the option to change the pivot + (anchor point to zoom and rotate the floor plan) from the cursor to the point central of **CUBE**. With automatic zoom **[]** It's possible to fit the width of the survey to that of the screen

With the app's interactive tools, you can also interact with the survey: With (+) and (-) You change the zoom, with 320 you can increase or decrease the number of points displayed

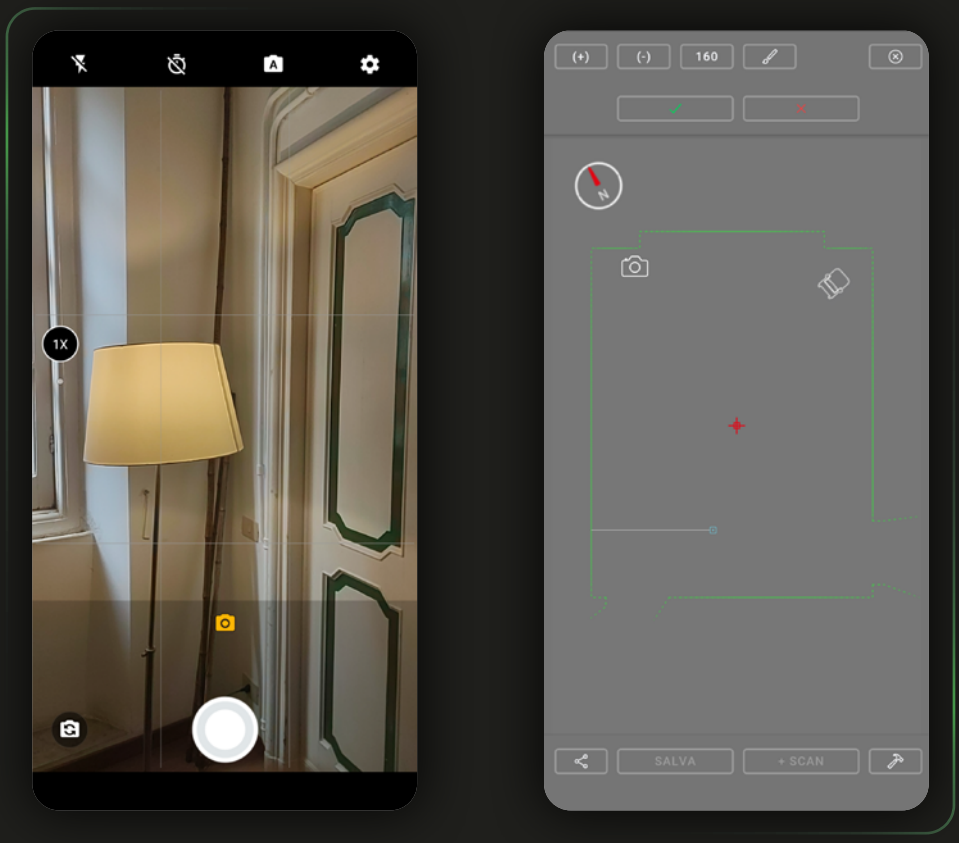
The button allows markers and photographic documentation to be added to the floor plan, to report the presence of items such as radiators, furniture, electric sockets etc. Choose the one that best meets your needs!

Adding markers is very simple: by clicking on the chosen icon it will be displayed in the center of the screen and you can move the floor plan on the background to place it; to finish the placement, once placed, click ✓. If necessary you can add a comment associated with that marker



Markers and related comments will be included in the DXF in a dedicated layer called “Marker”

To add photos click on the icon : the camera of the phone or tablet with which to capture the point of interest will be opened. Once the capture is confirmed, to finish the insertion you will have to place the icon like any marker and then click on .
The marker will have the name of the photo, if necessary you can add a comment

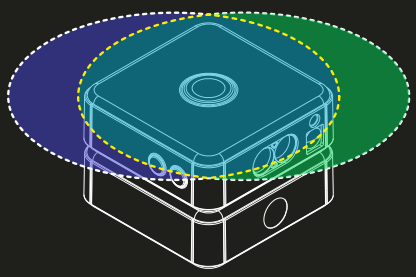


The presence in the DXF file of the photographic documentation will depend on the plan export settings, more details and information in the App guide

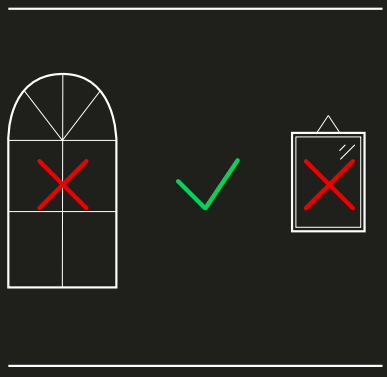
MULTISCAN

Multiscan is the function that allows multiple surveys to be merged into a single .DXF file by overlapping points in common between different scans. Before starting the surveys, it is essential to carefully examine the overall environment you're going to scan in order to identify the optimal path to follow, considering the following criteria for placing of the device for the various scans:

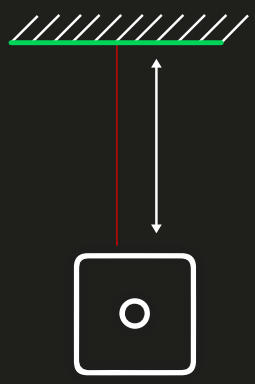
SCANNED POINTS OVERLAPPING >60%



ANCHOR POINTS ON REGULAR, NON-REFLECTIVE OR TRANSPARENT SURFACES

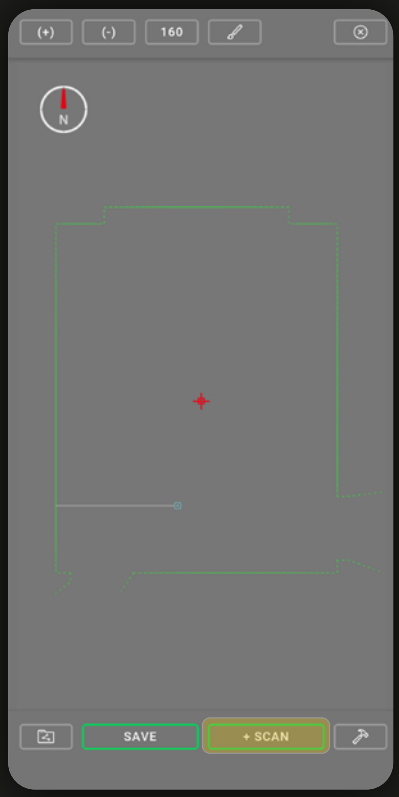


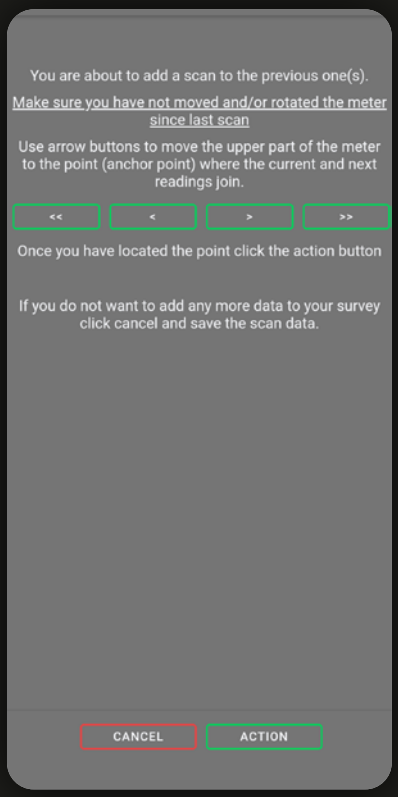
ANCHOR POINT IN THE MOST RELIABLE SCANNED PART



It is necessary to maintain, between the current scan and its previous, at least 60 percent points in common and to place anchor points on regular, non-reflective surfaces or transparent. Also try to maintain good perprendicularity and a small distance range between the instrument and the surface on which you will place the anchor point, this ensures that you put it in the part of the scan that is richest in reliable data

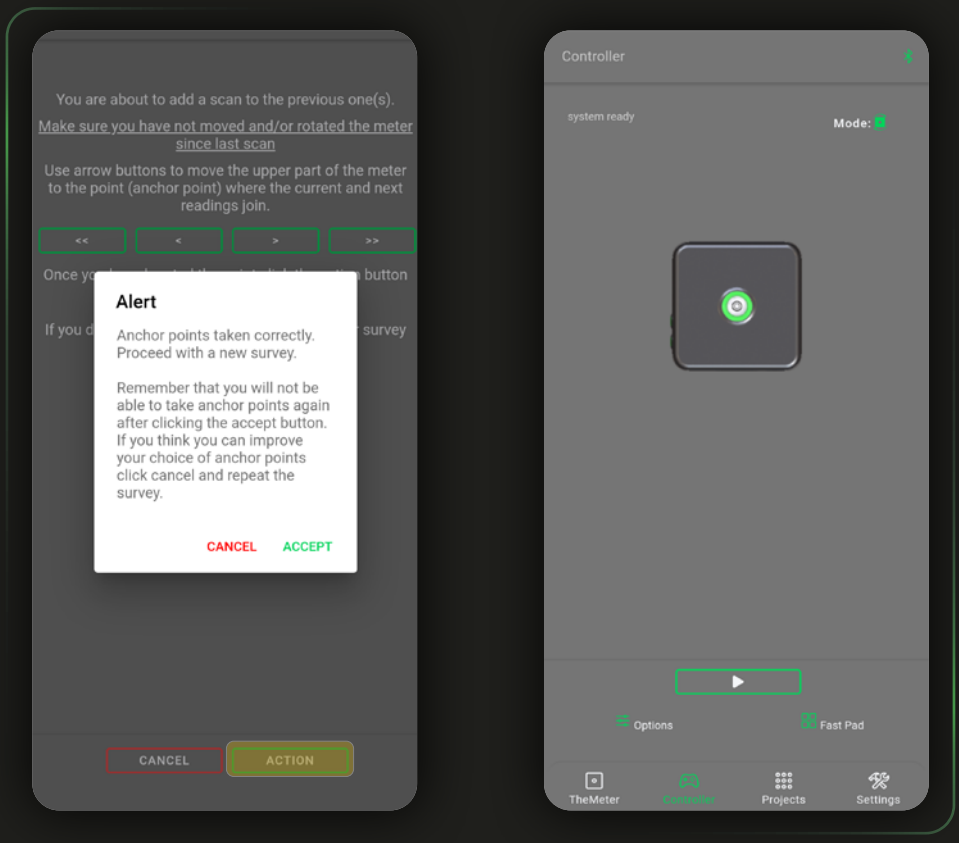
To start a Multiscan, run the first survey and then click [+ SCAN]; the red laser will light up. Making sure not to touch your **CUBE**, use the arrow button in app to rotate the instrument head and choose via the laser where to record the anchor point that will work as a reference for the following scan





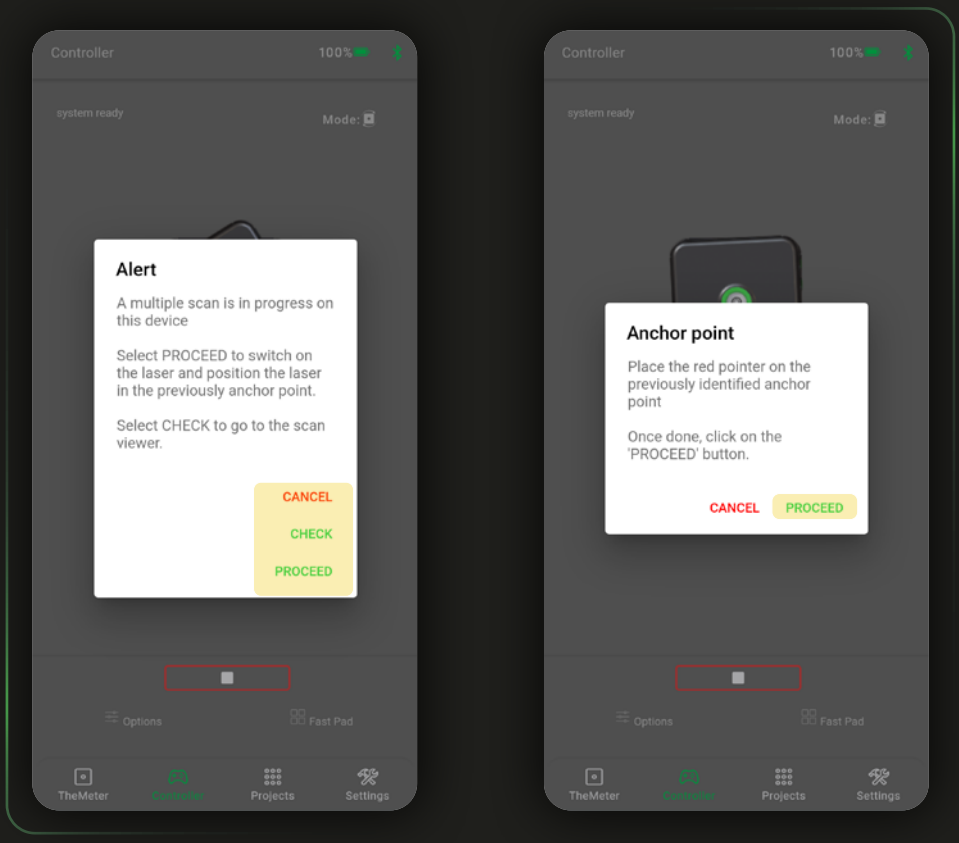
Mark with a target the location of the anchor point on the wall before continuing, it will be essential to reposition the laser in the exact same spot for the next scan

Clicking on ACTION the device will record additional reference points. You can accept the points and proceed or cancel them to register them again, after which you will come back to the controller screen to continue with the new scan



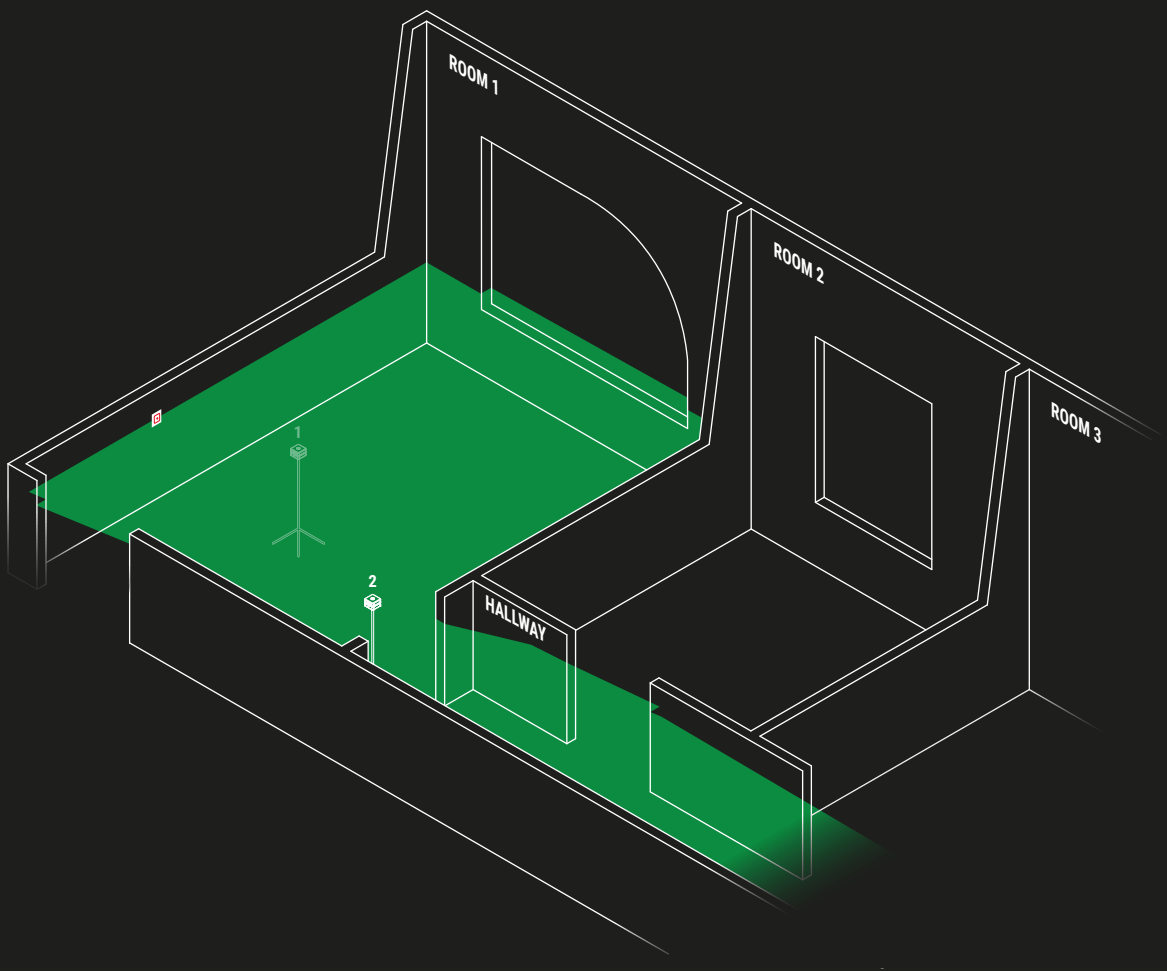
Once you click on **ACCEPT** the anchor point will no longer be editable

To continue click on ▶; You can view the anchor points in the model by clicking on **CHECK** or move on by clicking on **PROCEED**. You can move the **CUBE** in the new spot, manually realign it to the target with the laser pointer and then click on **PROCEED** to start the new scan



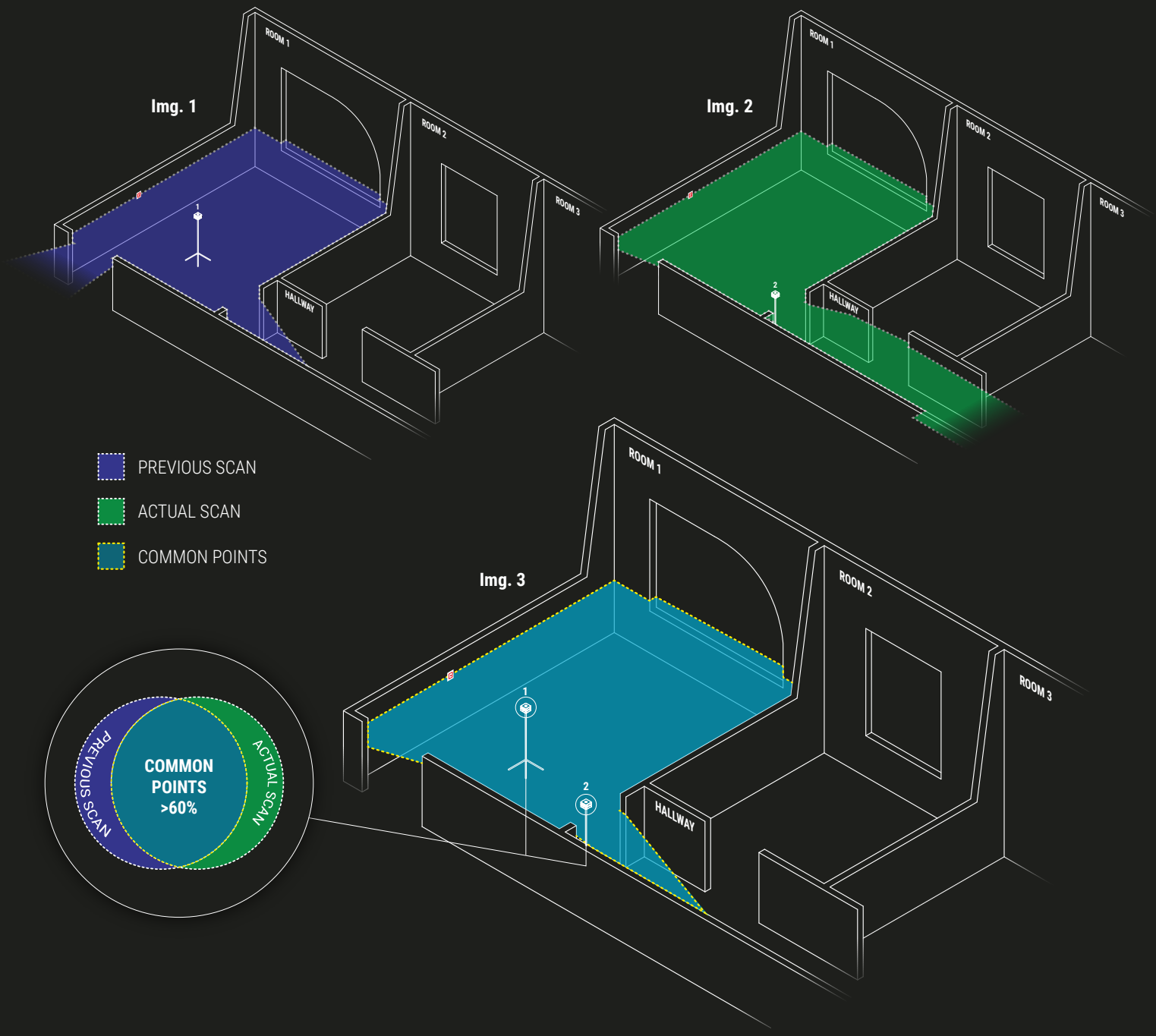
CANCEL closes only popups; to close the current Multiscan save the scan from the screen **CHECK** !

Your **CUBE** will repeat the scan process

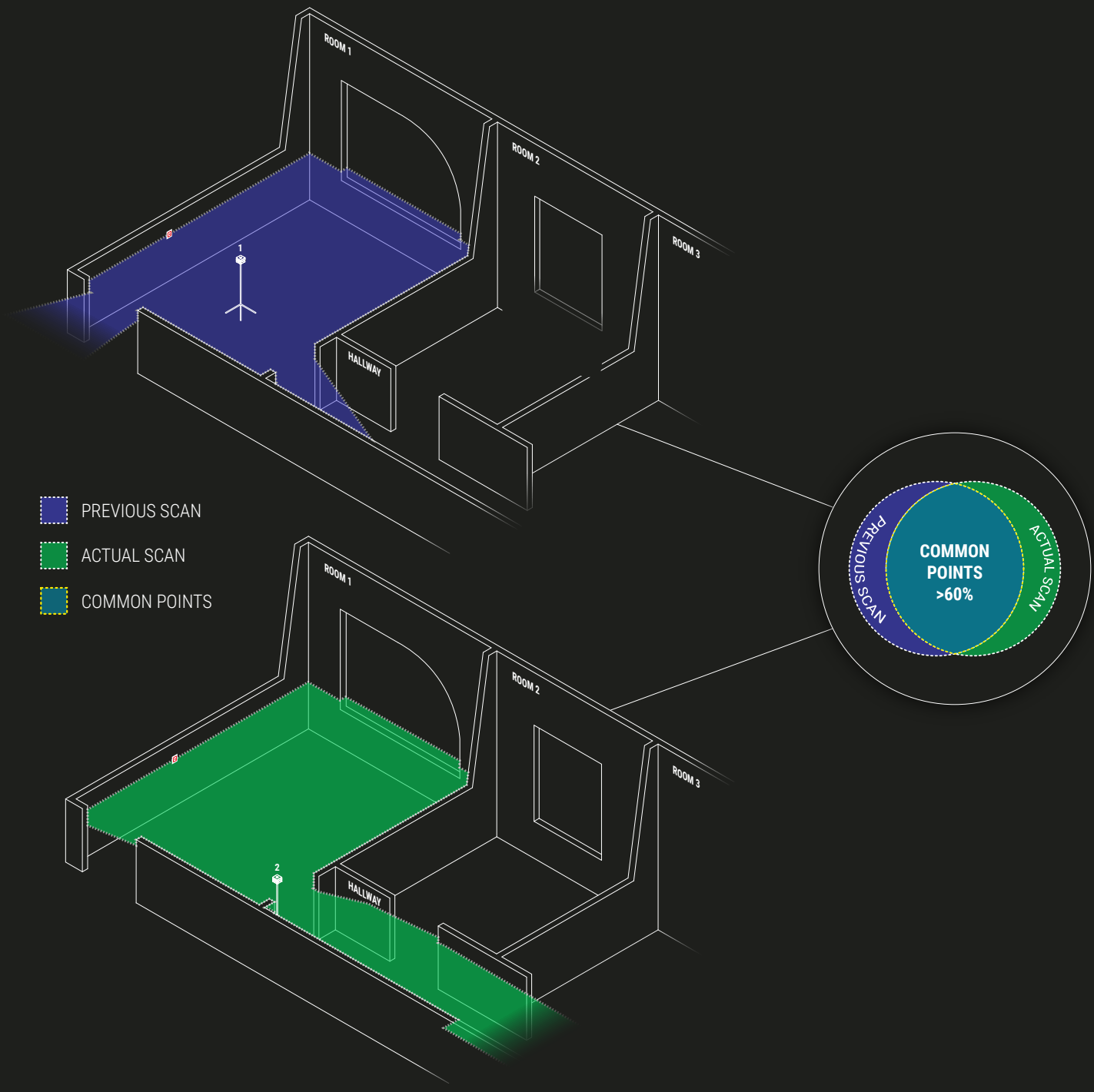


As you can see from the example images (p. 26), for the transition from ROOM 1 to HALLWAY the positioning of the second scan (Img. 2) in relation with the first (Img. 1) is designed to maintain an overlap of points greater than 60%, as highlighted in Img. 3

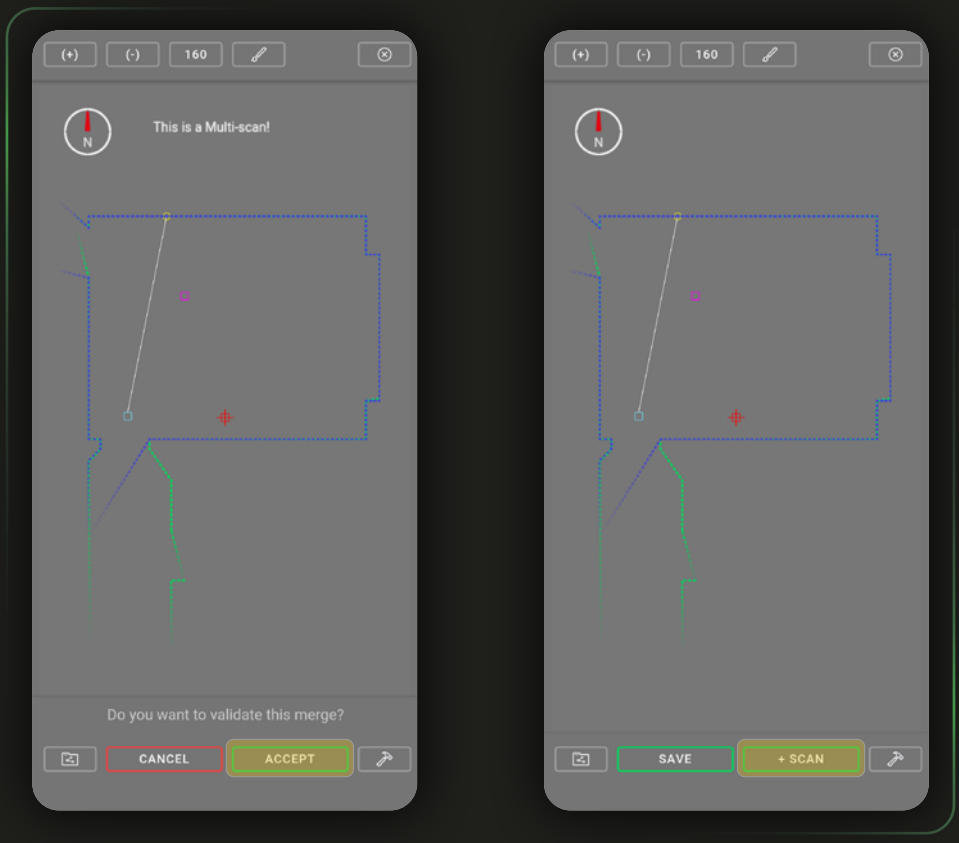
MULTISCAN


Img. 1
ROOM 1
ROOM 2
ROOM 3
HALLWAY
1
Img. 2
ROOM 1
ROOM 2
ROOM 3
HALLWAY
2
PREVIOUS SCAN
ACTUAL SCAN
COMMON POINTS
Img. 3
ROOM 1
ROOM 2
ROOM 3
HALLWAY
1
2
PREVIOUS SCAN
COMMON POINTS >60%
ACTUAL SCAN

MULTISCAN

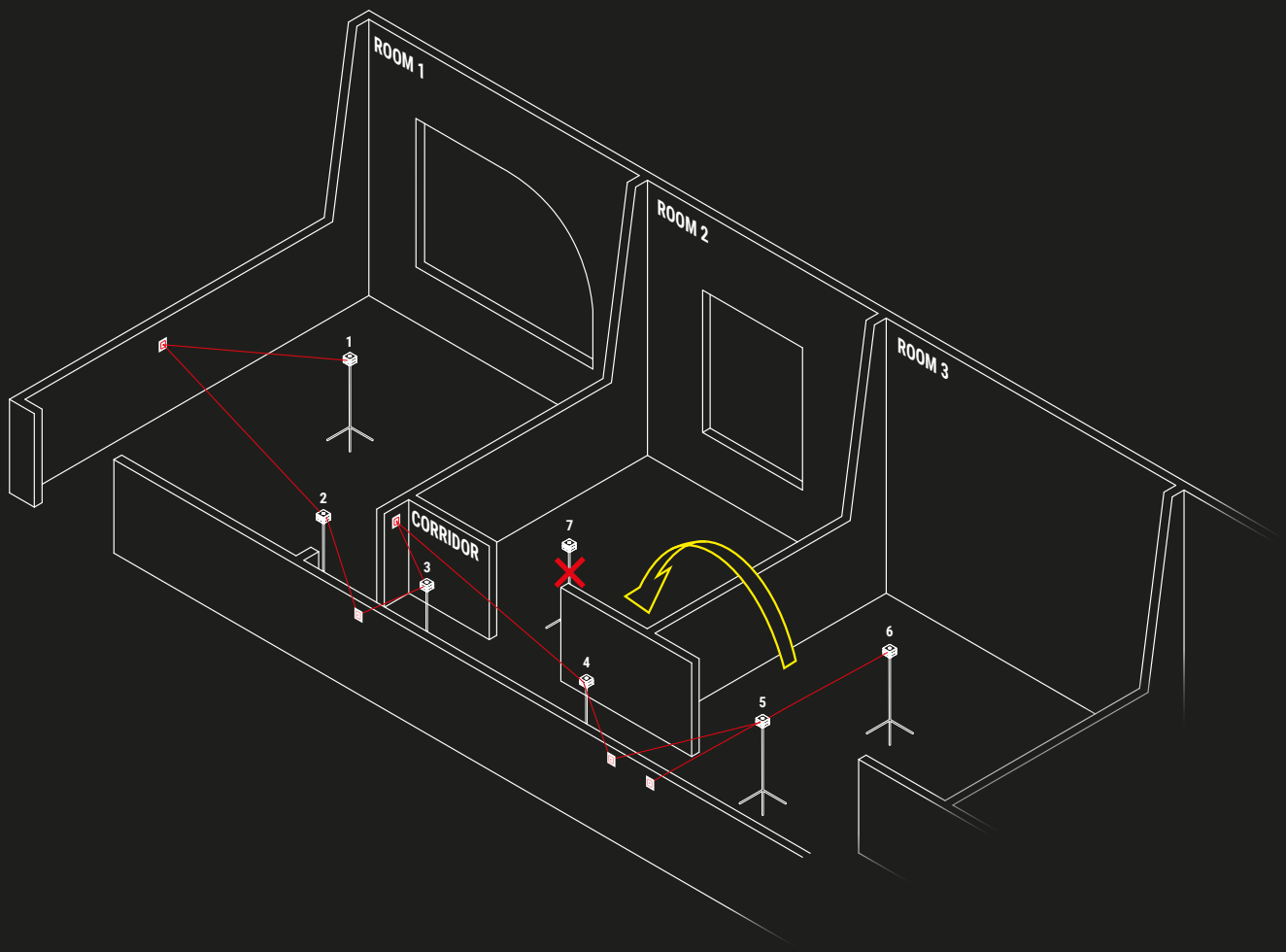

ROOM 1
ROOM 2
ROOM 3
HALLWAY
1
PREVIOUS SCAN
ACTUAL SCAN
COMMON POINTS
ROOM 1
ROOM 2
ROOM 3
HALLWAY
2
PREVIOUS SCAN
ACTUAL SCAN
COMMON POINTS >60%

If you are satisfied with the union between the scans result, you can conclude the process by clicking on ACCEPT ; At this point you can continue with the next scans by clicking again on + SCAN



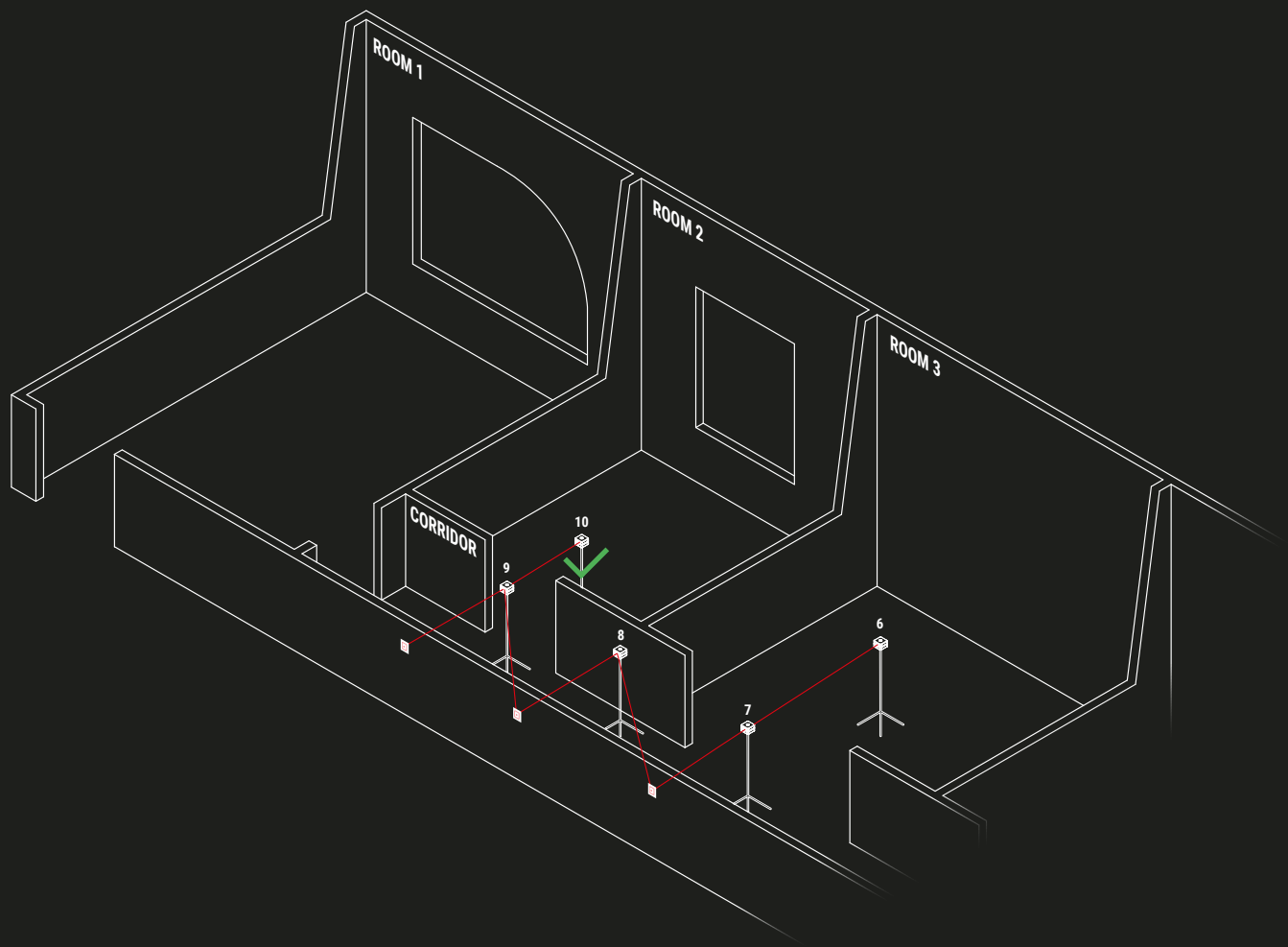
For optimal results, we recommend increasing the number of scans by reducing the distance between them

Remember that you have to apply all the placement criteria for each additional scan you are going to run, since the tool does not consider the entire environment scanned up to that point but only the last scan performed.

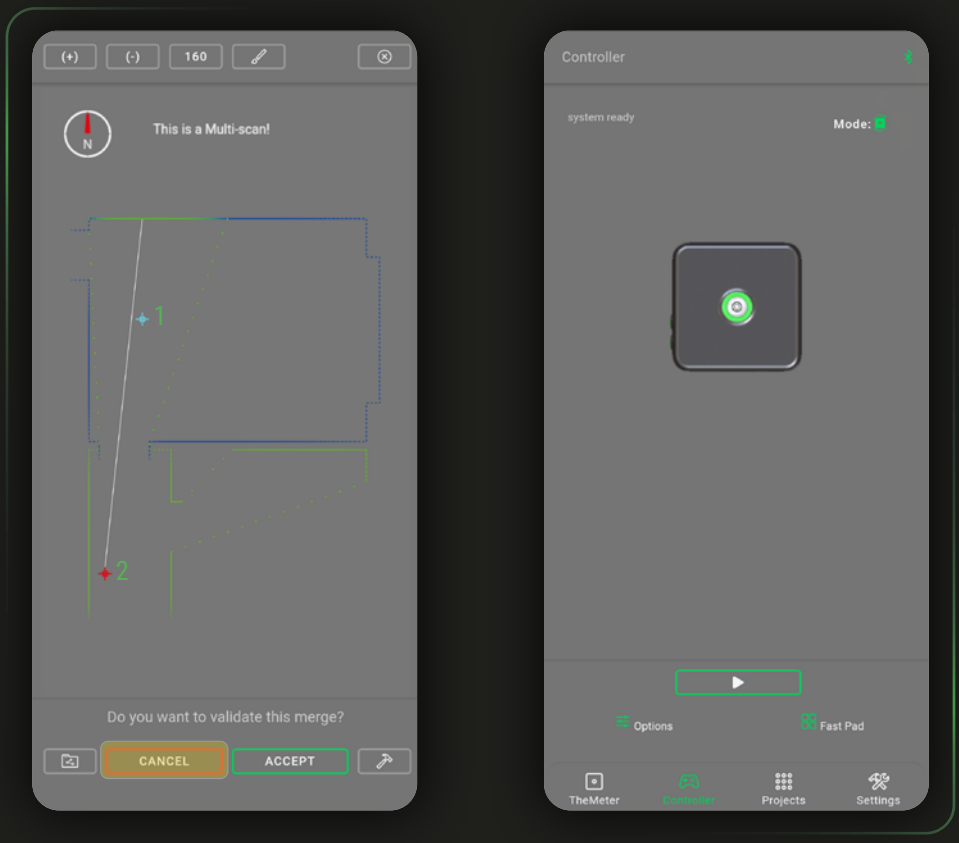


As shown in the image, if you need to move from ROOM 3 to ROOM 2 you will not be able to do so in one step

So it will be necessary to recreate a path of scans as shown in image

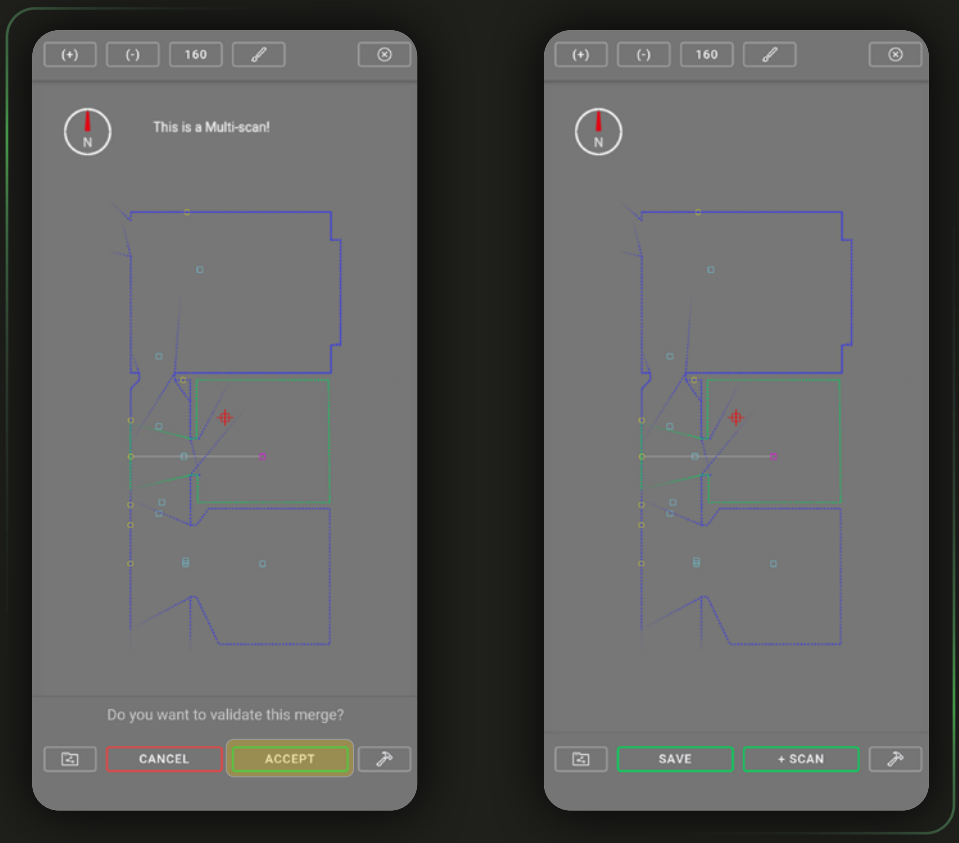


If your scan is incorrectly, you can repeat the process by clicking CANCEL, starting again from Controller and following the same steps described in the previous pages



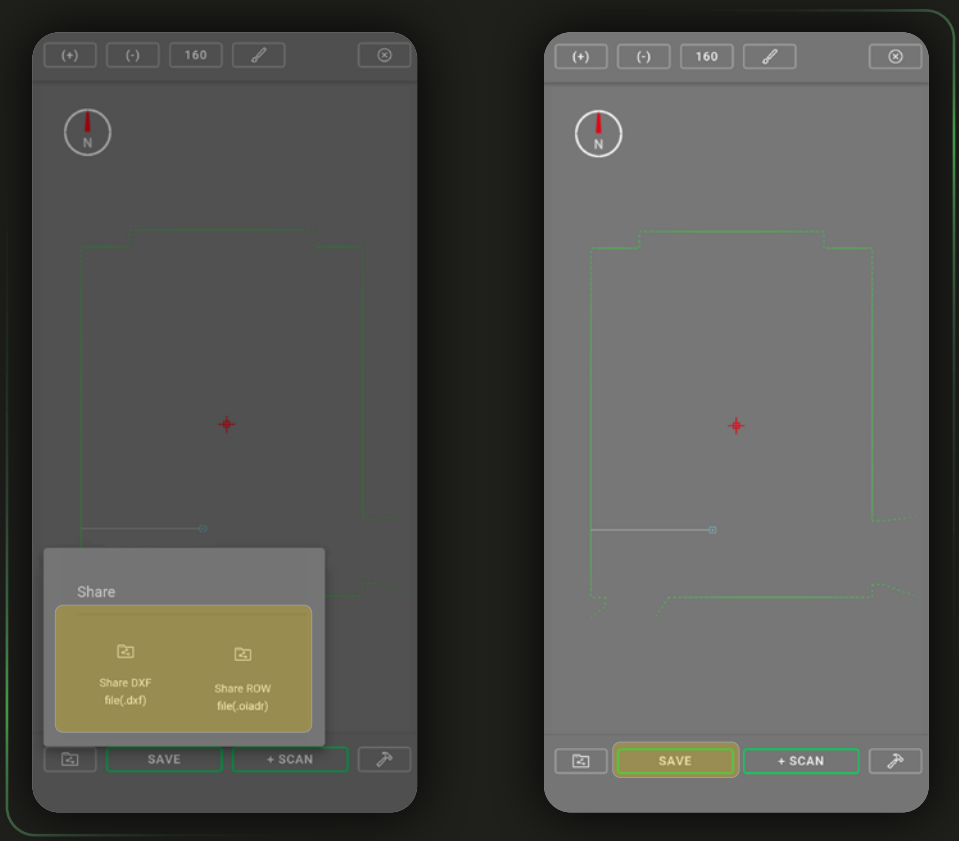
The anchor point will be the same previously set

Once you have completed merging all the scans you have made, you can interact with the model through the same tools already explained for individual ones and then save or share your .DXF files



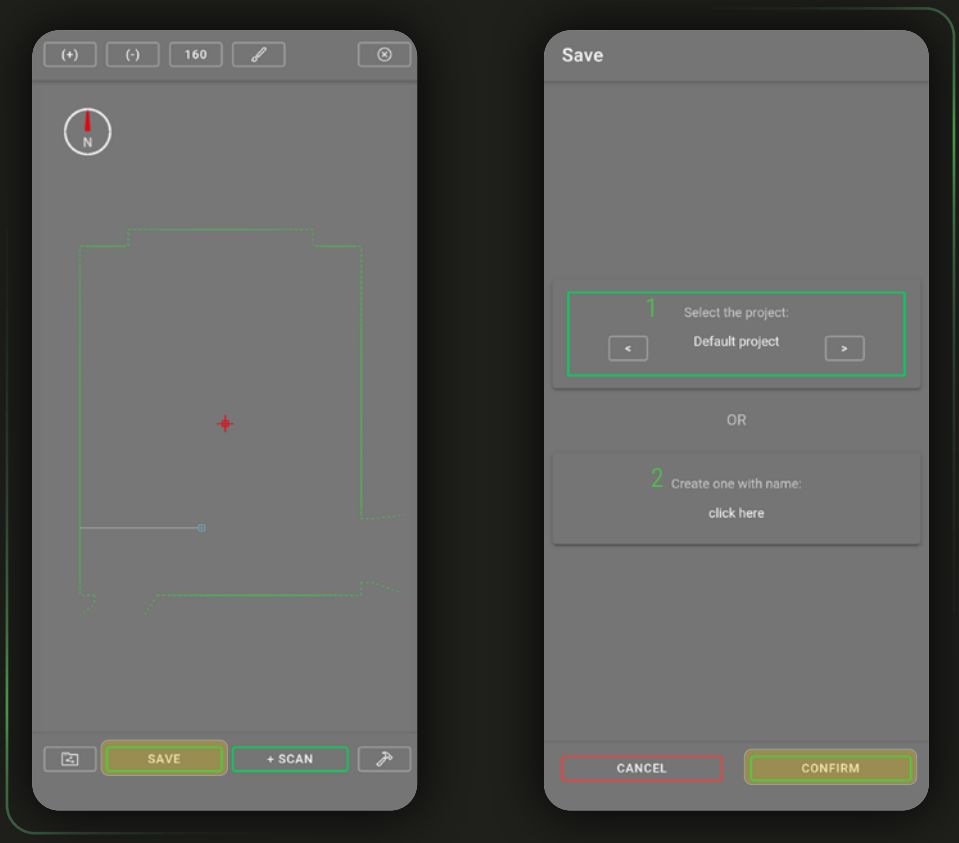
SAVING

With [ ] you can send or share the scan (DXF file) via email, via messaging and social networking; the .oiadr file is a RAW file useful for diagnosis for THEMETER Support Team in particular cases of product support.



If you are happy with the result of your scan, but you don't want to share it immediately, you can store it locally using [SAVE]

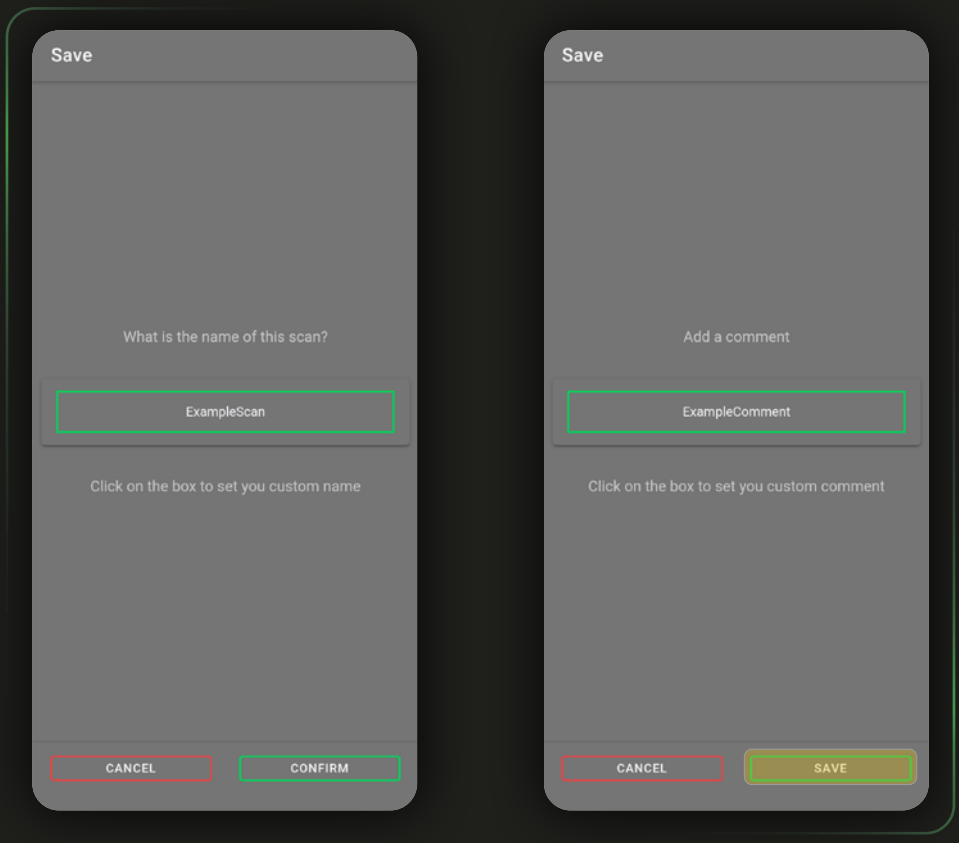
As a first option forsaving you can decide
which project to assign the scan to



You can select one from existing ones[1] or create a new one
ad hoc for saving the current survey[2] . Once the project
to store the survey is chosen click CONFIRM

SAVING

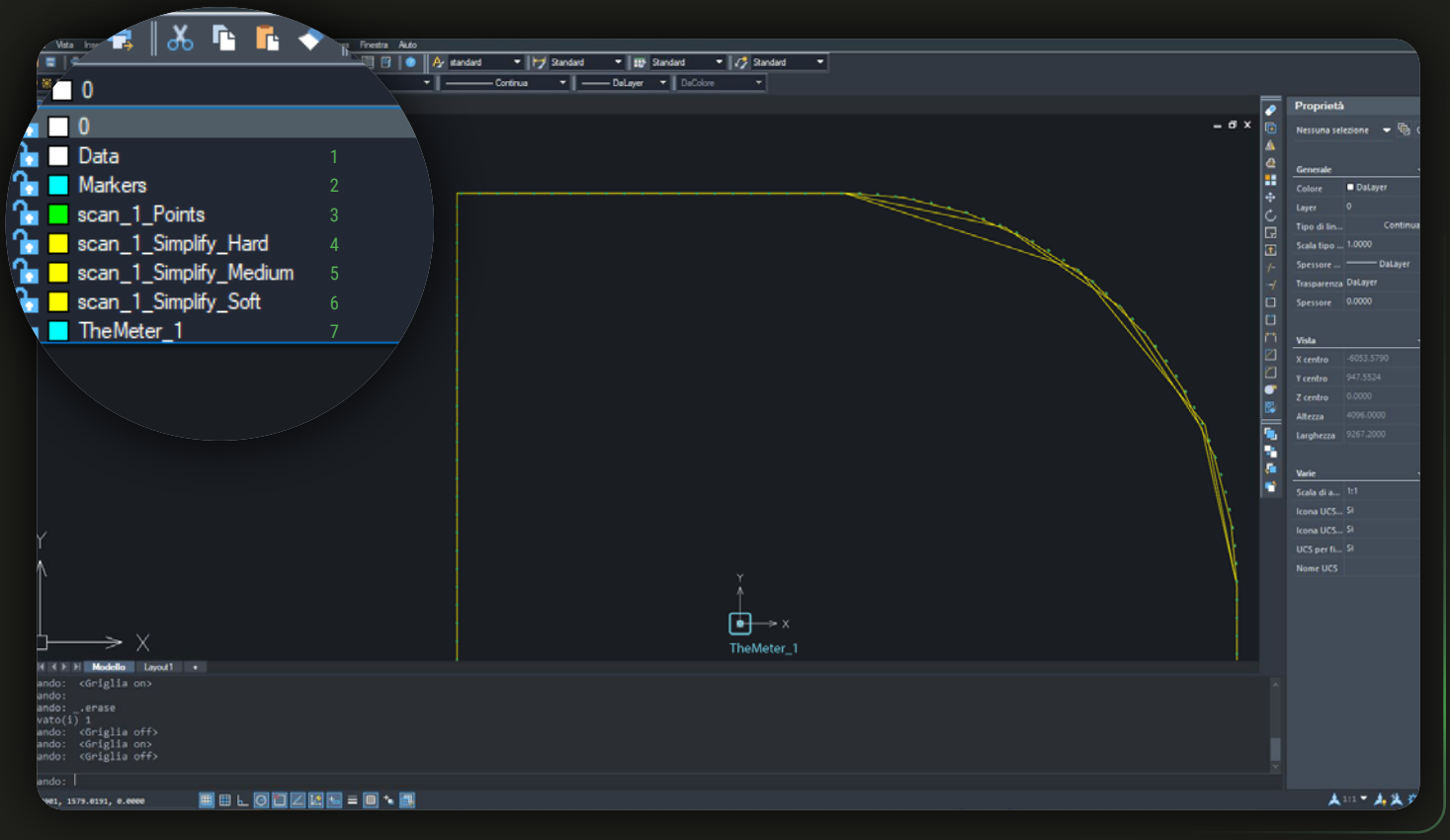
You can name your scans (by default it will consist of “scan dd/mm/yy hour:min:sec”); finally you can add a comment, after which you can complete the save with SAVE or cancel it with CANCEL



The saving information will be entered into the “Date” layer of the DXF file.

OUTPUT

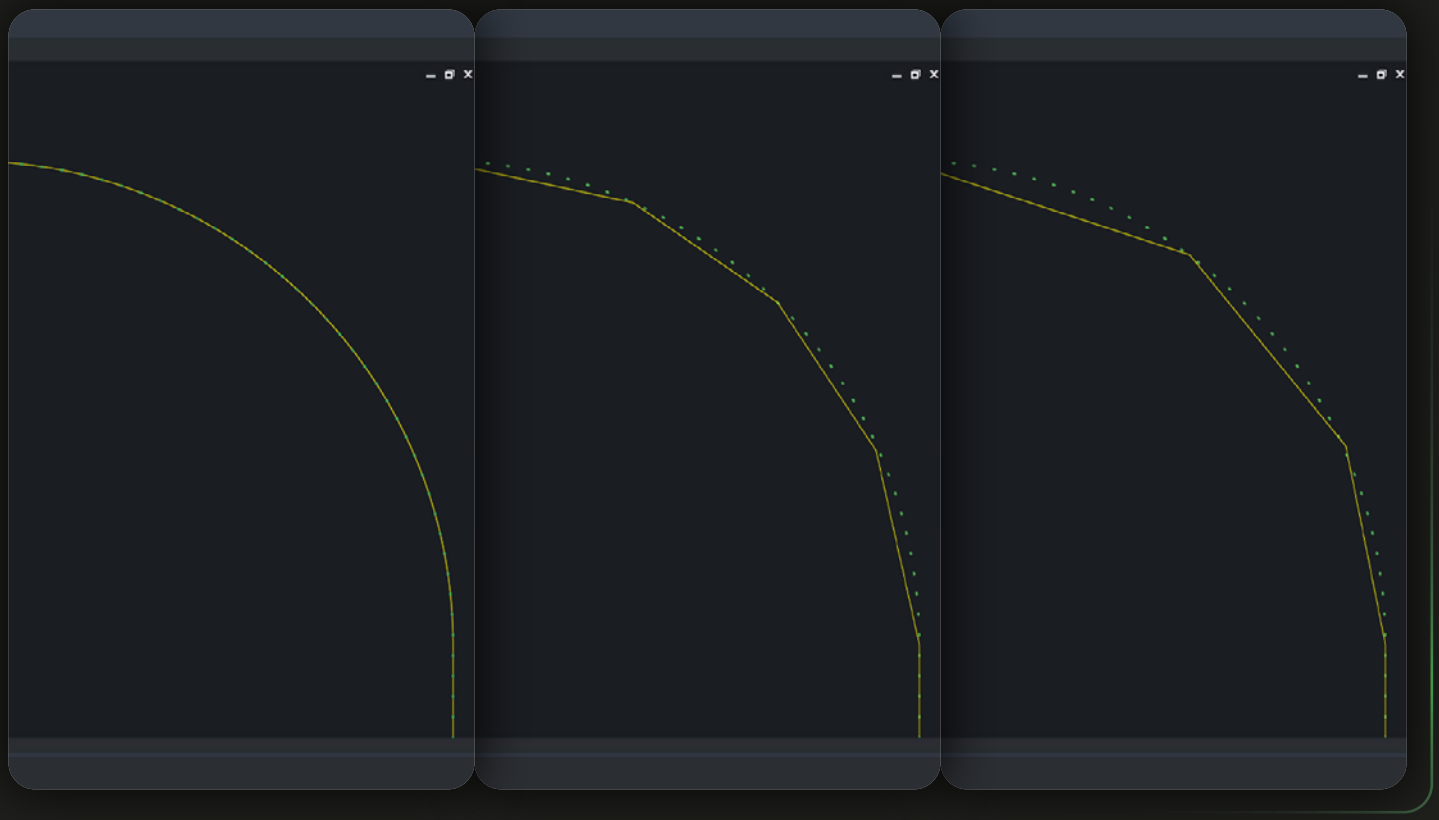
Once the survey operations are completed, your **CUBE** provides you with a complete and digital floor plan in DXF file, containing all collected data and editable using any CAD software.



The drawing is divided into levels: “Data”[1] contains the generic data associated with the file, “Markers”[2] all tags added; “Points”[3] contains the scan points, three simplifications layer in polyline, Simplify “Hard”[4] , “Medium”[5] or “Soft”[6], “TheMeter”[7] contains the position of **CUBE**

OUTPUT

The simplifies are simplified representations of the acquired points; using polylines those degree of rigidity is indicated by Soft, Medium, Hard level.



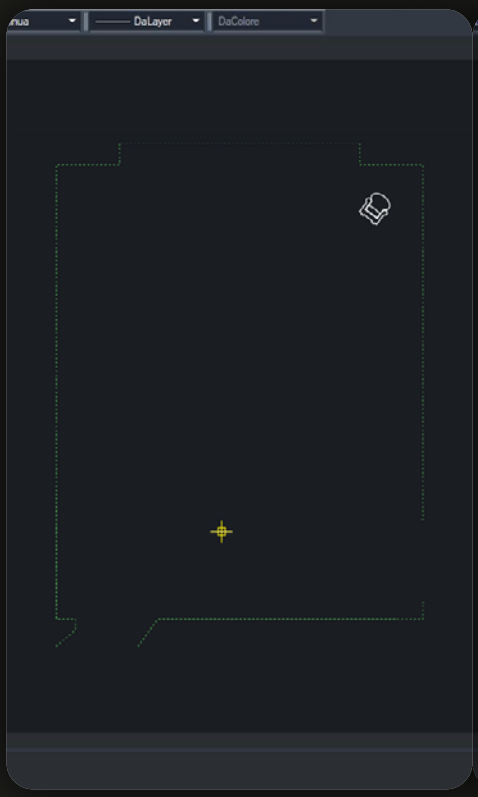
Simplify_Soft Simplify_Medium Simplify_Hard

Less reliable points of red color will not be considered when creating polylines, while the remaining ones will be connected with three different degrees of approximation

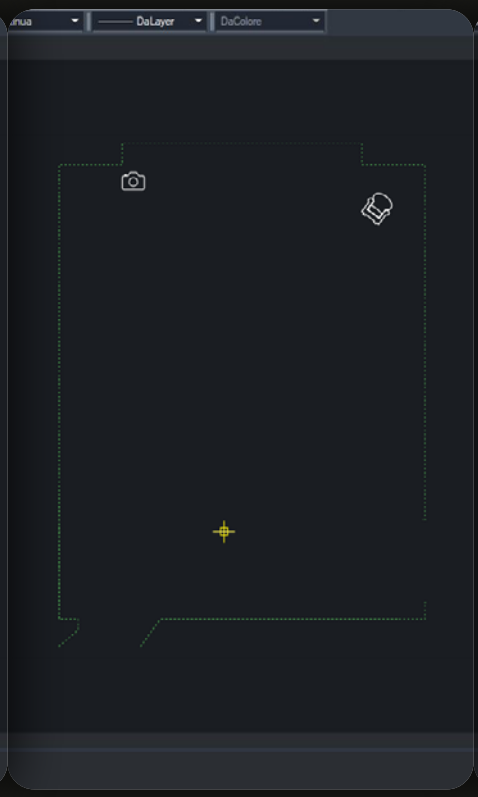
OUTPUT

If you've added photos to your survey, to keep them in CAD you'll need to pay attention to the DXF file export settings, found in Settings. Classic exports the DXF only, Classic + images exports both the surveys in DXF format and the images taken in a single zipper file, NextGen exports the DXF file with the images embedded in it

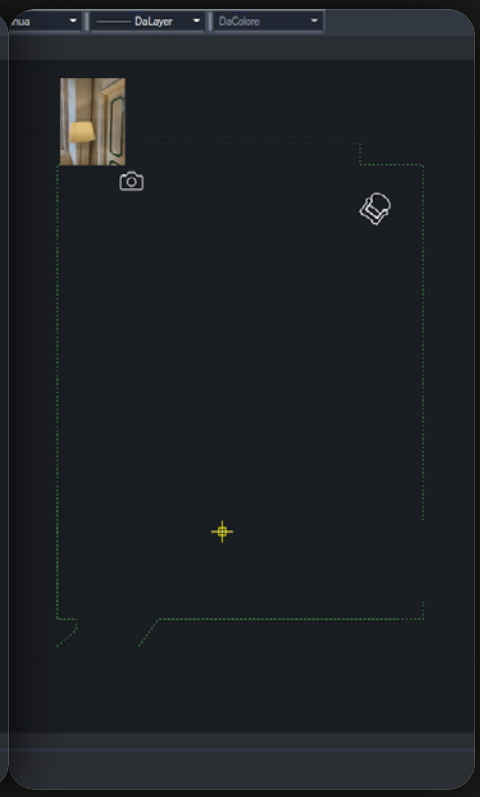
Classic



Classic + Immagini



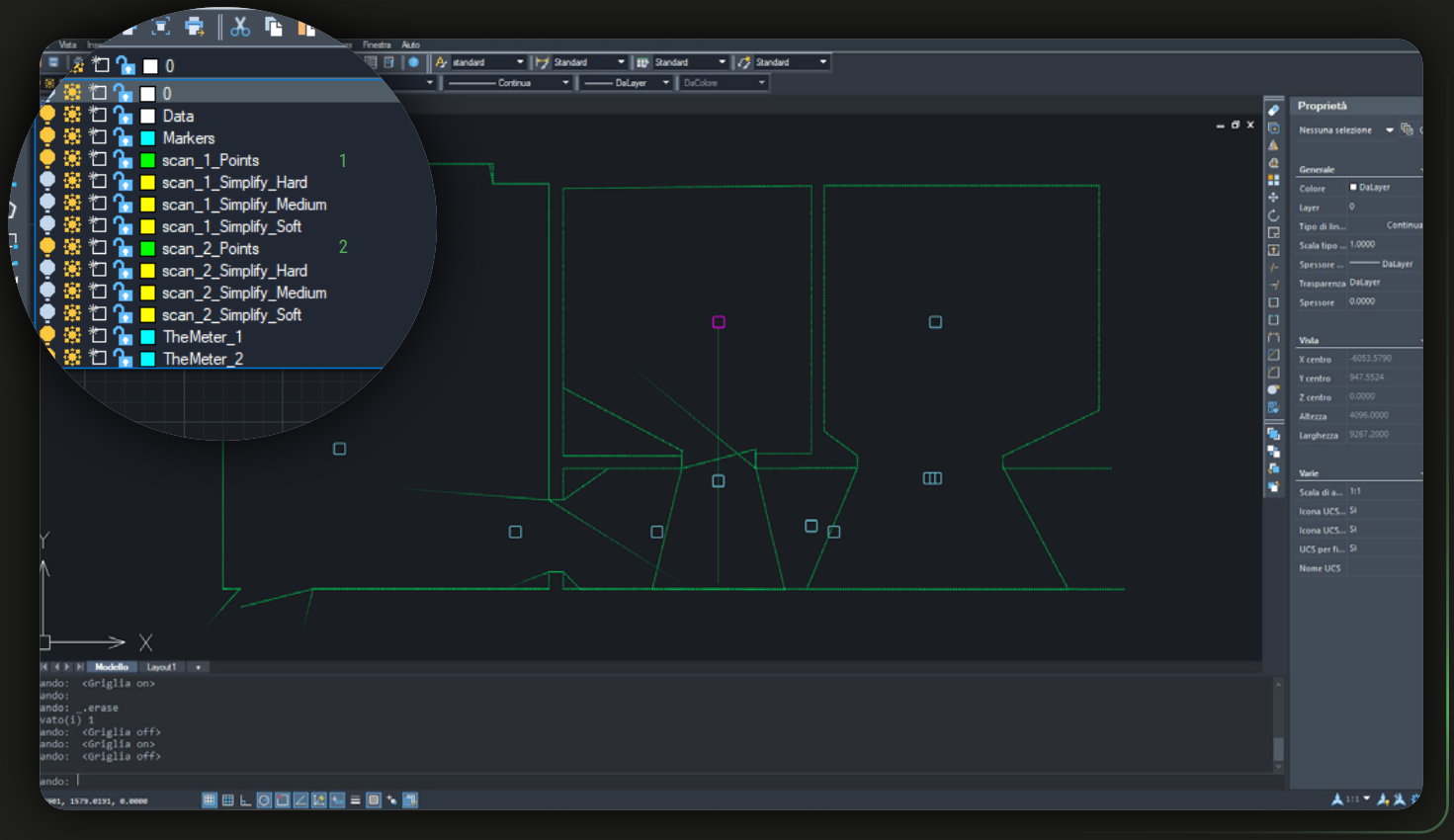
NextGen



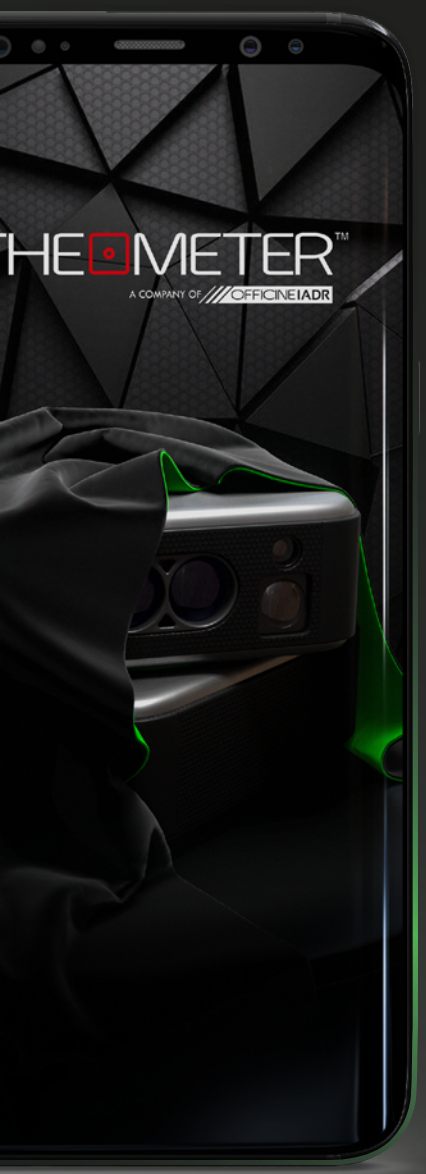
Not all CAD software correctly reads DXF files with integrated photo documentation. More details and information in the App Guide

OUTPUT

The digital floor plan of a Multiscan will contain the same division of levels,
Also identified, where necessary, by the indication of the scan
of belonging (“scan_1_Points”[1], “scan_2_Points”[2] etc.)



As with single scans “Data” contains the generic data associated with the file, “Markers” all tags added, “TheMeter” locations of **CUBE** ; You can view each scan by points in “Points” and in three polyline simplifications in Simplify “Hard”, “Medium” or “Soft”



Images used are for illustration purposes only, may differ from reality
Some features are not available in all regions.