UbiCast Advanced AutoCam Usage Guide

This documentation provides information and details about the advanced setup and usage of the AutoCam automated tracking feature. It is intended to system integrators or advanced users.

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1. Installation

1.1. Positioning the Camera

The camera position should be as on the side diagram.

The camera (2) should be set in the back of the room on the back wall (ideal height is around 2 meters) and the zoom level set so that you have the entire width of the room (or the space in which the presenter (1) will move) in the field of view of the camera. We suggest the width of the room to be between 5m and 7m for best results.
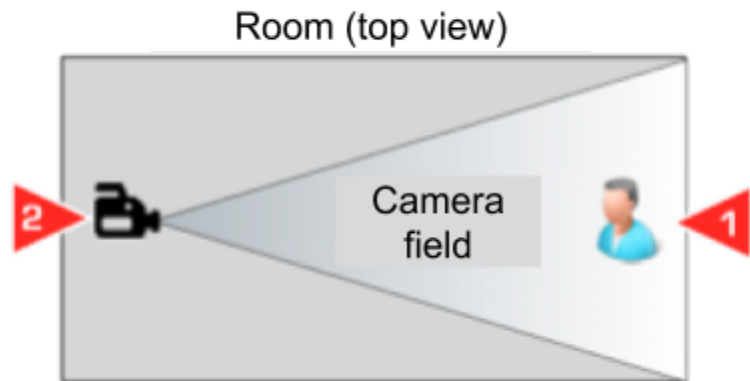
1.2. Creation of a calibration video sample

First, perform an approximately one minute long recording of the room with a person moving in all areas of interest of the room (eg desk, platform, ...).

From the home page, go to Publish, select the video that you just created, and then click on the Tracking icon.

1.3. AutoCam Actions Menu

When entering the AutoCam framing editor, you will get the following menu:

If you have not yet configured Autocam, it is necessary to either calibrate or manually configure it.

1.3.1. Calibrate

This will launch an auto-configuration wizard which will determine acceptable settings for room. Warning: this takes time and requires your presence as you will be asked different questions to best configure your station (see Calibration chapter).

1.3.2. Configure and launch analysis

Define Autocam parameters manually. This step takes less time than the previous one but the settings are manual (see the Settings chapter).

If Autocam is already configured you can then use one of the following three buttons to go further.

1.3.3. Launch analysis

Analyze the currently selected video. Once done, you will be able to re-enter in the editor later to check or correct the tracking and launch the rendering.

1.3.4. Launch analysis and rendering

Analyze and create a rendering in one pass. You will be able to re-enter the editor later to correct the tracking.

1.3.5. Skip analysis

Let you skip the analysis step so that you can manually frame the camera. This is useful if the speaker did not move at all (e.g. sitting at a computer or standing behind a desk) and you want to spare the analysis time.

You can check the "Remember this action" button in order to skip this part.

1.4. AutoCam Calibration

When pressing Calibrate, the video will be analyzed once, then the following menu will appear. This process will take 8 steps.

Select the detected, static non-human objects, and blacklist them. To do this click on/touch each unwanted objects (they should get a white highlight) and select the "Blacklist" button.

Warning: shadows could be detected. Only select fixed items like posters.

After blacklisting the objects, only people should be displayed in the remaining objects list.

Once it's done select "Apply".

You'll land on the step 3 of the Autocam calibration process.

The red area in the preview picture is corresponding to the part of the image you want to work on.

The green area represents the portion of the image in which people will be searched for. Setting this field allows both to increase the speed of analysis and also to avoid detecting members of the audience (false positives).
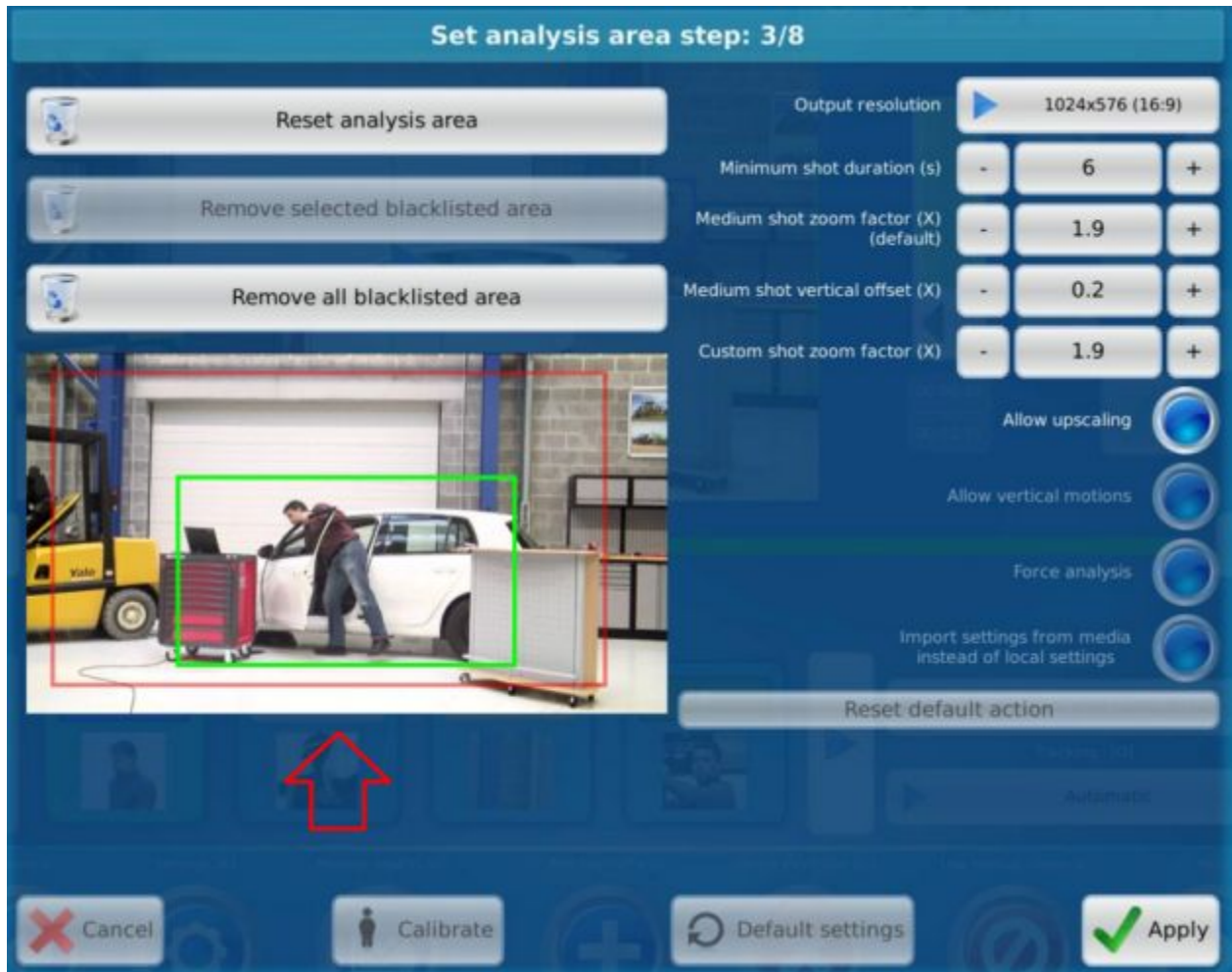
As the analysis algorithm is searching for the upper body shape, for futher optimization so you can make the area slighly smaller.

Here we refined the analysis area so that it doesn't look for people around the edges. Note that the rectangle ends slightly above the waist.
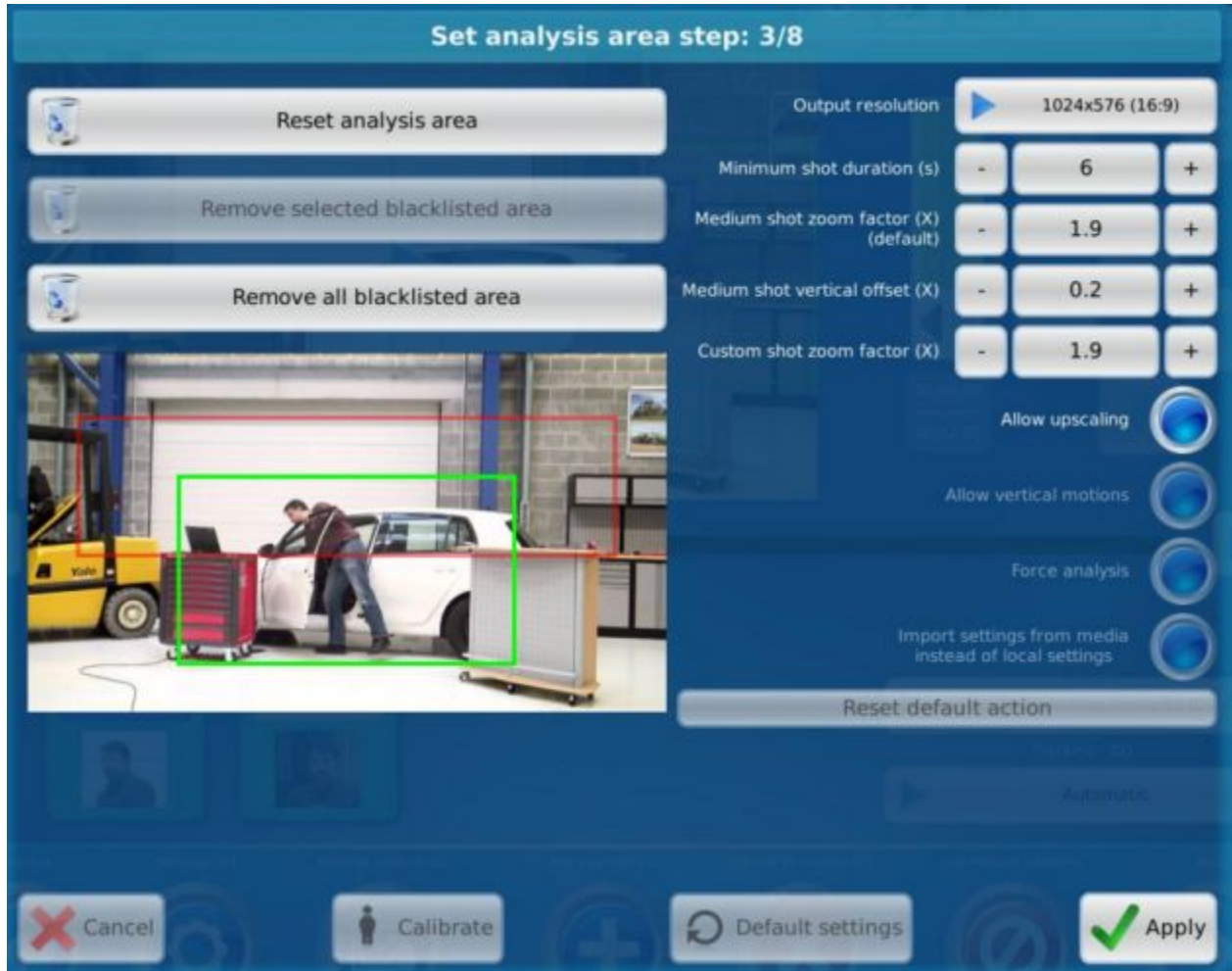
Click apply. The video will be re-analyzed using this setting.

If some remain, you need to re-ban non-human objects. Sometimes Autocam detects non human objects during more than eight steps and the process can apply to more than this (step 10/8 by example).
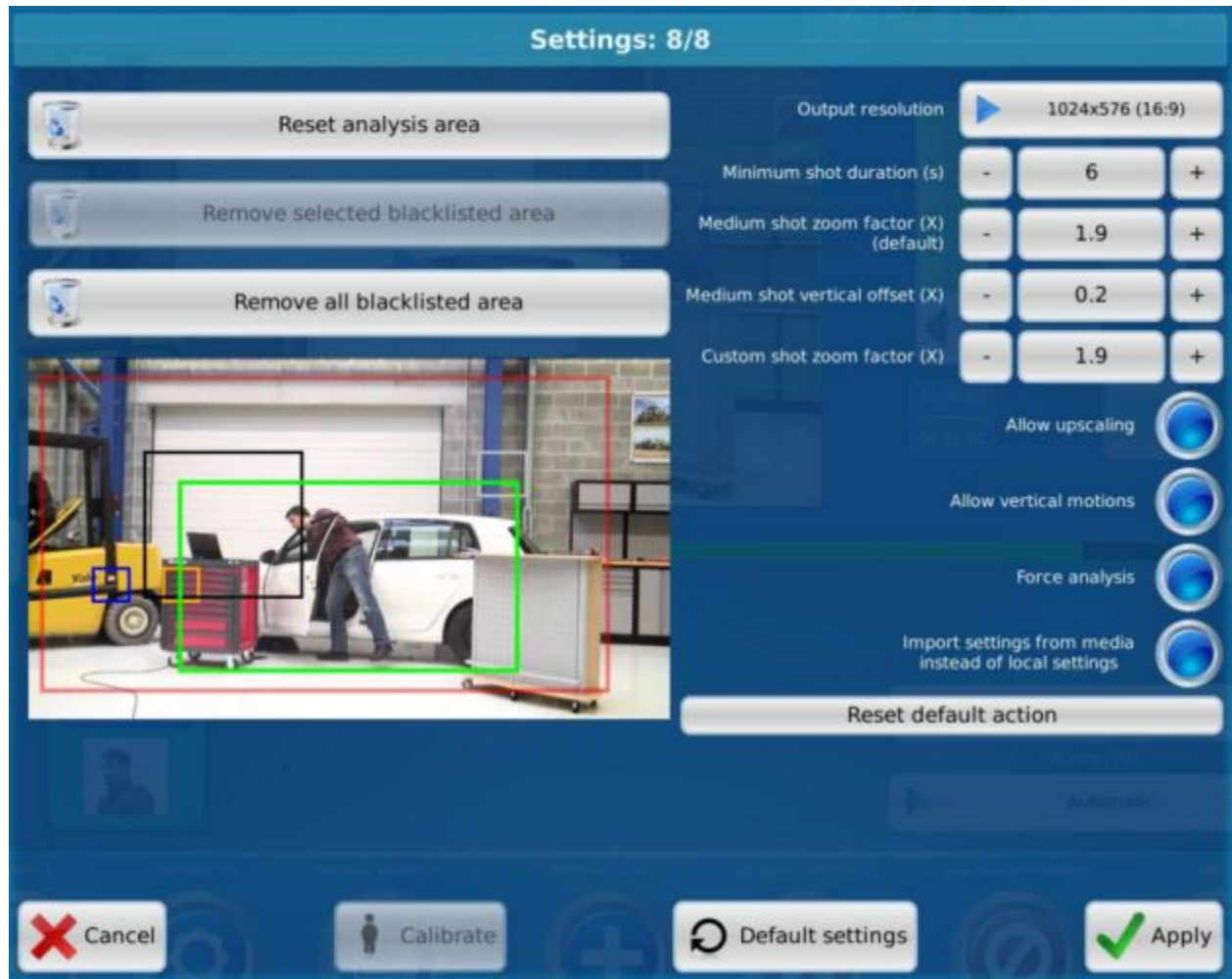
Once this is finished, the settings panel will appear, allowing you to see the results of the calibration and adjust them if necessary.
Black and blue frames are detected but ignored zones.

1.5. Settings

To access the parameters, you can either enter the editor and hit "Settings" the settings button or directly launch "Configure and launch analysis" from the initial action menu.
If you want to relaunch the calibration process just use the "Calibrate" button.
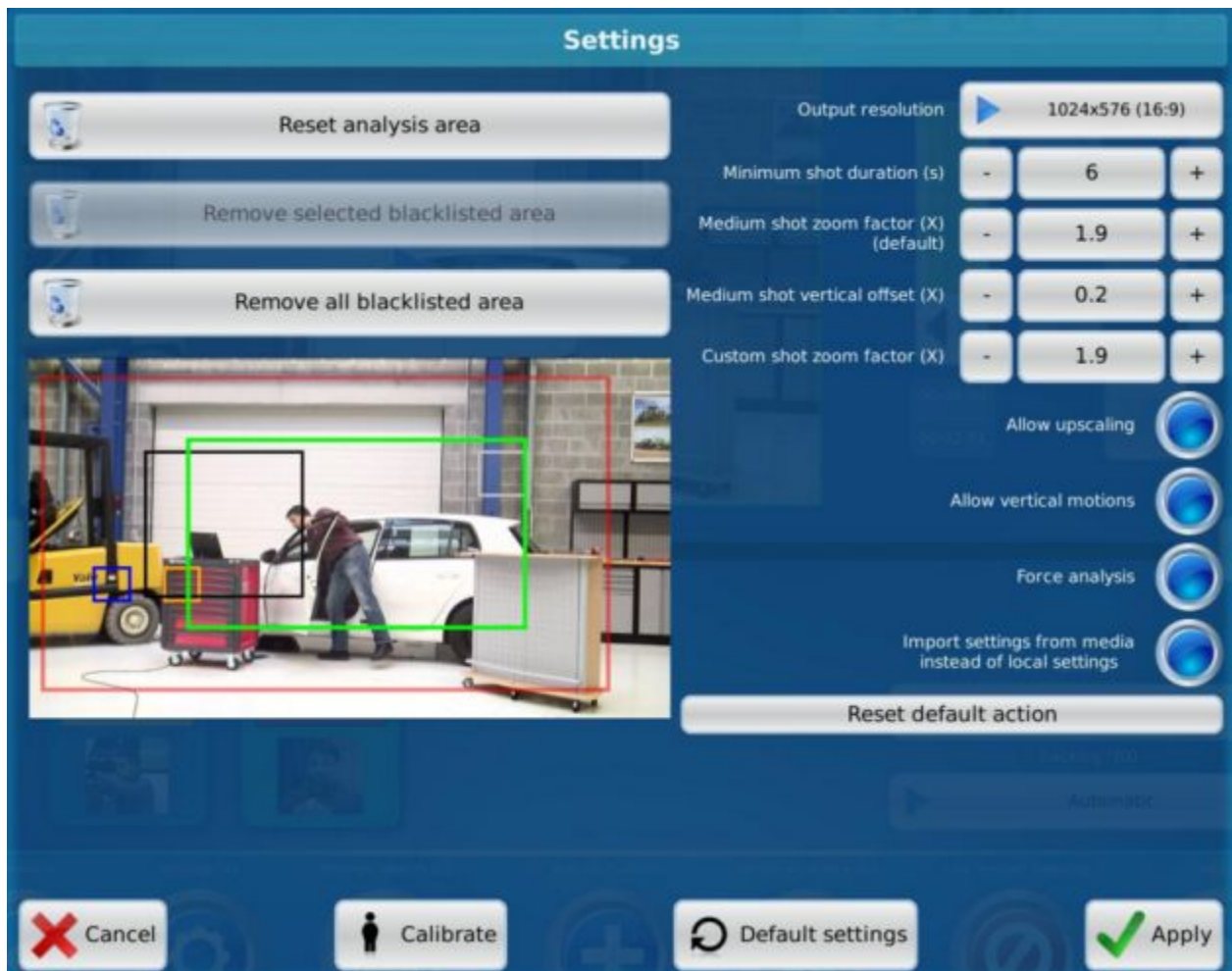
1.5.1. Reset analysis area

Resets the red rectangle to occupy the whole frame; as a reminder, this rectangle is the actual portion of the video frame which will be analyzed for presenters to track.

1.5.2. Remove selected blacklisted area

If a calibration has been done, and some static objects have been banned, then this button (after selecting the banned area) allows to remove selective banned objects.

1.5.3. Remove all blacklisted area

Removes all banned/blacklisted areas.

1.5.4. Use saved settings

If enabled, the AutoCam editor will look for settings embedded in the media folder instead of relying on the system values; this is especially useful with the UbiCast Campus solution where every recorder will transmit it's own settings; this means that when editing on the central editing system, the tracking editor will apply the room-specific options defined on the recorders.

1.5.5. Output resolution

Actual rendering resolution of the video output generated by AutoCam; note that the bigger the resolution, the smaller the zoom level (except if upscaling is allowed). You can increase this value to increase the size of the green window.

1.5.6. Minimum shot duration

In seconds, minimum time between two framing changes; this acts as a time filter, preventing very short framings which are both useless and unaesthetic.

1.5.7. Medium shot zoom factor (x)

Defines the default zoom level (in magnification times) of the framing.

1.5.8. Vertical offset from the median

Set the height of the plane used by default. Change this setting if you find that there is too much space between the top of the head of the person and the top of the green box or conversely if the head is cutstretch.

1.5.9. Custom shot zoom factor (x)

Defines the zoom level (in magnification times) of the manual framing for the "Custom Shot" preset. A green box appears over the preview picture when you change this setting to give an indication of the zoom factor.

1.5.10 Allow upscaling

If it is active, it allows you to zoom more than the native resolution of the video. Change this setting if after zooming up through the magnification parameter personalized plan and you find that the plan is still not enough zoomed. Warning, this may deteriorate the quality of the rendering of Autocam analysis.

1.5.11 Allow Vertical motion

If active allow the video to vertically move in the defined frame (useful if the subject is sat behind a desk and need to stand up to write on a board by example)

1.5.12 Force analysis

You can force Autocam to analyze the new video search for individuals.

1.5.13 Allow Vertical motion

When you are working with Nodes or other machines in your UbiCast solution it allows Autocam to avoid the whole calibrating process and keep the settings already in place.

1.5.12. Calibrate

Recovery tool calibration

1.5.13. Default settings

Réinitialize all the parameters to the default values.

1.5.14. Apply

Validates your modification, if necessary (change of the analysis area for example) a new analysis will be required if all the movements to be calculated again. Warning this will erase the changes you have made in the editing page Autocamobjects.

2. Autocam editor

2.1. Objects Manager

When you go to the edit page of Autocam after analyzing a menu will appear to show you the people to follow or not detected.

2.1.1. Object types

There are several types of objects, signaled by the background.

Green background: Indicates objects that are monitored.
Transparent background: these items will not be taken into account for the calculation of motion.
White glow: These are the objects that you have selected by clicking.

2.2. Example

Here we do not want to follow the second subject involved in the video that has a green background. Select it then. It will be highlighted in white. Press "Ignore". The thumbnail becomes transparent and you won't be able to select it.
Still focusing on the exemple above you can notice that we have two objects showing the same subject. Select both and click "Join". Now the objects are merged into one only selectable object. You just need to select it and hit "Track" to enable the automatic following.

NB:
- It is not necessary to merge all the elements. Even if merging objects reduces computation time this can lead to errors like integrating an unwanted object (rarely).
- Do not hesitate to select only the thumbnails where the subject you want to track appears clearly in the middle. It is better to have a global shot of the subject instead of a too much narrowed thumbnail of it.
- If the calibration has already been done before, you won't have many objects in the "Objects manager" (ideally just one, the subject you need to track). Do not hesitate to recalibrate the station if needed. (See the [Calibration chapter](#))
- If members of the audience appear in thumbnails, do not hesitate to change the area of analysis (see the [Settings chapter](#))

Once all the desired subjects have a green background and the others are transparent press "Apply".

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2.2. Autocam editor

2.2.1. The video player (1)

It contains different rectangles:

- The green frame is the final rendering is the video. The subject will evolve in this frame and the software will follow it using this window but without going out of the red frame defined in the settings.

- Other colored frames correspond to those found

2.2.2. Timeline (2)

The timeline shows the different types of markers:
- red markers correspond to markers manually added via the add keyframe button
- green markers represent a change in zoom level
- the green color portions of the timeline shows the limits within which we work

Arrows on either side of the timeline used to navigate from one marker to the other persons.

2.2.3. The list of objects (3)

This section shows the list of detected now current (cursor on the timeline). If the person's photo is highlighted in green, they are followed, in the opposite case (no color), they are ignored on the portion of time in question. You can at any time change the people followed. These changes will be taken into account from the previous marker until you change the selection. If there were no other changes later this selection will work for all the rest of the video. To de-select a person for the duration of the video it is better to go through the panel "object management" (see [Objects Manager](#)).

2.2.4. Zoom level (4)

This button allows you to change the zoom level for a desired period ie the last marker to the next marker. We have the choice between three levels of zoom: wide shot, midplane (the default) or individual plan. (To adjust the zoom level different settings see chapter) tracking.

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2.2.5. Disable tracking (5) and (6)

This button turns off the tracking of a desired period ie the last marker to the next marker. You can move the cursor using the arrows to the right of player and adjust the zoom with the + and - buttonsbar.

2.2.6. Action icons
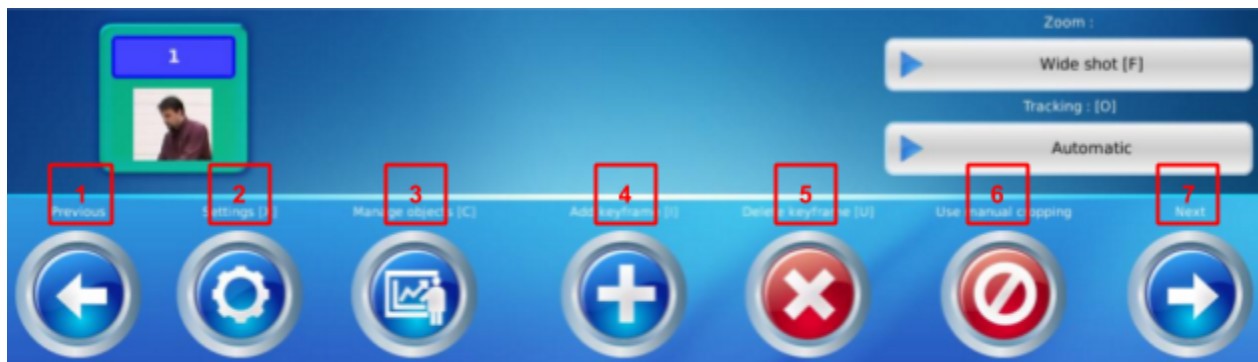
Previous (1): cancels any changes made in "Settings".
Settings (2): opens the Settings menu (see Settings section).
Manage objects (3): opens the objects management menu (see Object Manager)
Add keyframe (4): adds a red marker. This will edit later a portion of the video (if a demonstration is made, then you can disable the tracking via the deactivation button and adjust the tracking manually to track an object in the demonstration).
Delete keyframe (5): remove a keyframe detected or manually entered
Manual crop (6): Will delete all tracking information of the video that whether the detected movement as well as individuals. You can use it if the speaker doesn't move from his desk, so you can set a unique frame of capture.
Next (7): allows you to exit the page by saving the results, if you want to continue to set the tracking later.

2.2.7. Keyboard controls

You can control the editor using the keyboard:

Controls the video player:
Play / Pause > Space
Jump to Start > Home
Skip to end > End
Rewind 30 min > Down arrow
Rewind 5 min > Left arrow
Rewind 10s > a
Rewind 1s > z
Forward 1s > e
Forward 10s > r
Forward 5 min > Right arrow
Forward 30 min > Top arrow
Go to previous keyframe > j
Go to previous zoomframe > k
Go to the next zoomframe > l
Go to the next keyframe > m

Controls the editor of Autocam
Open settings Autocam > x
Open menu management objects > c
Changing the type of tracking > o
Selection Plan custom > s
Selection Planofmedium
Selectionthewide shot > f
Move rectangle manual > numeric keypad arrows
zoom rectangle manual > + (on the numeric keypad)
Manual Zoom out rectangle > - (on the numeric keypad)