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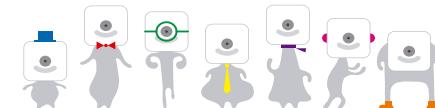


1. Outline



- The Basic Operations App Guide provides information on how to use the Basic Operations App for HVC-C2W.

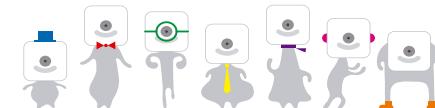
- The features included in the Basic Operations App are **Customer Analysis**, **Face Counter**, **People Counter**, **Individual Recognition** and **Access Monitoring**.



2. Items to Prepare



- HVC-C2W (B5T-003001)
- One of the following:
 - iOS device
 - Android device

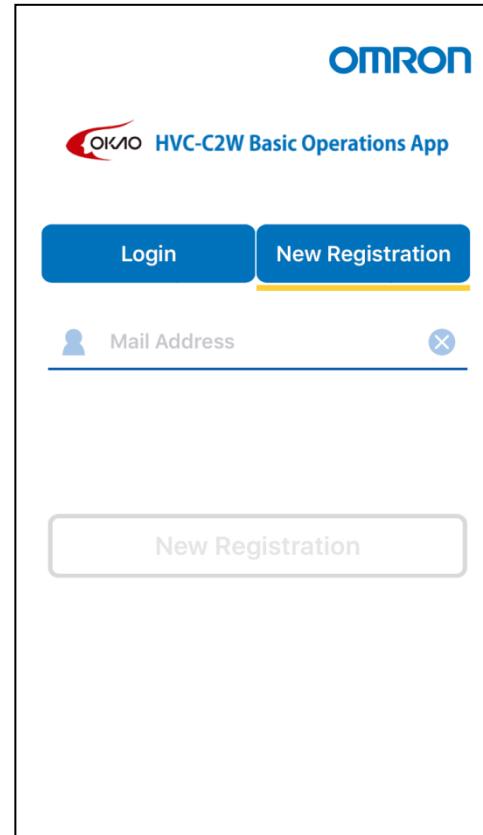
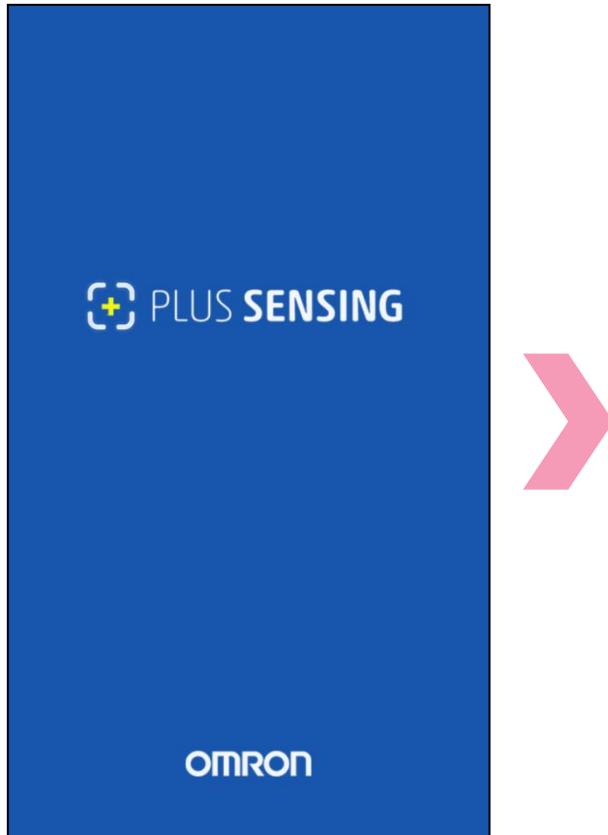


3. User Registration



- ① Register to use the Basic Operations App.

The user registration screen will be displayed when starting the app. The registration process is as follows.



- ② Input your email address and select “New registration”.

- ③ Make sure to set your email account to be able to receive messages from “noreply@hvc.omron.com”.

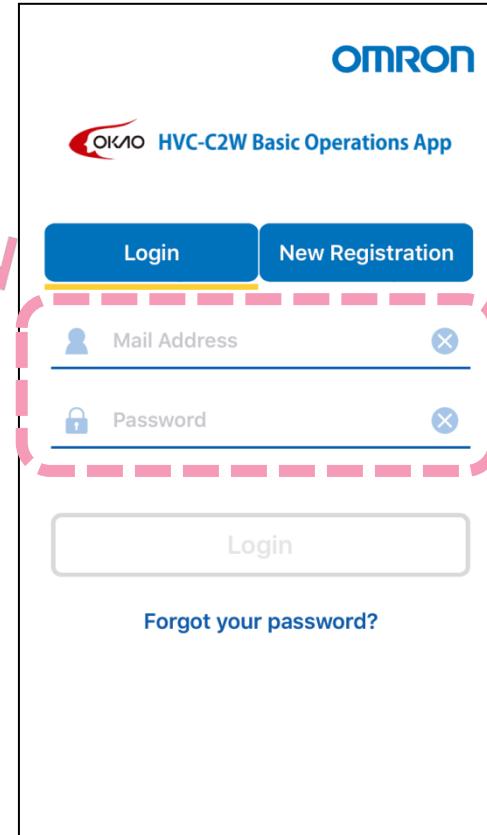


4. Login

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- >Login to use the app.

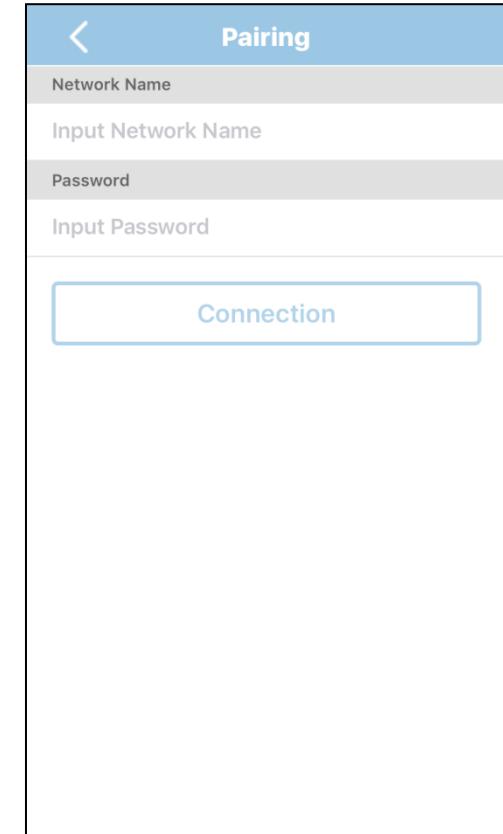
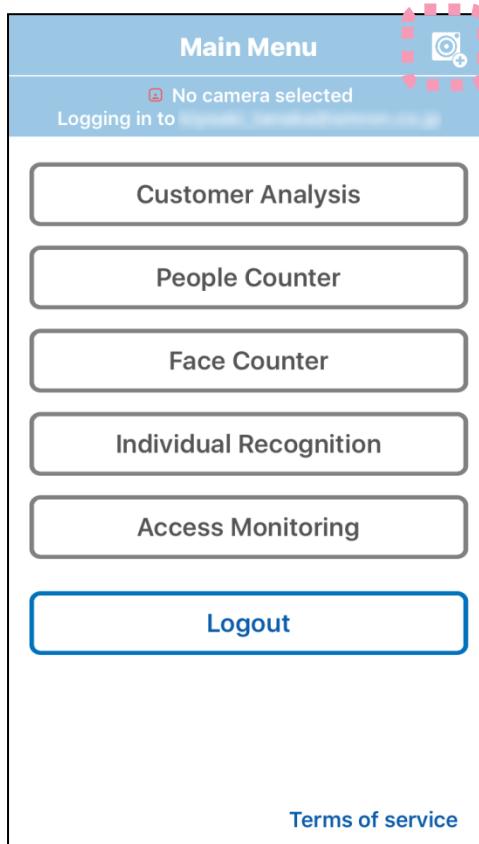
Type the login password received at the registered email address and select “Login”.



5. Connect Camera

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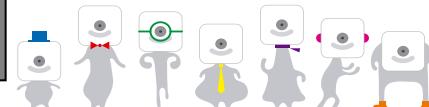
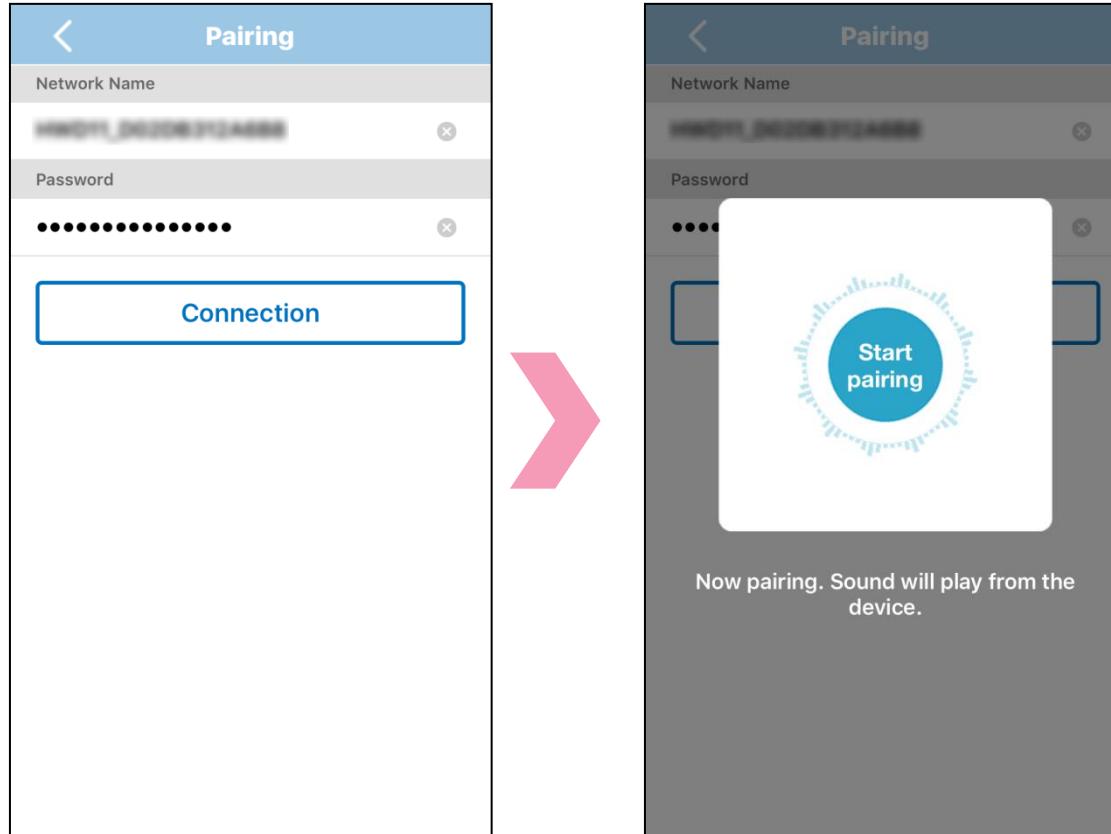
- Input your home network info.
Press the camera  icon and select “Add camera”.



5. Connect Camera



- Pair the camera with the app on your device. Type the network name and its password, then press “Connection”. The screen on the right below will be displayed.



5. Connect Camera

OMRON

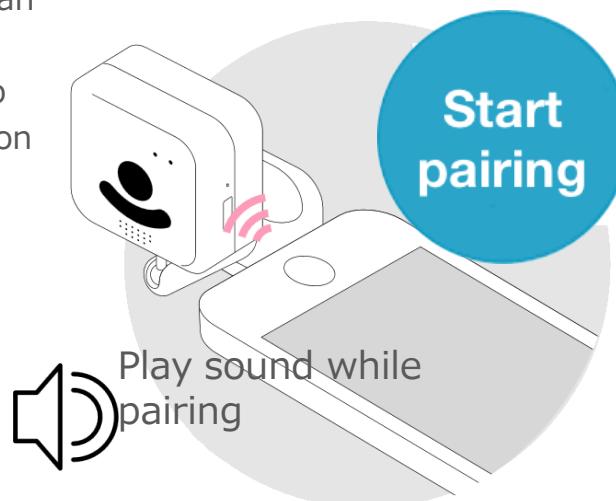
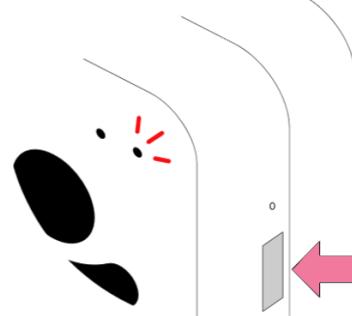
- Pair the camera with your device.

Press the function switch and wait for the LED to flash red before pressing the  button.

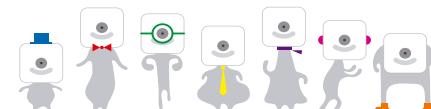
※ A loud sound will be played so make sure to adjust the volume.

Press the function switch for more than 3 seconds. The LED will flash red.

※ Wait 30 seconds after powering up the unit and wait for the preparation sound to end before proceeding.



The pairing sound will be heard from the device.
The camera will recognize it and pair with the app on the device.



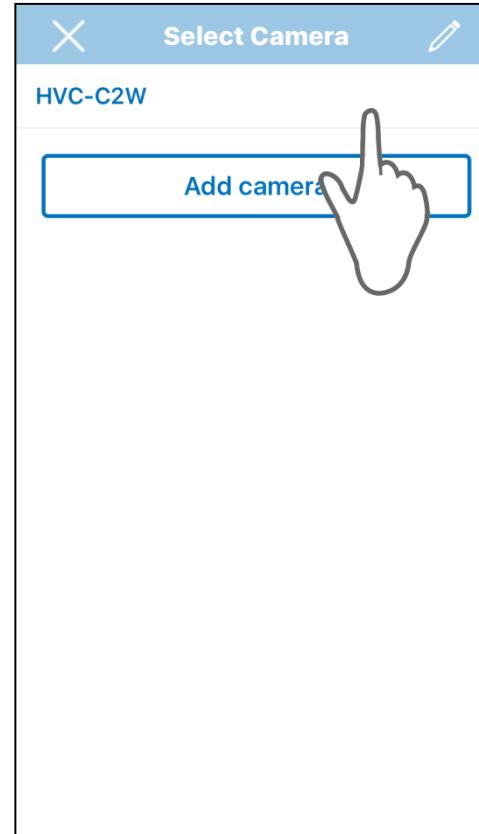
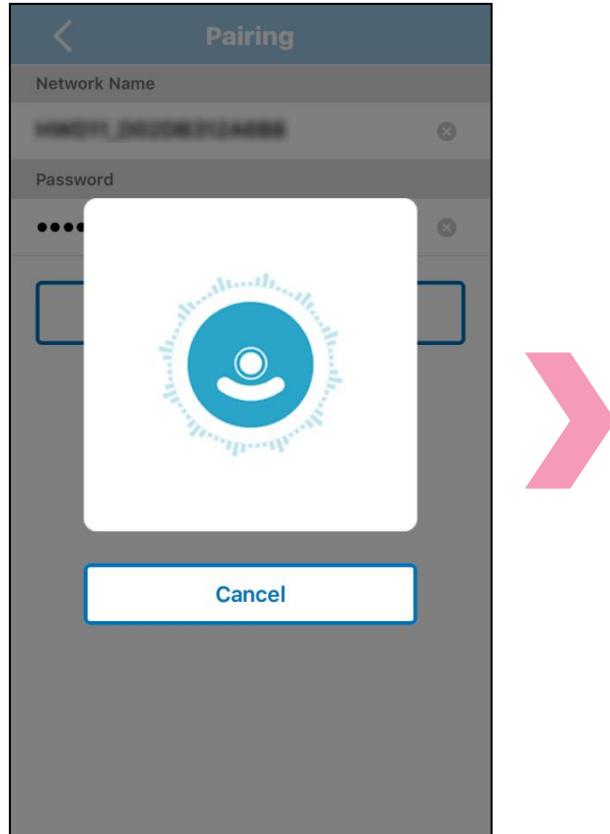
5. Connect Camera

OMRON

- Select a camera to be used.

A sound will be played when the pairing is complete and the LED will be lit green.

※If the LED is lit red, redo the pairing process.



- The camera will be added to the camera list when pairing succeeds.

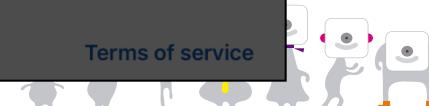
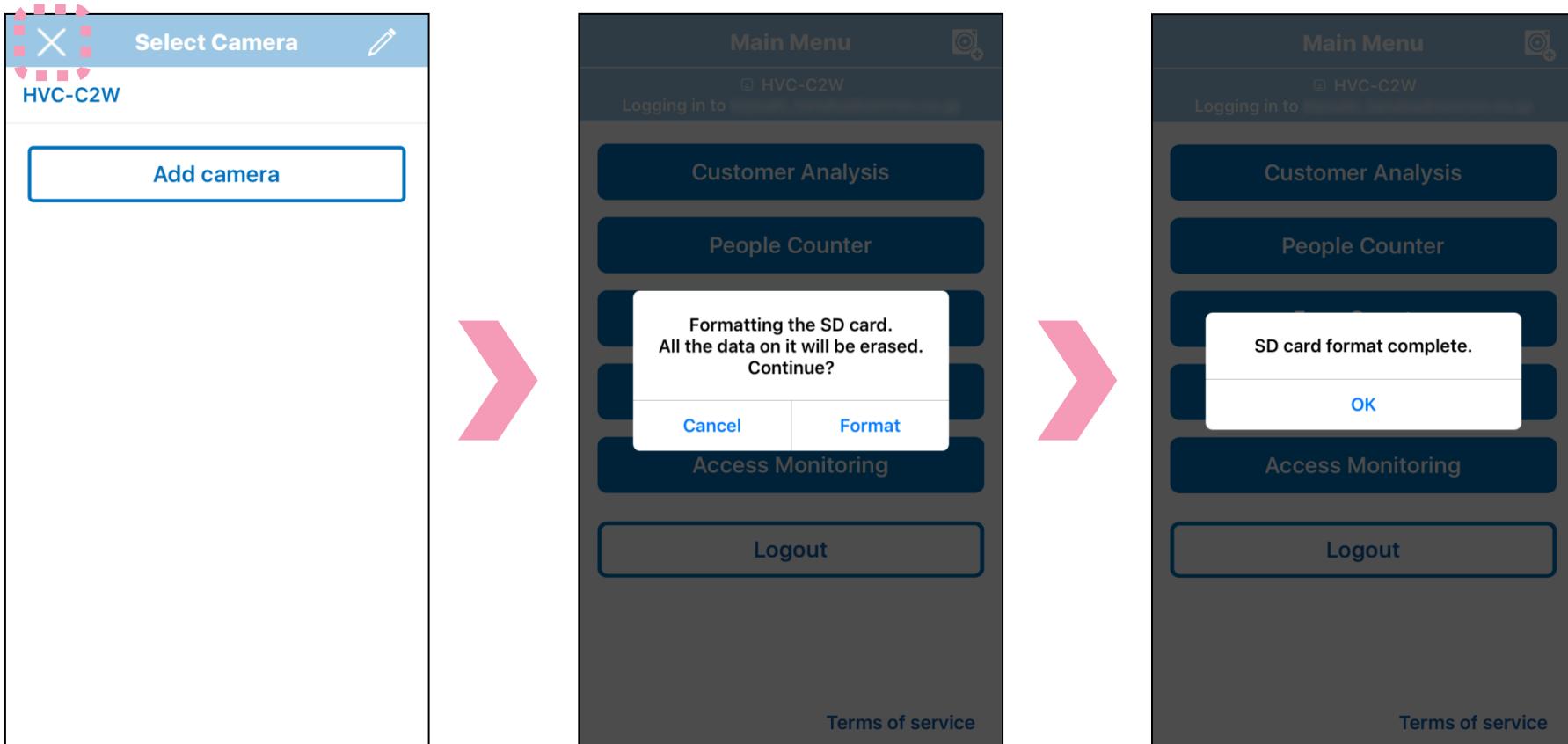
- Select the added camera.



5. Connect Camera



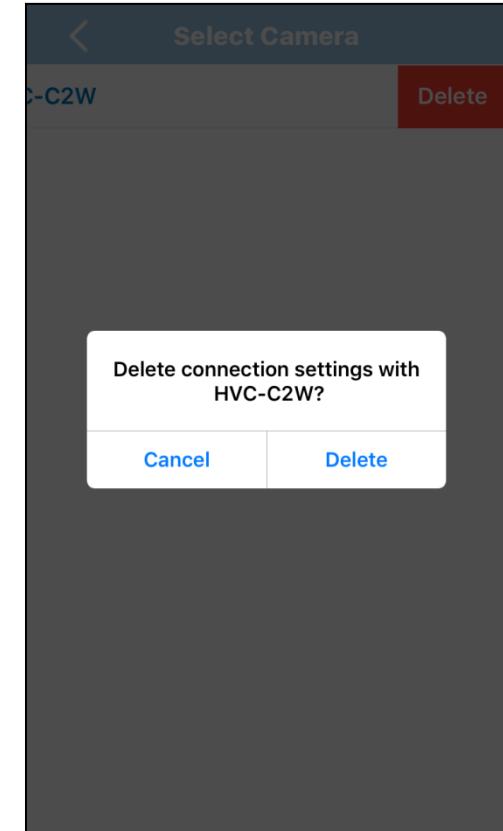
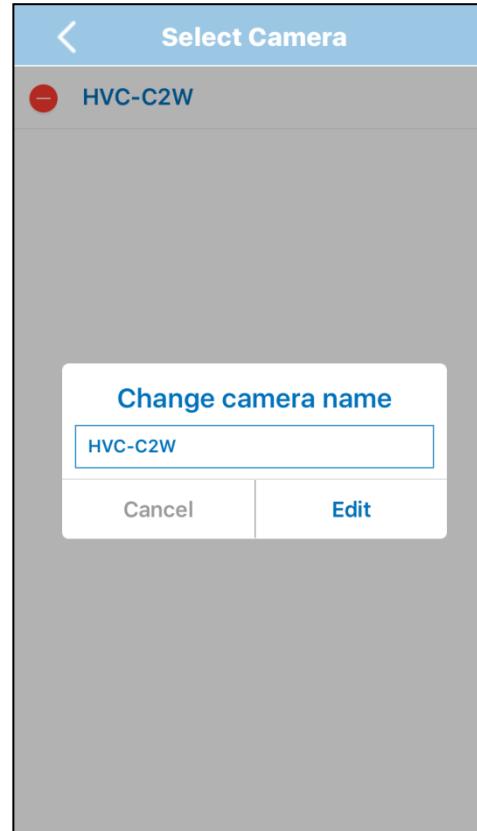
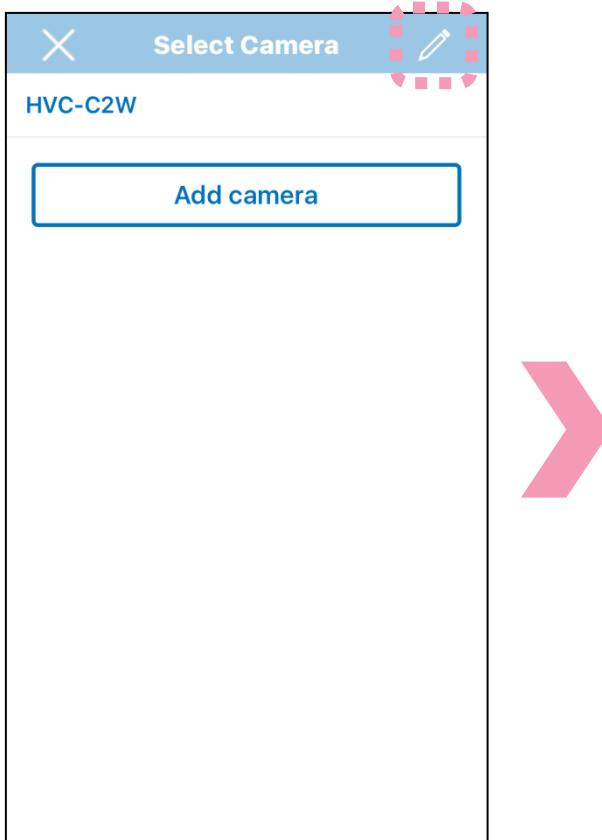
- Format the microSDHC™ card used to store images.
Return to the main screen and select “Format” from the dialog window.



6. Change or Delete Camera Name **OMRON**

Change or erase the camera name.

Press  to change the camera name and
 to delete it.

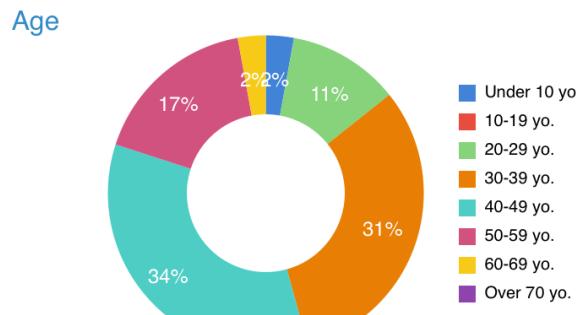
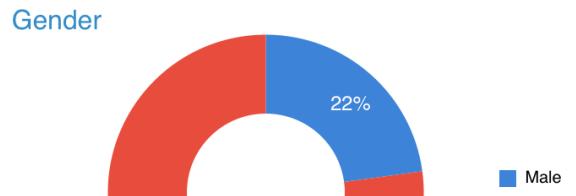


7. Customer Analysis

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- Customer Analysis will estimate the gender and age of customers and display properties estimation results.
※The numbers indicate the number of people for a category.

Graph Image



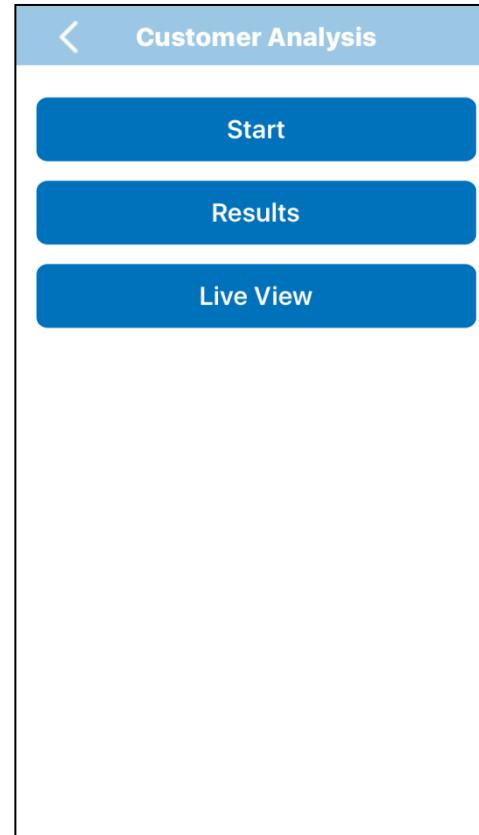
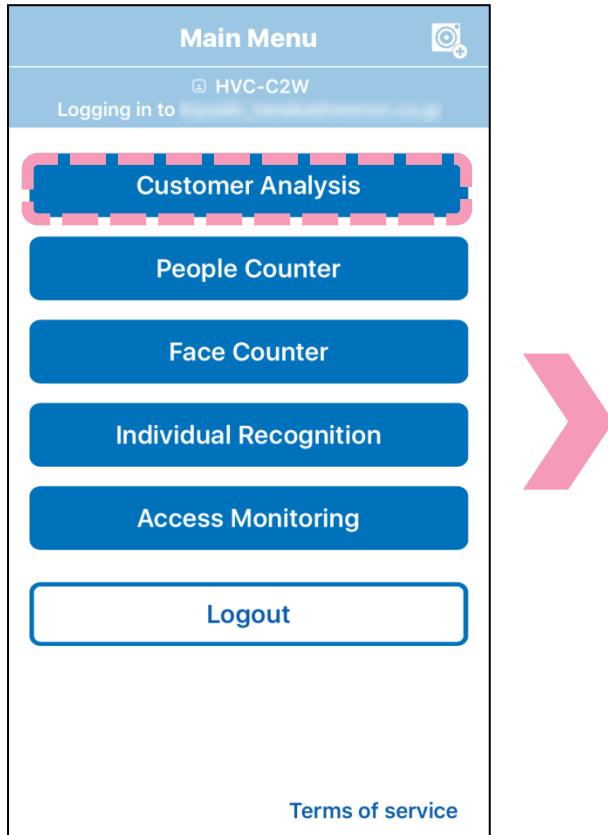
	Male	Female
Under 10 yo.	0	1
10-19 yo.	0	0
20-29 yo.	1	3
30-39 yo.	3	8
40-49 yo.	3	9
50-59 yo.	0	6
60-69 yo.	1	0
Over 70 yo.	0	0



7.1 Customer Analysis Main Screen



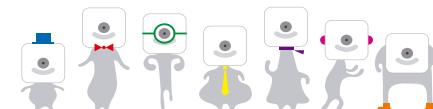
Select “Customer Analysis”.



Select “Start” to start **Customer Analysis**.

Select “Results” in order to look at past results or to send them to a different device.

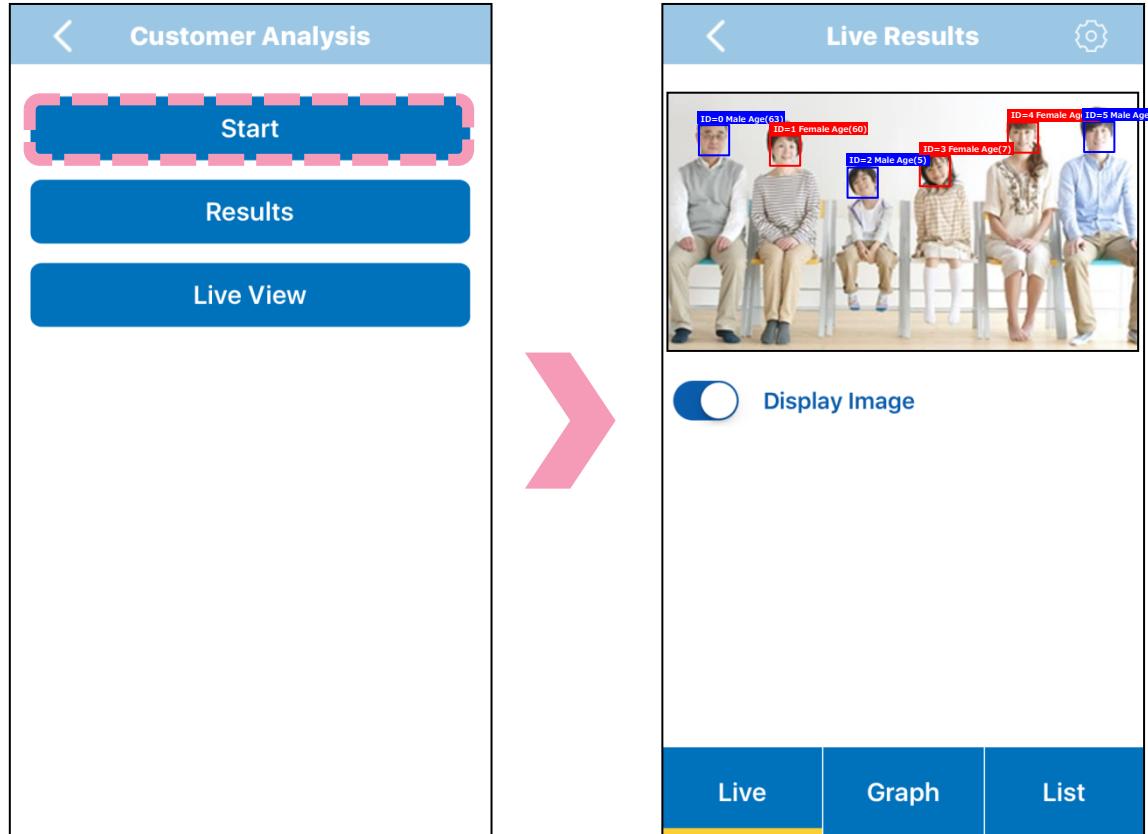
Select “Live View” to display the live camera feed.



7.2 Start Customer Analysis

OMRON

- Start Customer Analysis by pressing “Start”.



The live camera feed and the results can be seen in the “Live” tab.

The face rectangle will be white during the process before turning blue or red when the gender and age estimation process has ended.

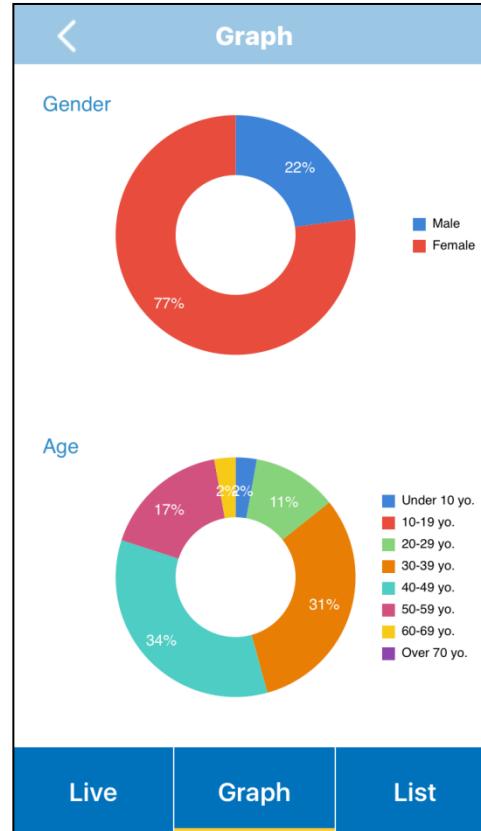


7.3 Display Customer Analysis Live Results



- Display the Customer Analysis live results.
 - Switch to the “Graph” or “List” tab to see the live results.

The screen shows a live video feed of five people sitting in a row. Each person has a blue or red box around their head with their ID and age. The IDs and ages are: ID=0 Male Age(63), ID=1 Female Age(60), ID=2 Male Age(5), ID=3 Female Age(7), and ID=4 Female Age(33). Below the video is a toggle switch labeled "Display Image". At the bottom are three tabs: "Live" (selected), "Graph", and "List".



The screen shows a table comparing the number of males and females across different age groups. The columns are "Male" and "Female". The rows represent age ranges: Under 10 yo., 10-19 yo., 20-29 yo., 30-39 yo., 40-49 yo., 50-59 yo., 60-69 yo., and Over 70 yo.

	Male	Female
Under 10 yo.	0	1
10-19 yo.	0	0
20-29 yo.	1	3
30-39 yo.	3	8
40-49 yo.	3	9
50-59 yo.	0	6
60-69 yo.	1	0
Over 70 yo.	0	0

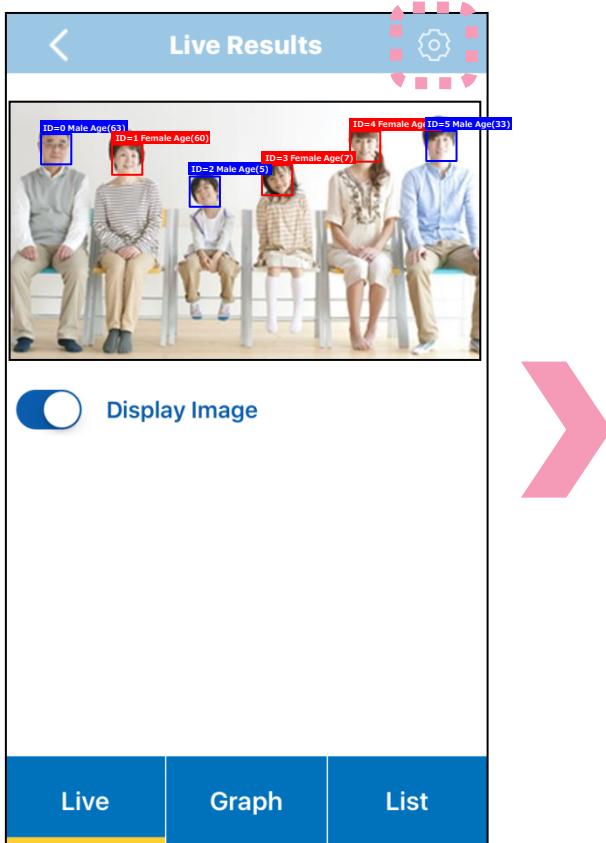


7.4 Change Customer Analysis Settings

OMRON

Change the **Customer Analysis** settings.

Press  to change the face detection and stabilization parameters.



Settings	
Face Detection Parameters	
 Min. Size	64
 Max. Size	8192
 Threshold Value	500
 Retry Count	2
Stabilization Parameter	
 Frame	5
 Min. Pitch Angle	-15
 Max. Pitch Angle	20
 Min. Yaw Angle	-20
 Max. Yaw Angle	20
 Degree of Confidence	500

Face Detection Parameters

- Min / Max sizes
Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.
- Retry count

Set the retry count. If a person is no longer displayed) but one reappears (regardless if same person or not) within the number of frames set with the retry count, it will be considered the same person. Note that a high retry count will increase the possibility of swapping individuals being considered the same person.

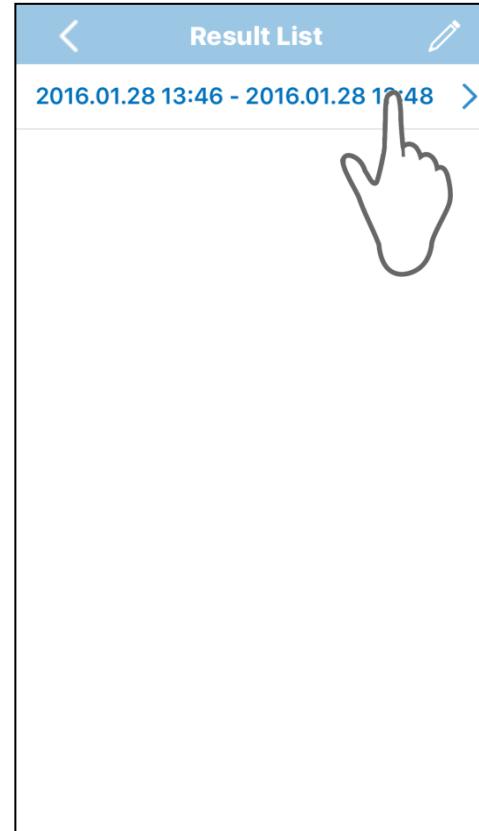
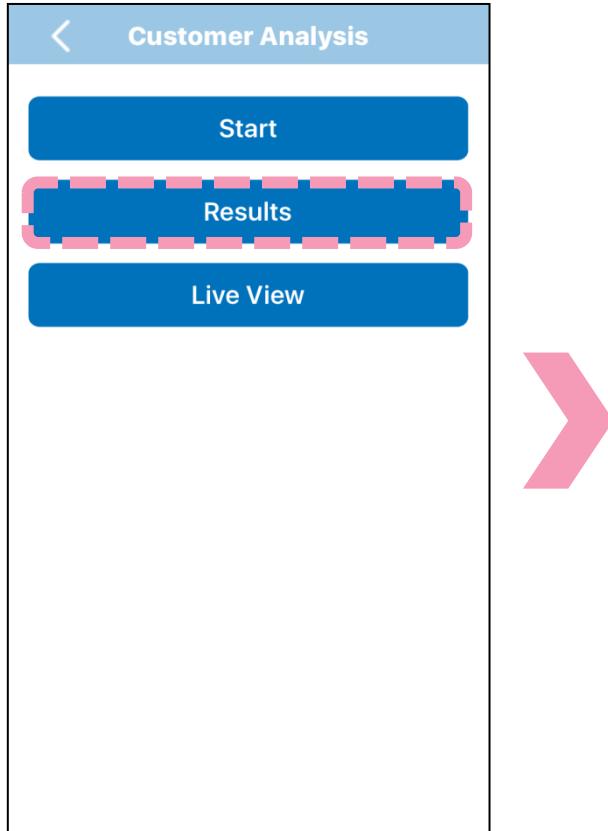
Stabilization Parameters

- Frame
Number of frames used to stabilize properties through an averaging process of past frames.
- Min / Max angles
Angles outside of the set value will be discarded in order to improve quality of the stabilization of estimation results.
- Degree of confidence
Results with a degree of confidence lower than the set value will be discarded in order to improve the quality of the stabilization of estimation results.

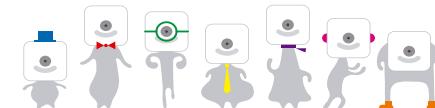
7.5 Display Customer Analysis Results

OMRON

- Display the past **Customer Analysis** results.
Select “Results” and the results to be displayed.



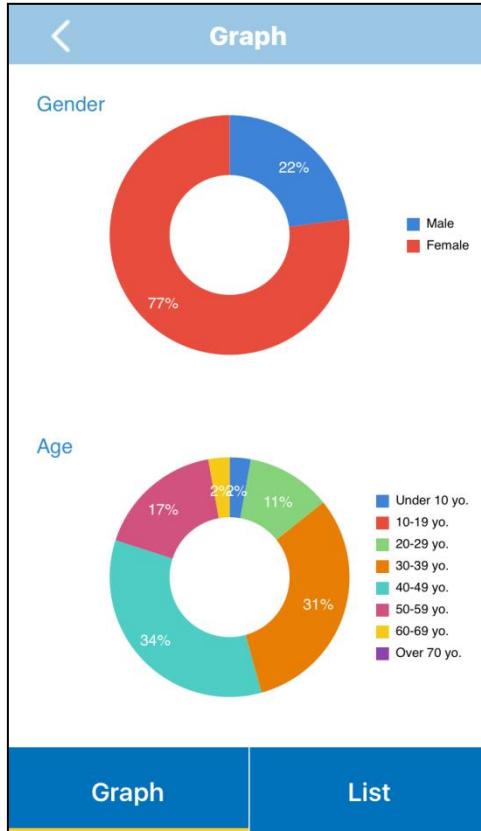
Past results will be listed with their start and end time.



7.5 Display Customer Analysis Results

OMRON

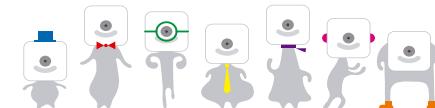
- Display the past **Customer Analysis** results.
Past results can be displayed as a graph or as a list.



List

	Male	Female
Under 10 yo.	0	1
10-19 yo.	0	0
20-29 yo.	1	3
30-39 yo.	3	8
40-49 yo.	3	9
50-59 yo.	0	6
60-69 yo.	1	0
Over 70 yo.	0	0

Graph List



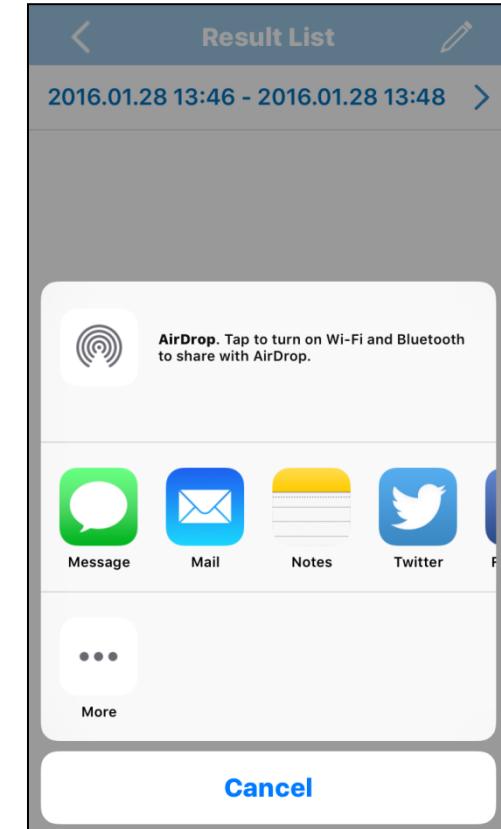
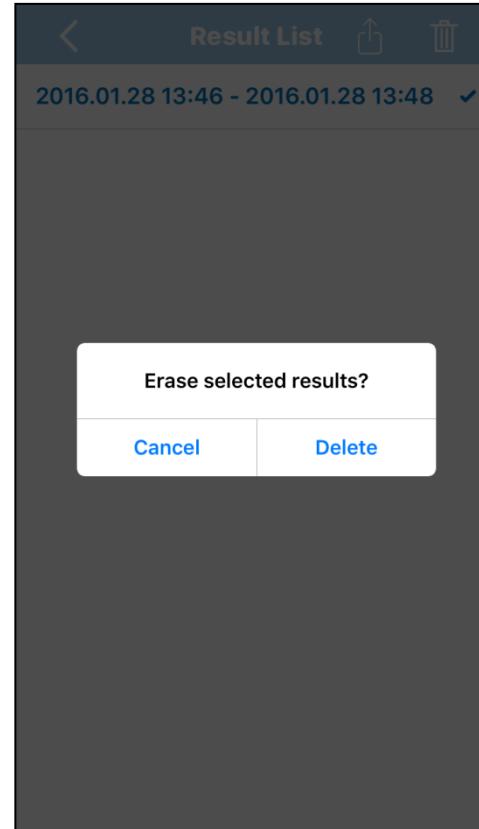
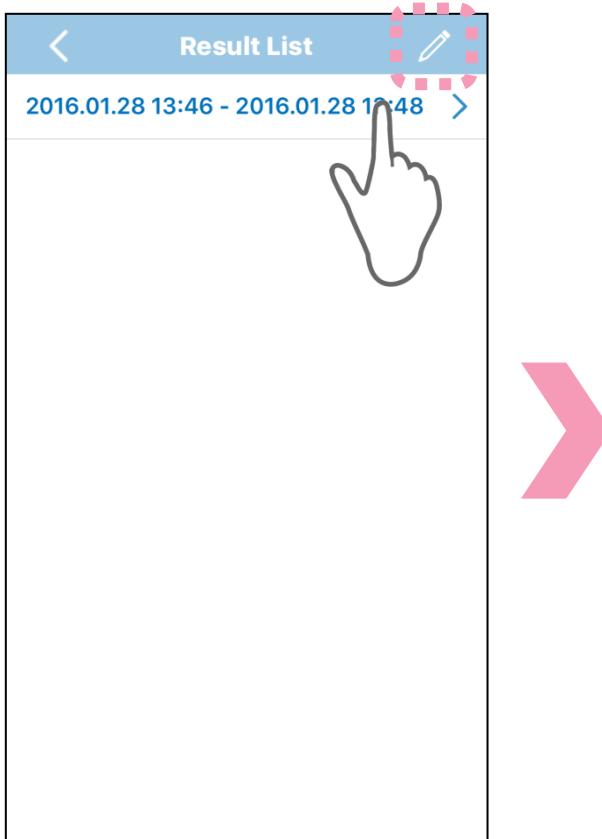
7.6 Erase or Send Customer Analysis Results

OMRON

Erase or send past **Customer Analysis** results.

Press  and select the results.

Press  to delete them and  to send them.

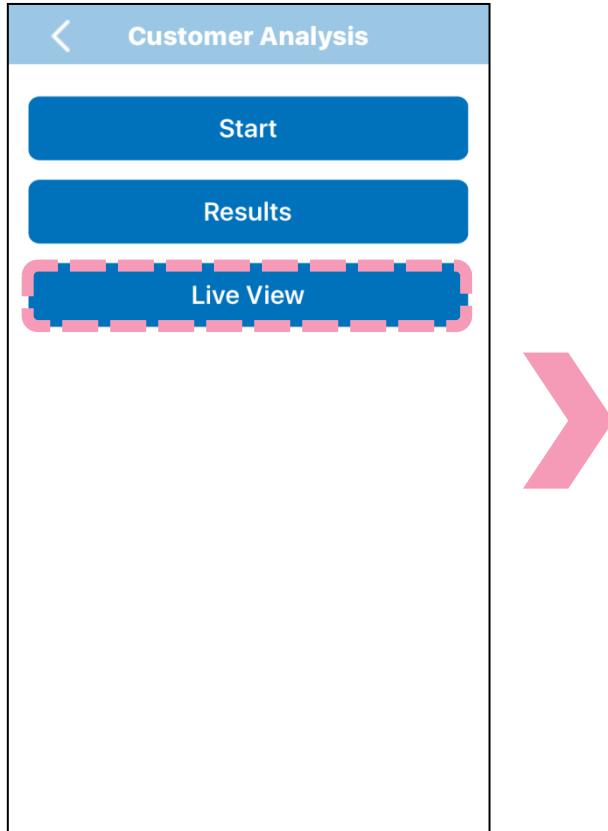


7.7 Live View

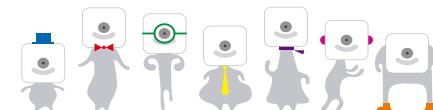
OMRON

- Turn to Live View to display the live camera feed.
Select “Live View”.

※ Specific details about Live View are not included here.



- Press to hear audio from the camera.
- Press to speak in the smartphone mic and play that audio from the camera speaker.



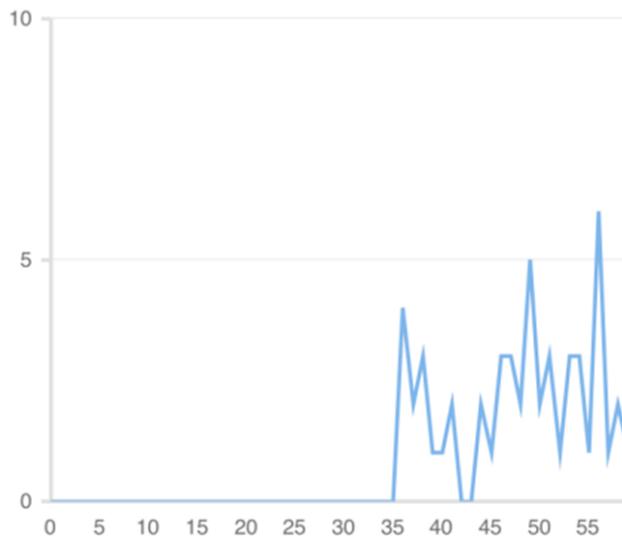
8. People Counter

OMRON

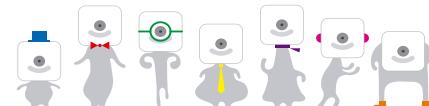
- ⌚ **People Counter** will detect human bodies and display the frequency of detection on a timeline.

※The numbers indicate the total number of people counted.

Total: 57



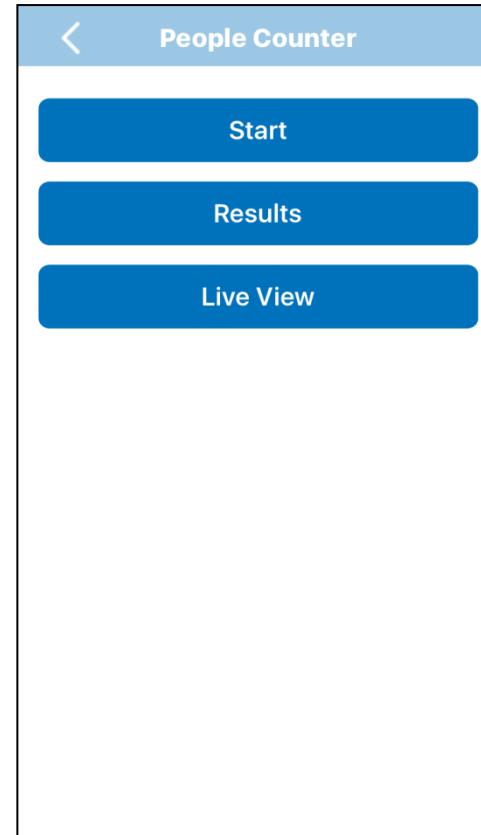
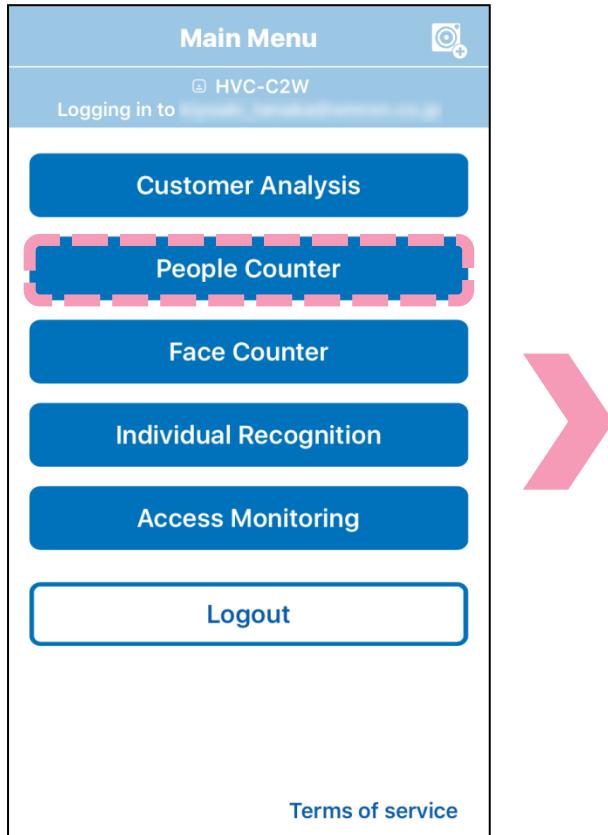
◀ 2016.01.18 14:00 ▶



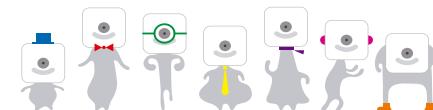
8.1 People Counter Main Screen

OMRON

- Select “People Counter”.



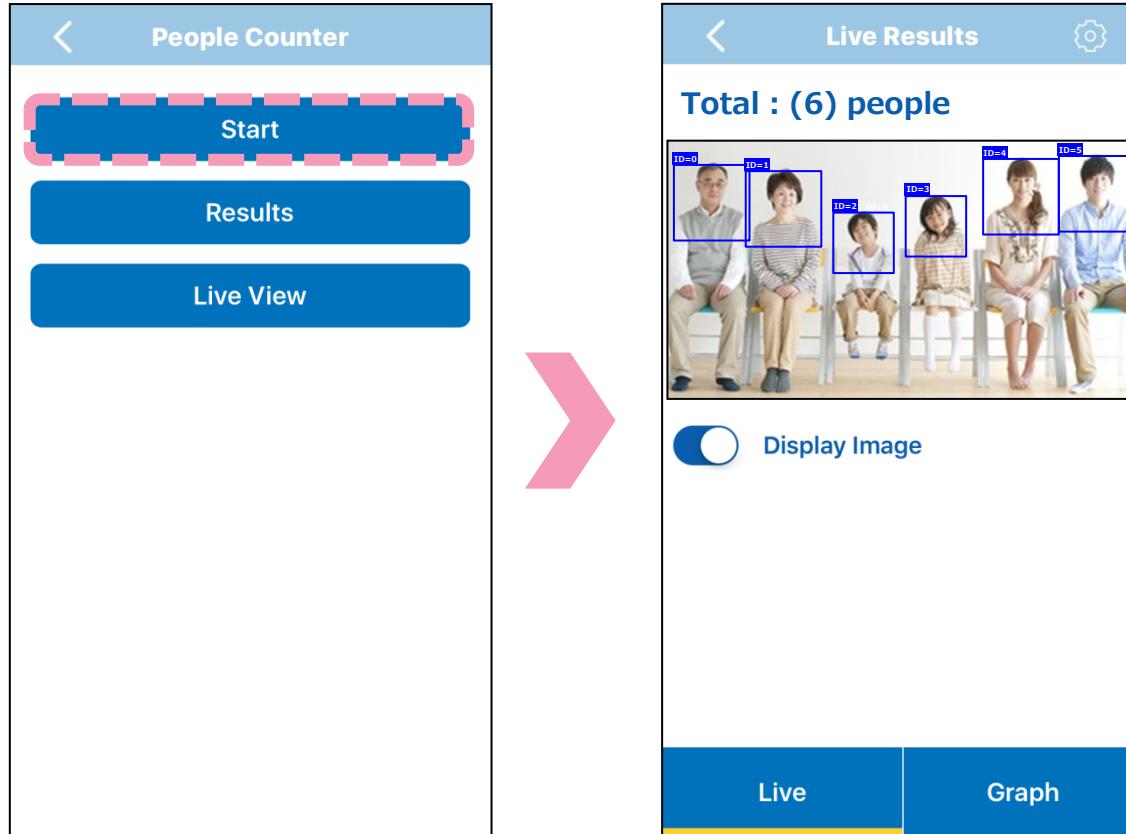
- Select “Start” to start **People Counter**.
- Select “Results” in order to look at past results or to send them to a different device.
- Select “Live View” to display the live camera feed.



8.2 Start People Counter

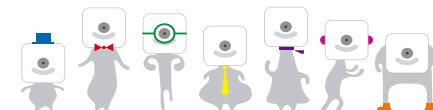
OMRON

- Start People Counter by pressing “Start”.



- The live camera feed and the results can be seen in the “Live” tab.

- The total indicates the total number of people counted.



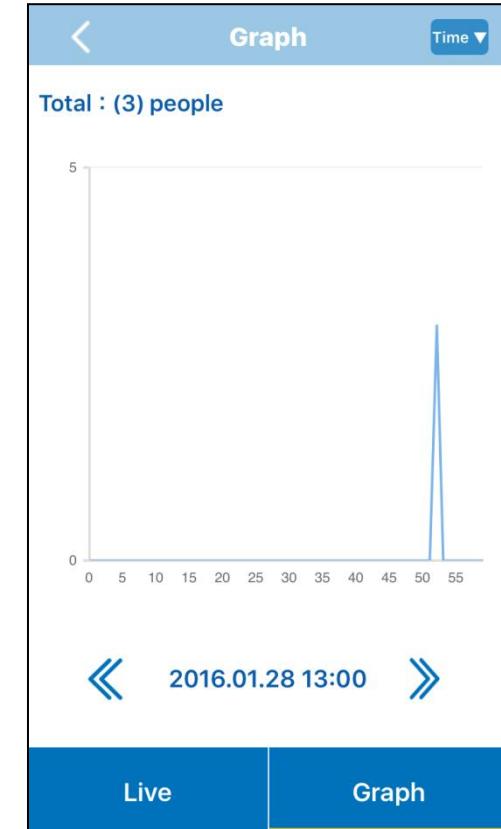
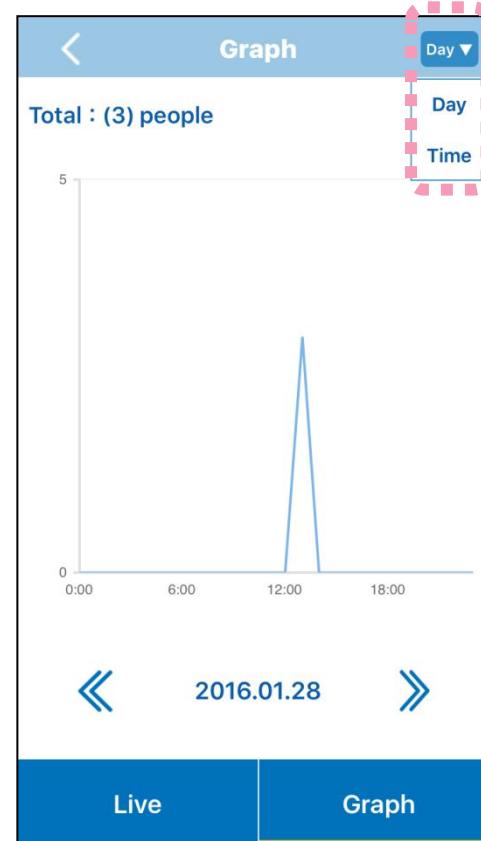
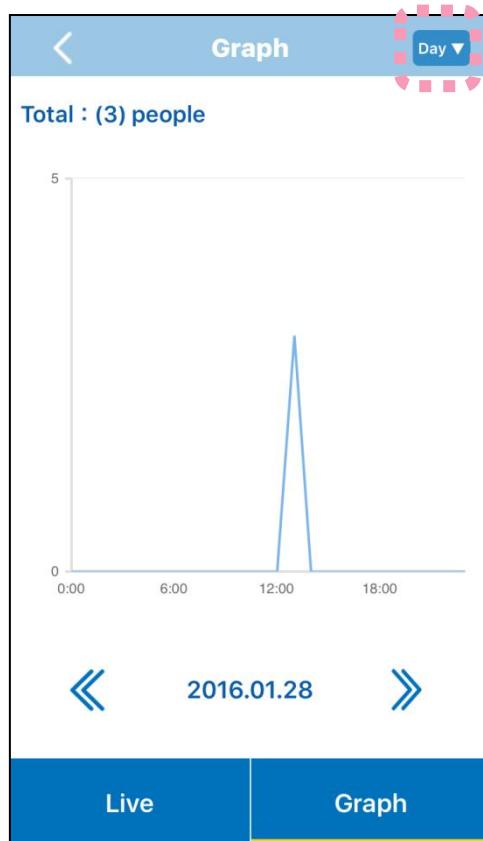
8.3 Display People Counter Live Results

OMRON

Display the **People Counter** live results.

Switch to the “Graph” tab to see the live results.

Results can be displayed by day or time.

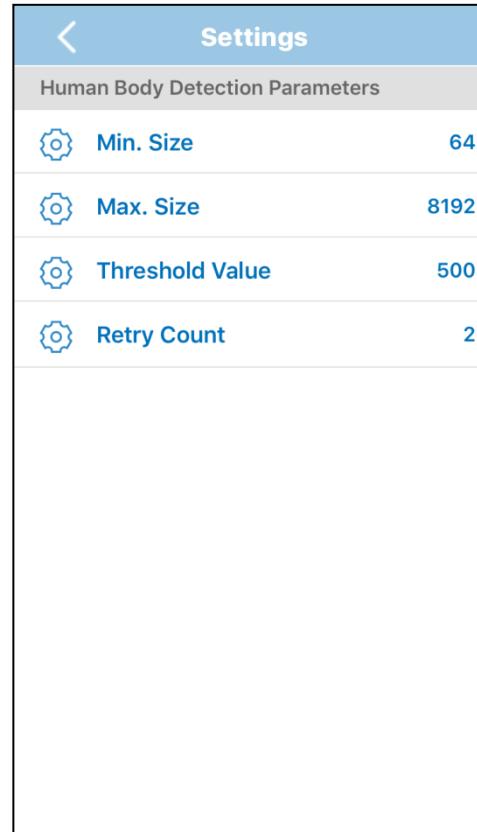
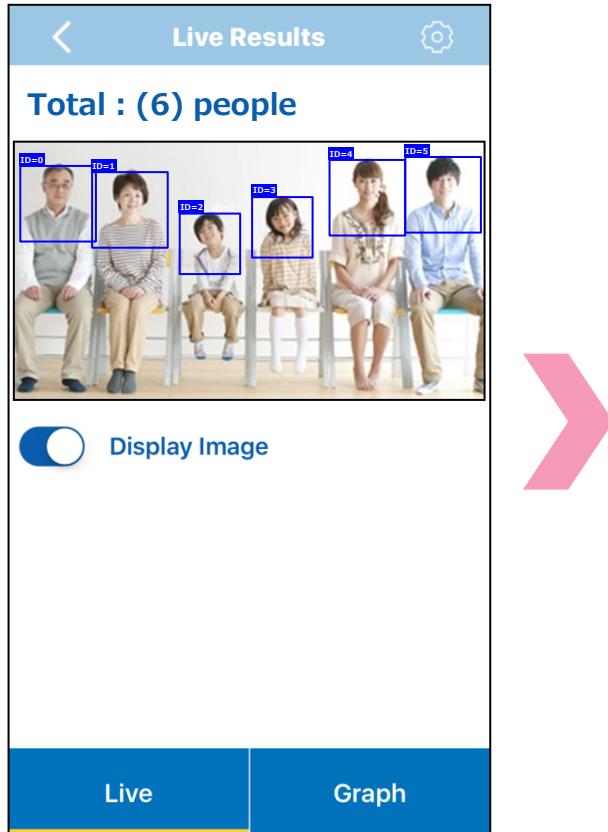


8.4 Change People Counter Settings

OMRON

Change the **People Counter** settings.

Press  to change the Human Body Detection parameters.



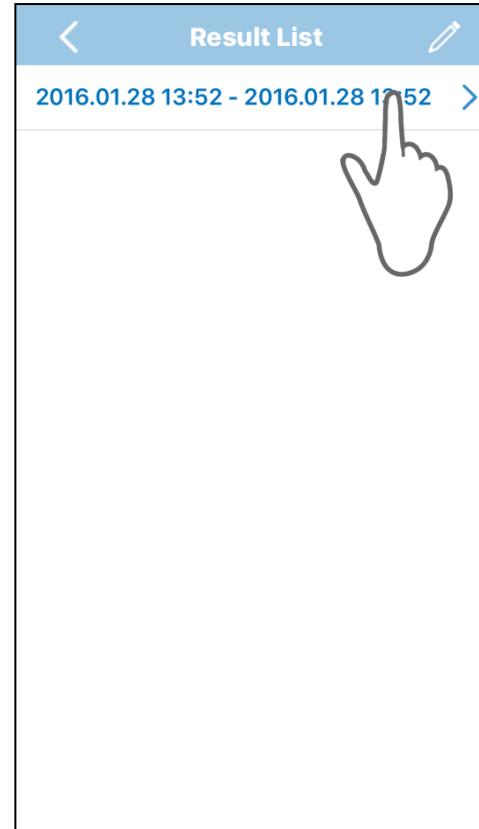
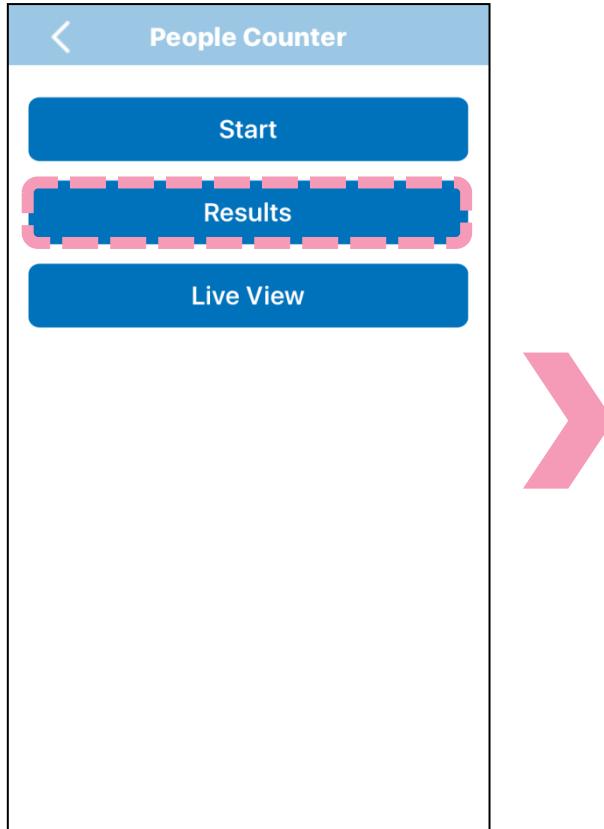
Human Body Detection Parameters

- Min / Max sizes
Set the minimum and maximum size for bodies. Setting a lower minimum size will detect more bodies but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.
- Retry count
Set the retry count. If a person is no longer displayed but one reappears (regardless if same person or not) within the number of frames set with the retry count, it will be considered the same person. Note that a high retry count will increase the possibility of swapping individuals being considered the same person.

8.5 Display People Counter Results



- Display the past **People Counter** results.
Select “Results” and the past results to be displayed.



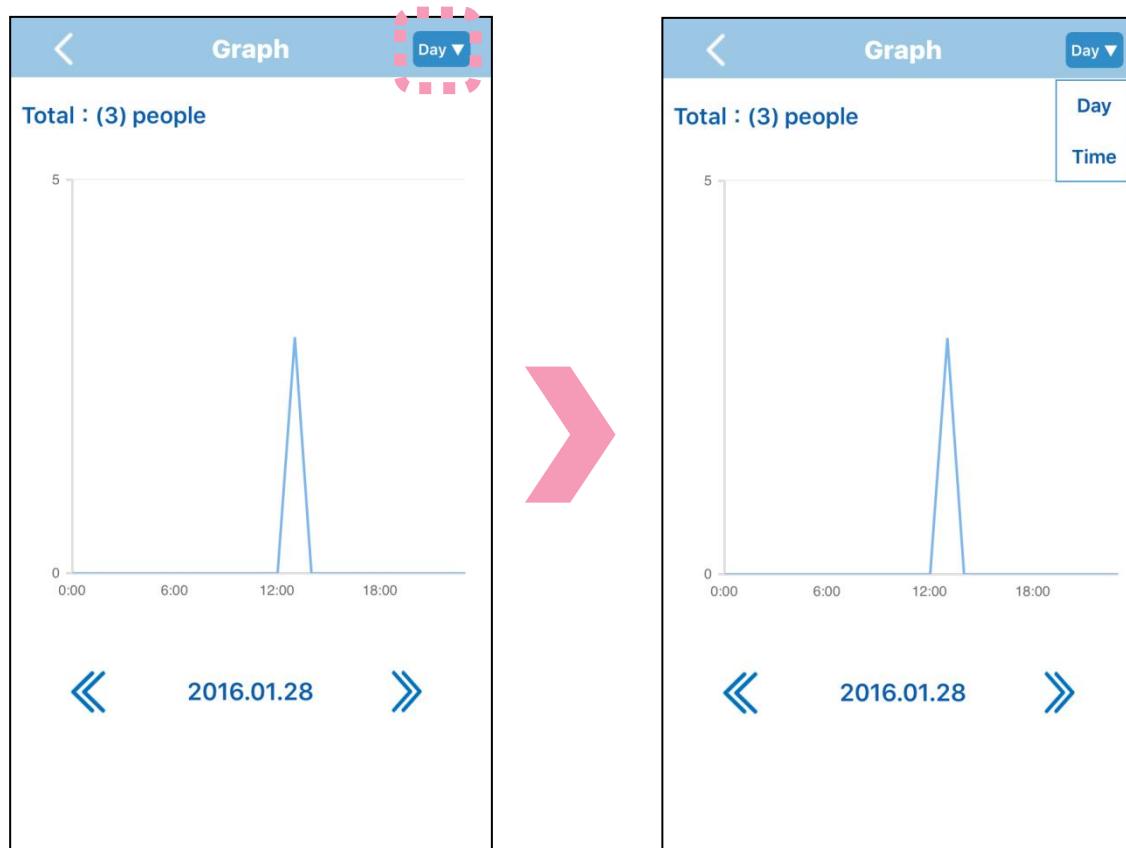
Past results will be listed with their start and end time.



8.5 Display People Counter Results

OMRON

- Display the past **People Counter** results (no more tab).
Results can be displayed by day or time.



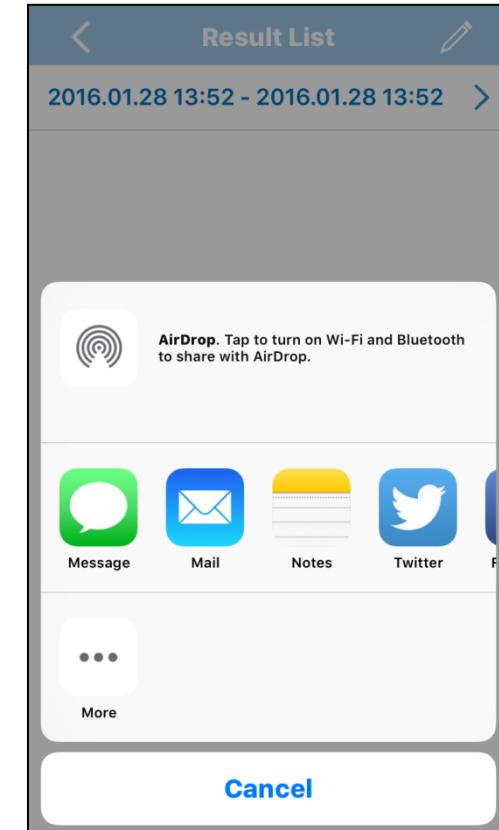
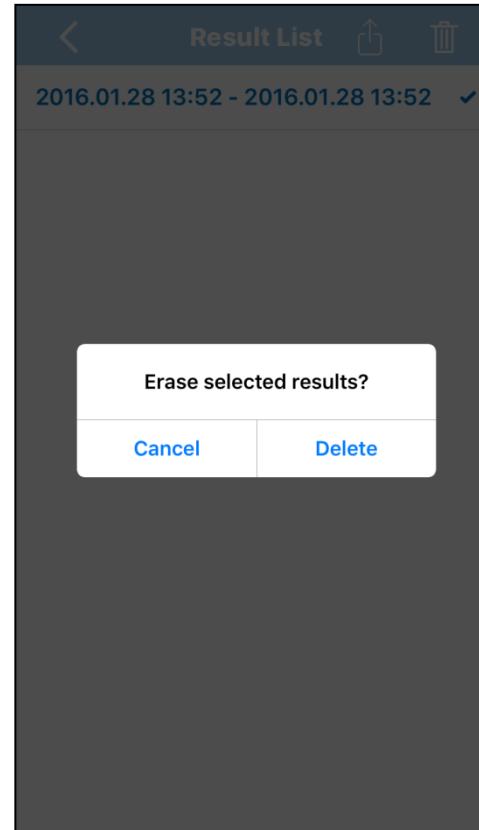
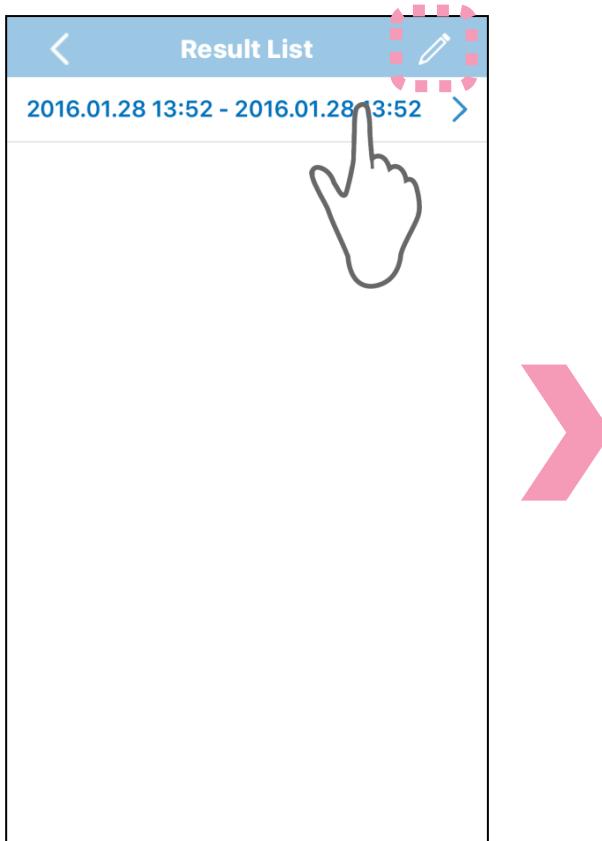
8.6 Erase or Send People Counter Results

OMRON

Erase or send past **People Counter** results.

Press  and select the results.

Press  to delete them and  to send them.

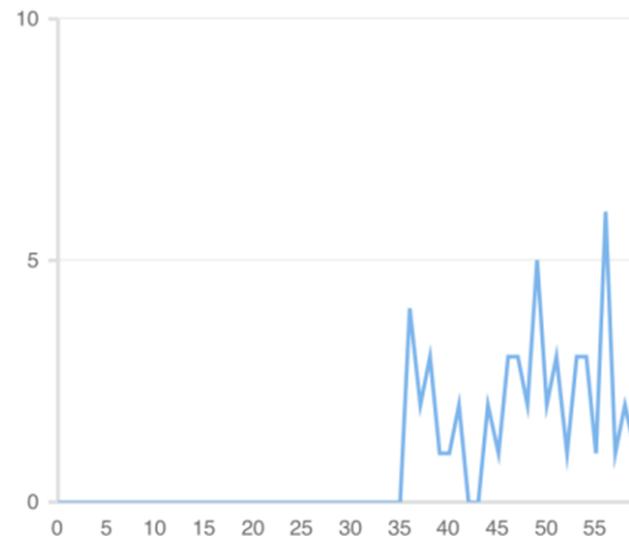


9. Face Counter

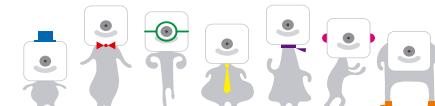
OMRON

- Face Counter will detect faces and display the frequency of detection on a timeline.

Total: 57



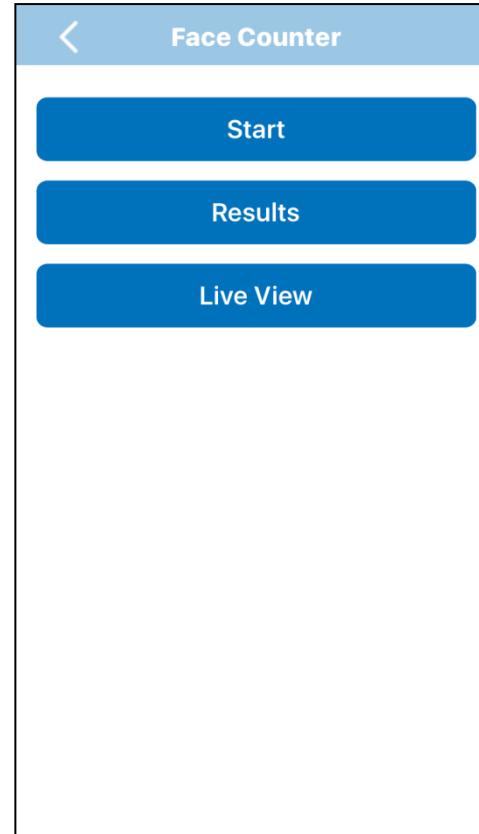
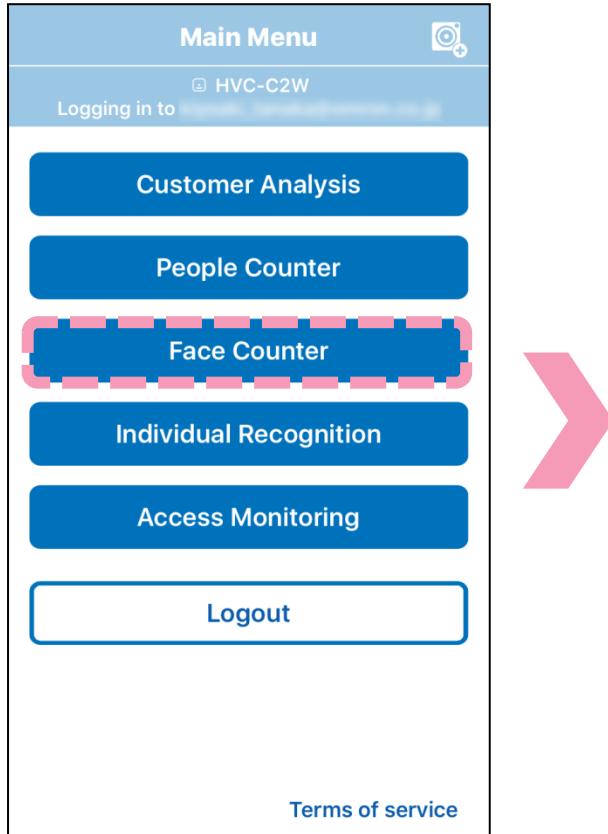
« 2016.01.18 14:00 »



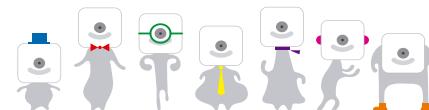
9.1 Face Counter Main Screen

OMRON

- ① Select “Face Counter”.



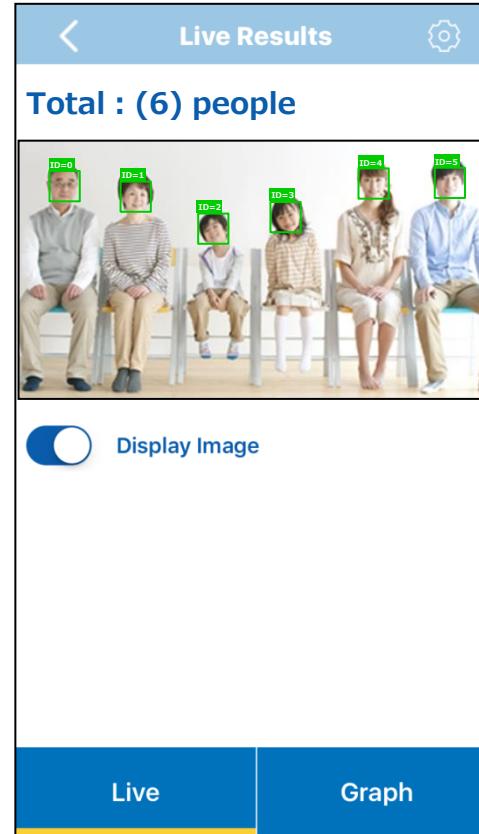
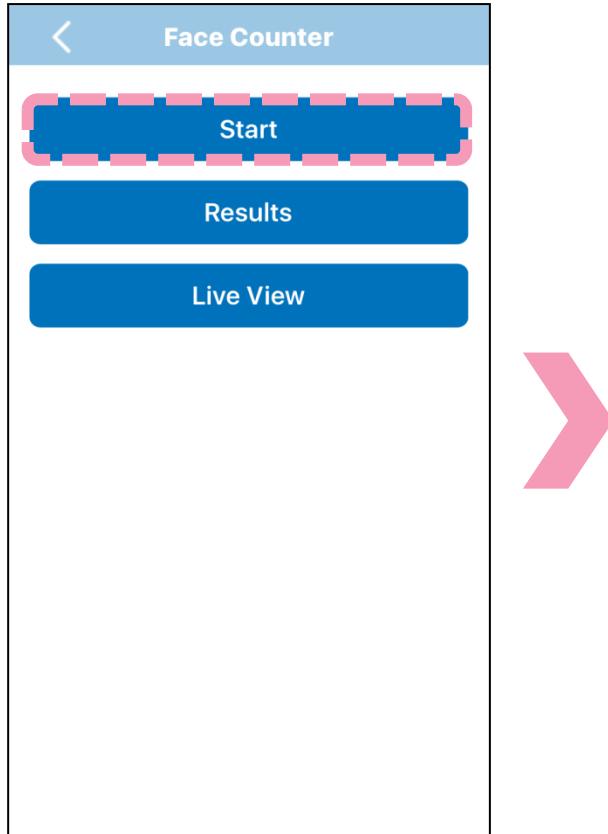
- ② Select “Start” to start **Face Counter**.
- ③ Select “Results” in order to look at past results or to send them to a different device.
- ④ Select “Live View” to view the live camera feed.



9.2 Start Face Counter

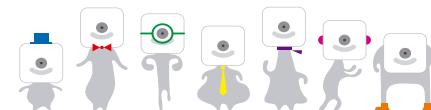
OMRON

- Start Face Counter by pressing “Start”.



- The live camera feed and the results can be seen in the “Live” tab.

- The total indicates the total number of faces (people) counted.



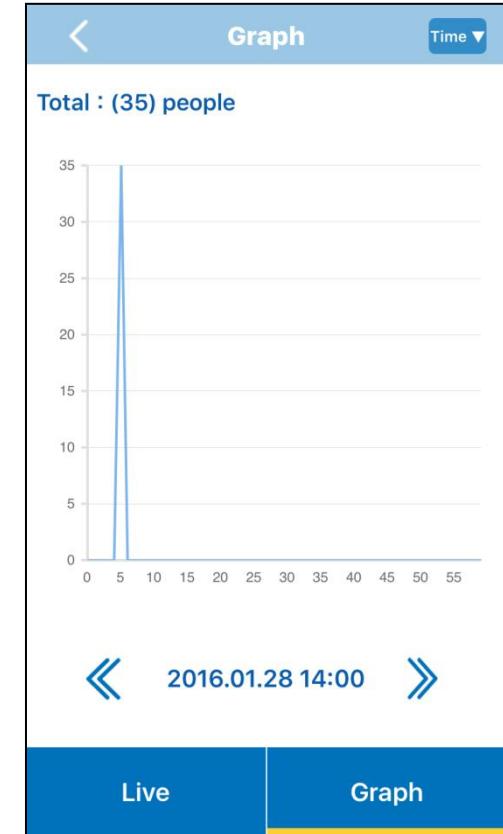
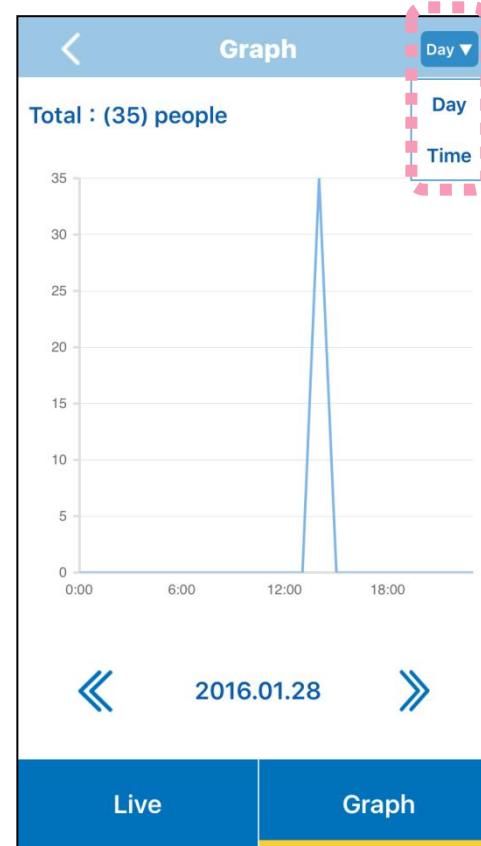
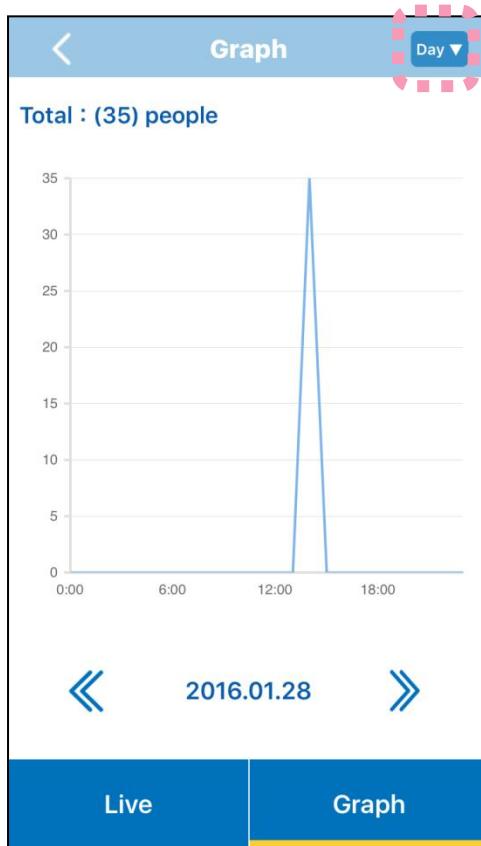
9.3 Display Face Counter Live Results

OMRON

Display the **Face Counter** live results.

Switch to the “Graph” tab to see the live results.

Results can be displayed by day or time.

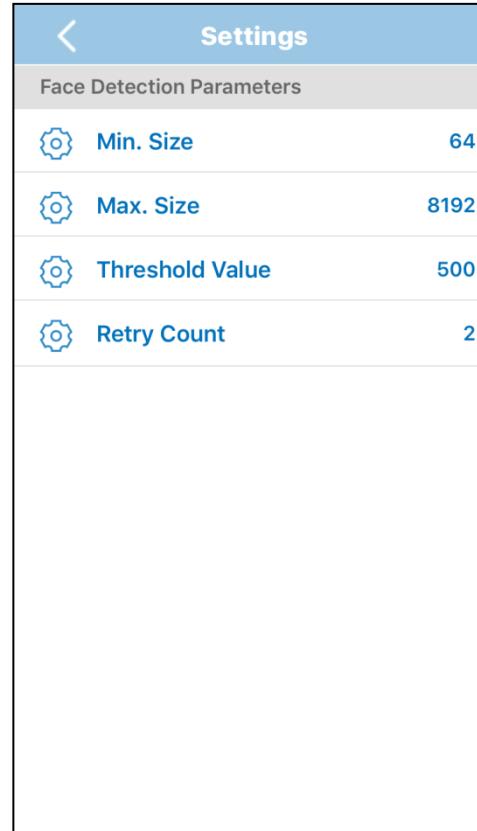
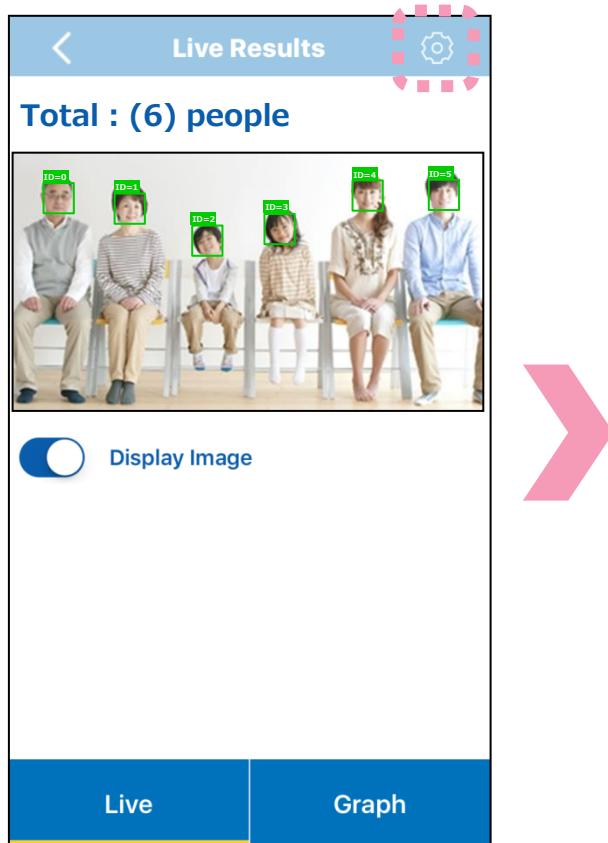


9.4 Change Face Counter Settings

OMRON

Change the Face Counter settings.

Press  to change the face detection parameters.



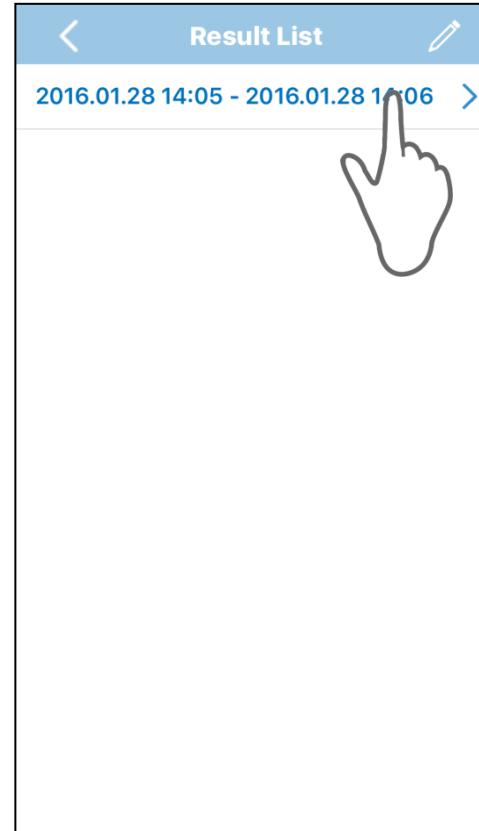
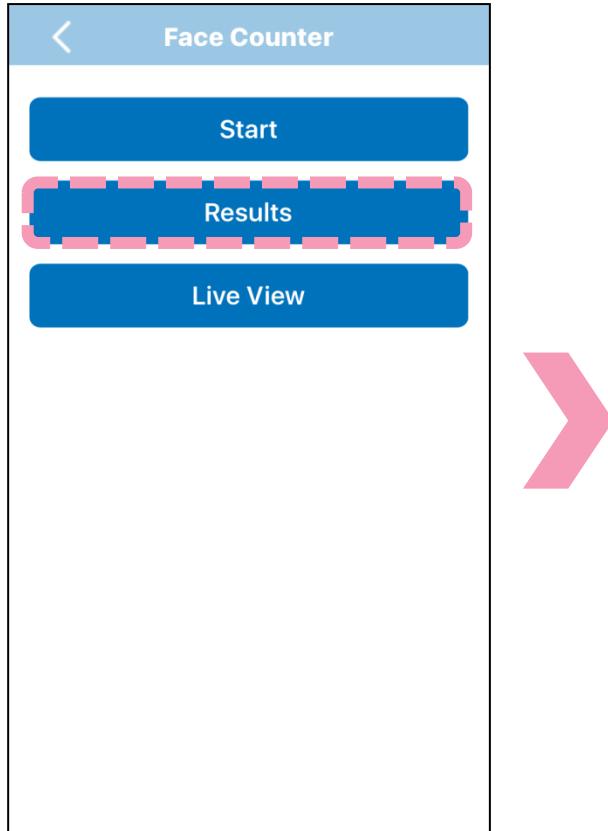
Face Detection Parameters

- Min / Max sizes
Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.
- Retry count
Set the retry count. If a person is no longer displayed but one reappears (regardless if same person or not) within the number of frames set with the retry count, it will be considered the same person. Note that a high retry count will increase the possibility of swapping individuals being considered the same person.

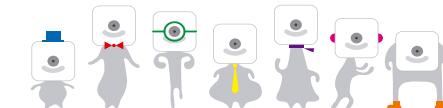
9.5 Display Face Counter Results

OMRON

- Display the past Face Counter results.
Select “Results” and the results to display.



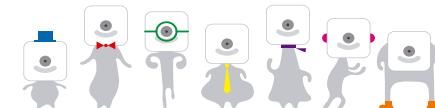
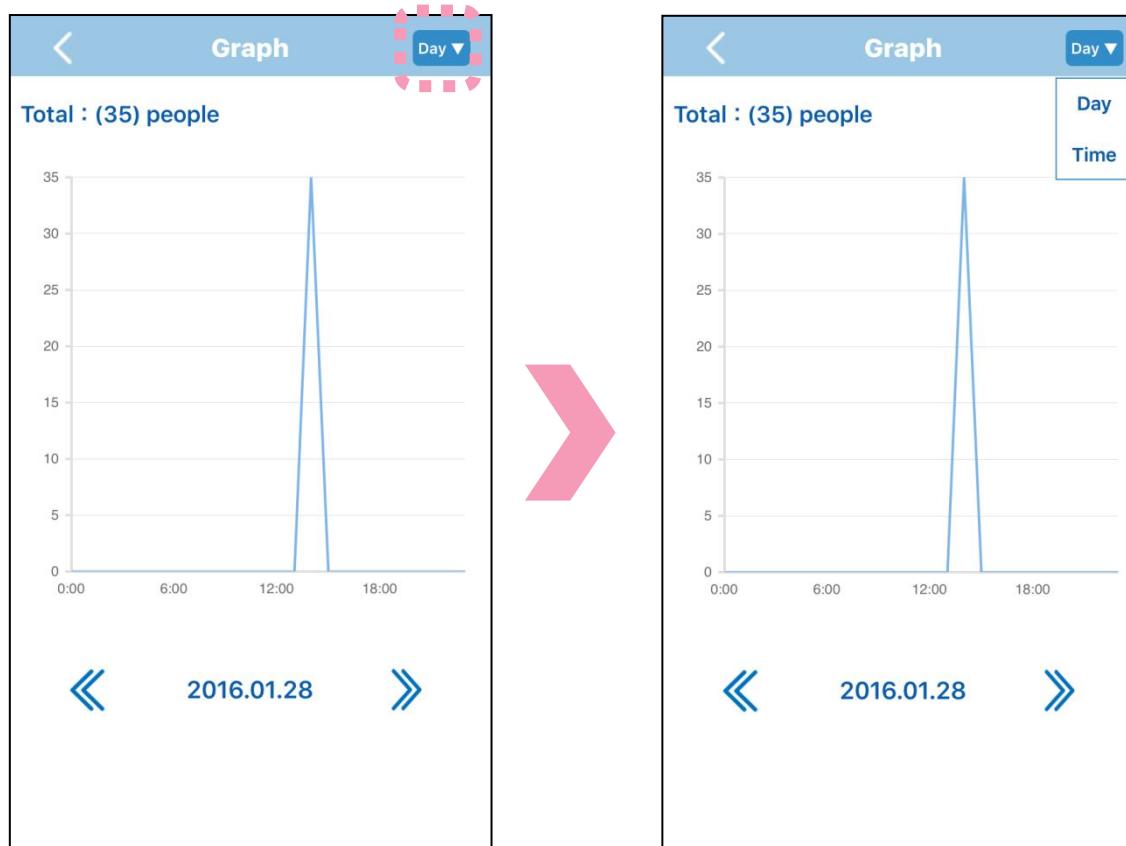
Past results will be listed with their start and end time.



9.5 Display Face Counter Results

OMRON

- Display the past **Face Counter** results (no more tab).
Results can be displayed by day or time.



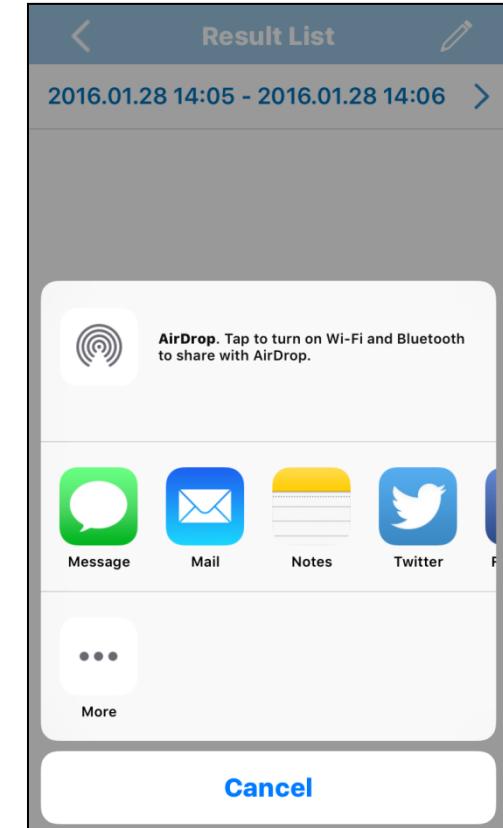
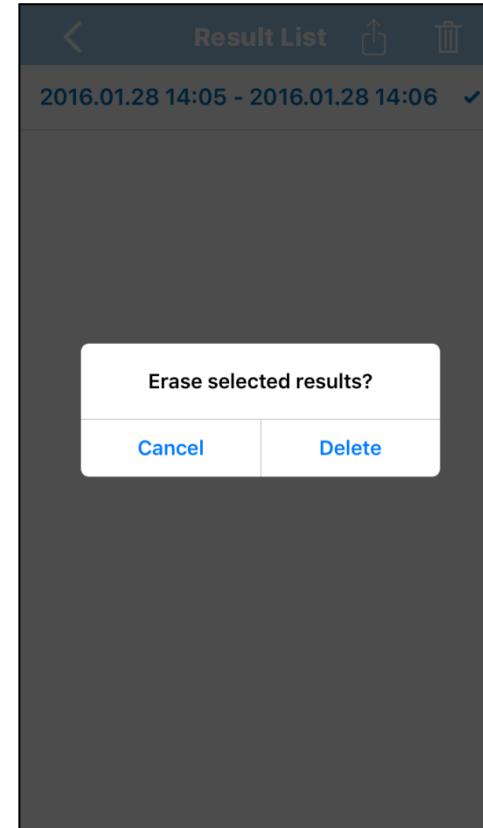
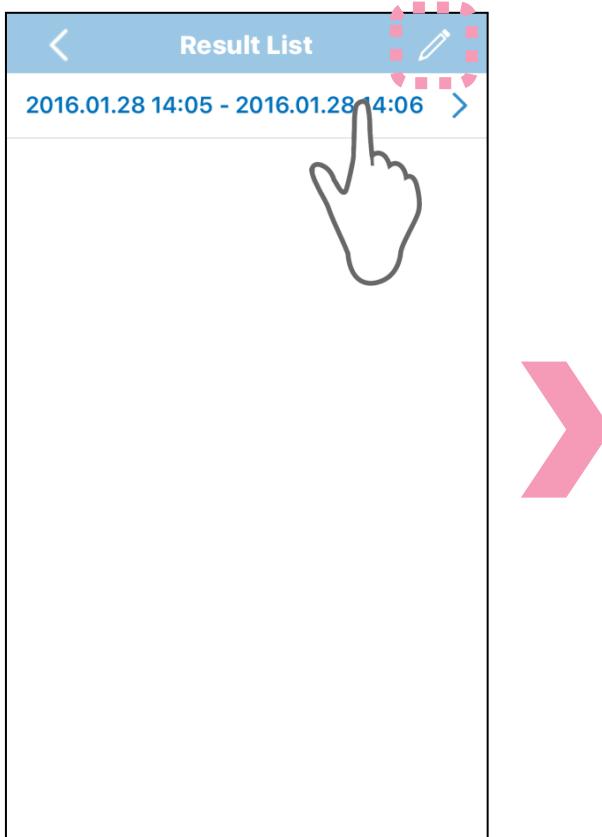
9.6 Erase or Send Face Counter Results

OMRON

Erase or send past Face Counter results.

Press  and select the results.

Press  to delete them and  to send them.



10. Individual Recognition

OMRON

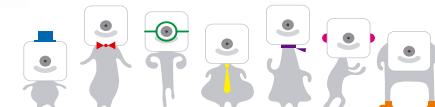
- ⌚ **Individual Recognition** will recognize registered individuals, displaying OK for registered people and NG for non-registered ones.



Display Image



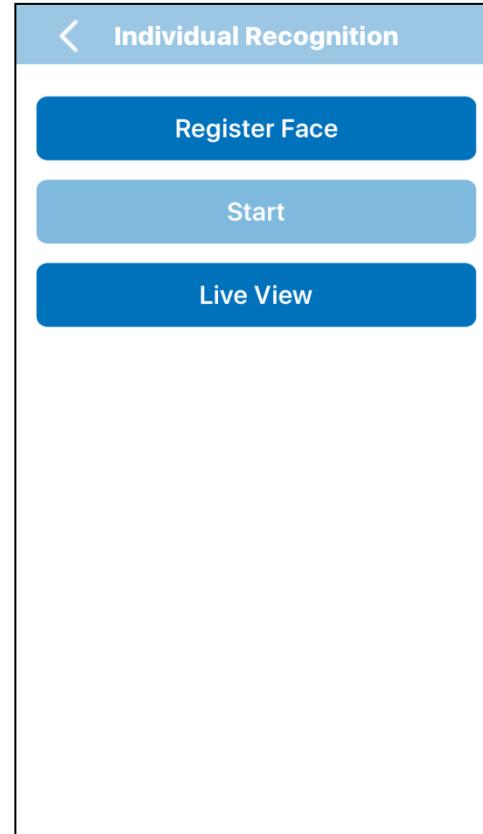
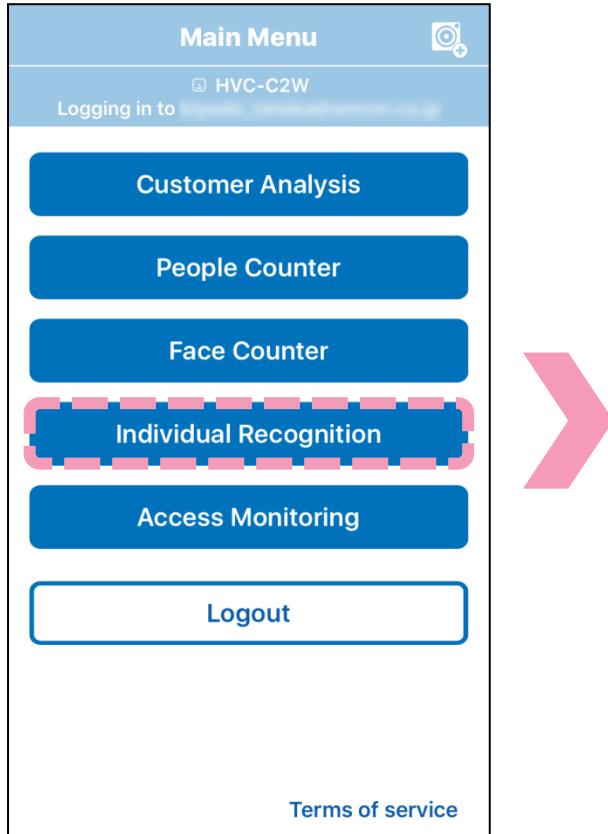
Display Image



10.1 Individual Recognition Screen

OMRON

- Select “Individual Recognition”.

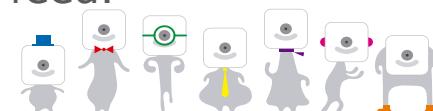


- Faces need to be registered in order to use **Individual Recognition**. The “Start” button will not be available with no face registered.

- Select “Register Face” to register a face.

- Select “Start” to start **Individual Recognition**.

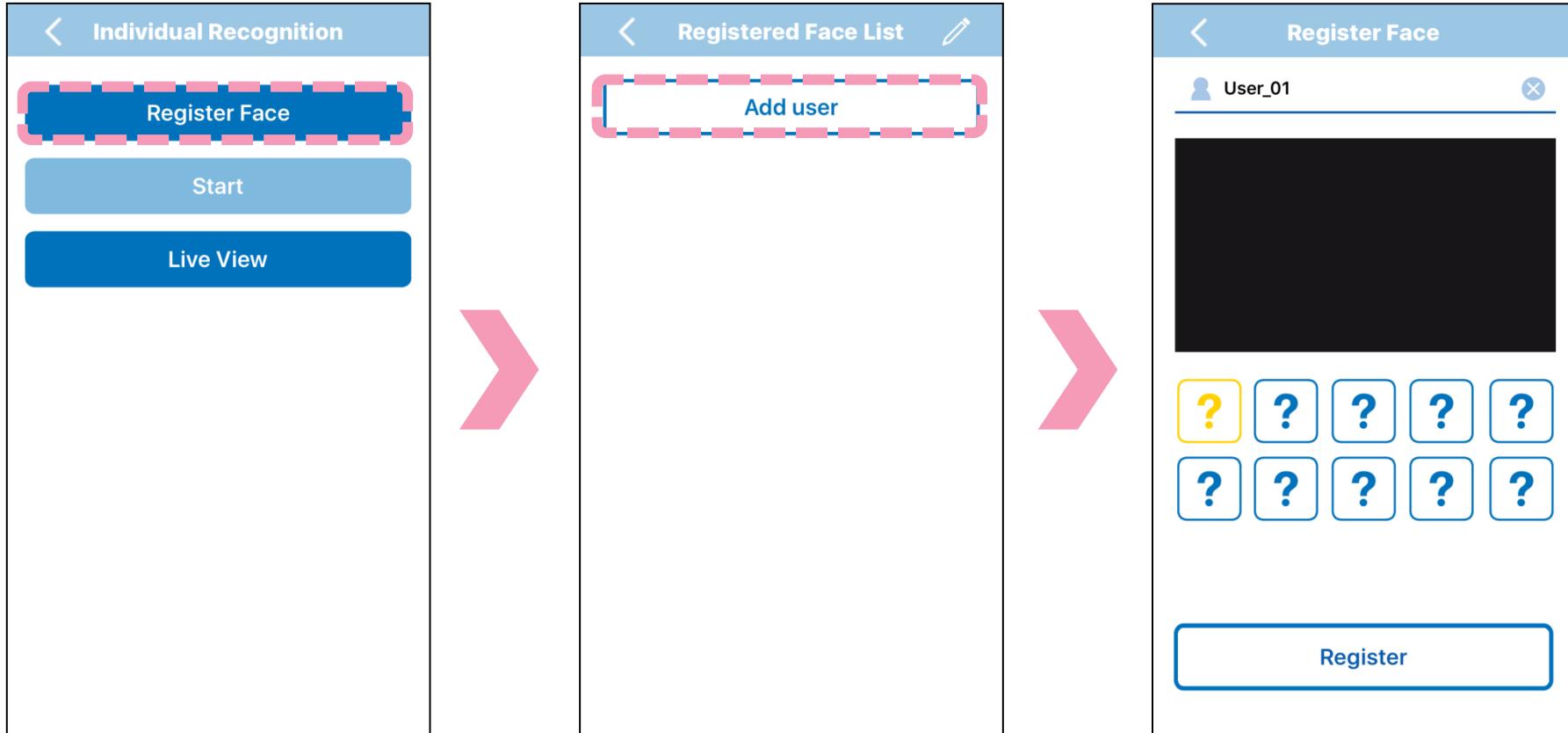
- Select “Live View” to view the live camera feed.



10.2 Register Face

OMRON

- Select “Register Face” then “Add User” to register a face
The user name will be “User_XX” by default.
※XX will be an increasing number starting from 01.



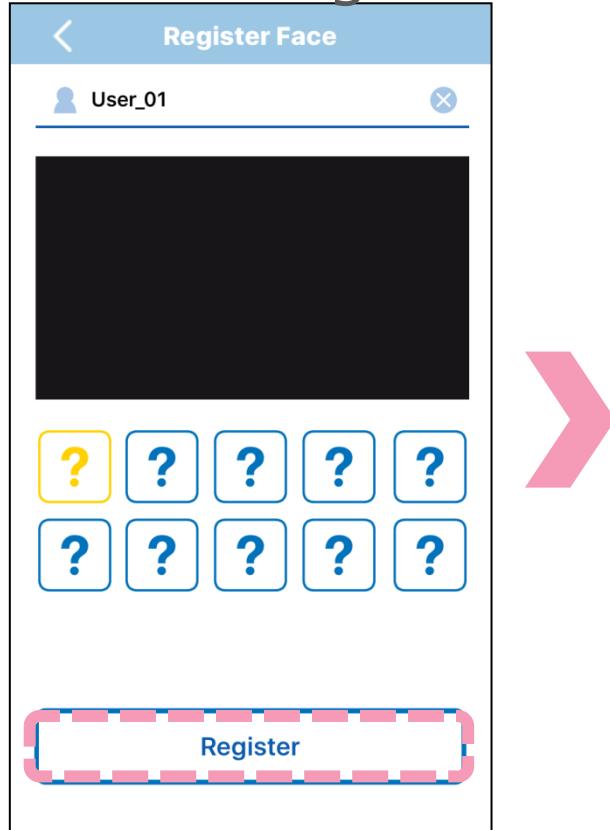
10.2 Register Face

OMRON

- Select “Register”.

The icon for will turn to .

※Registration is not possible if there are multiple faces in the image



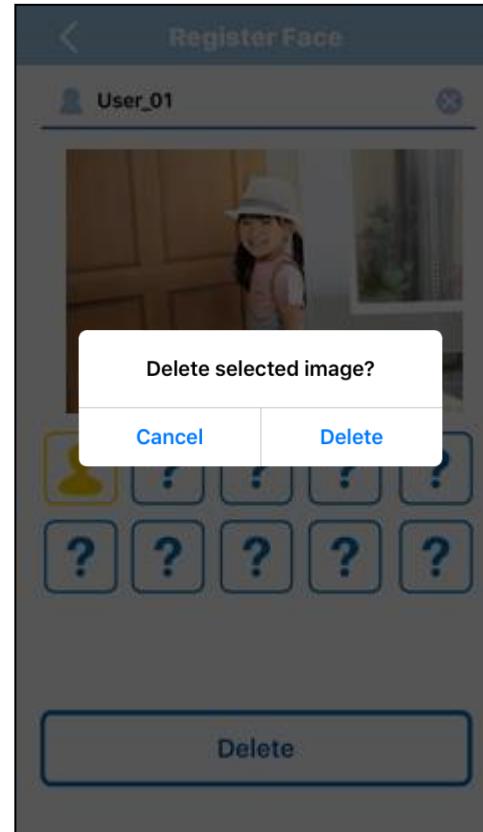
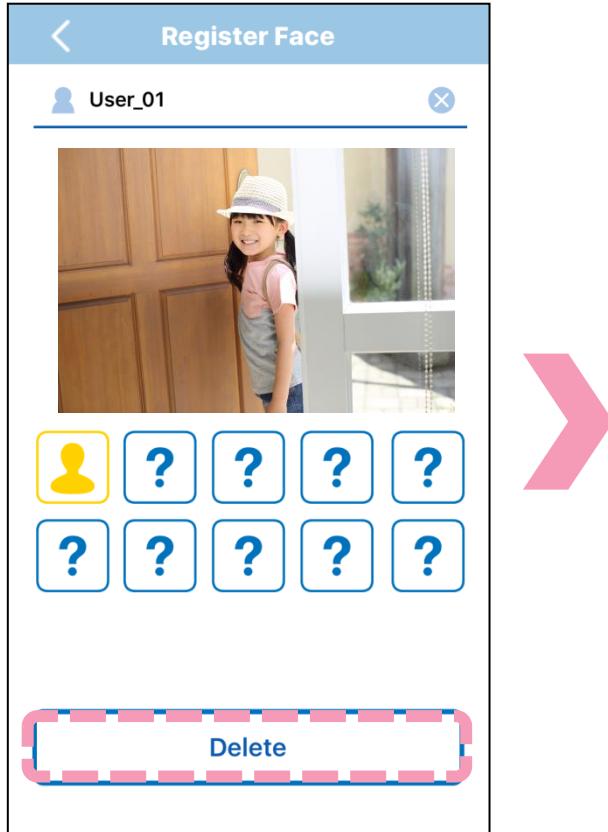
- Press ? to register additional images.



10.3 Delete Registered Image

OMRON

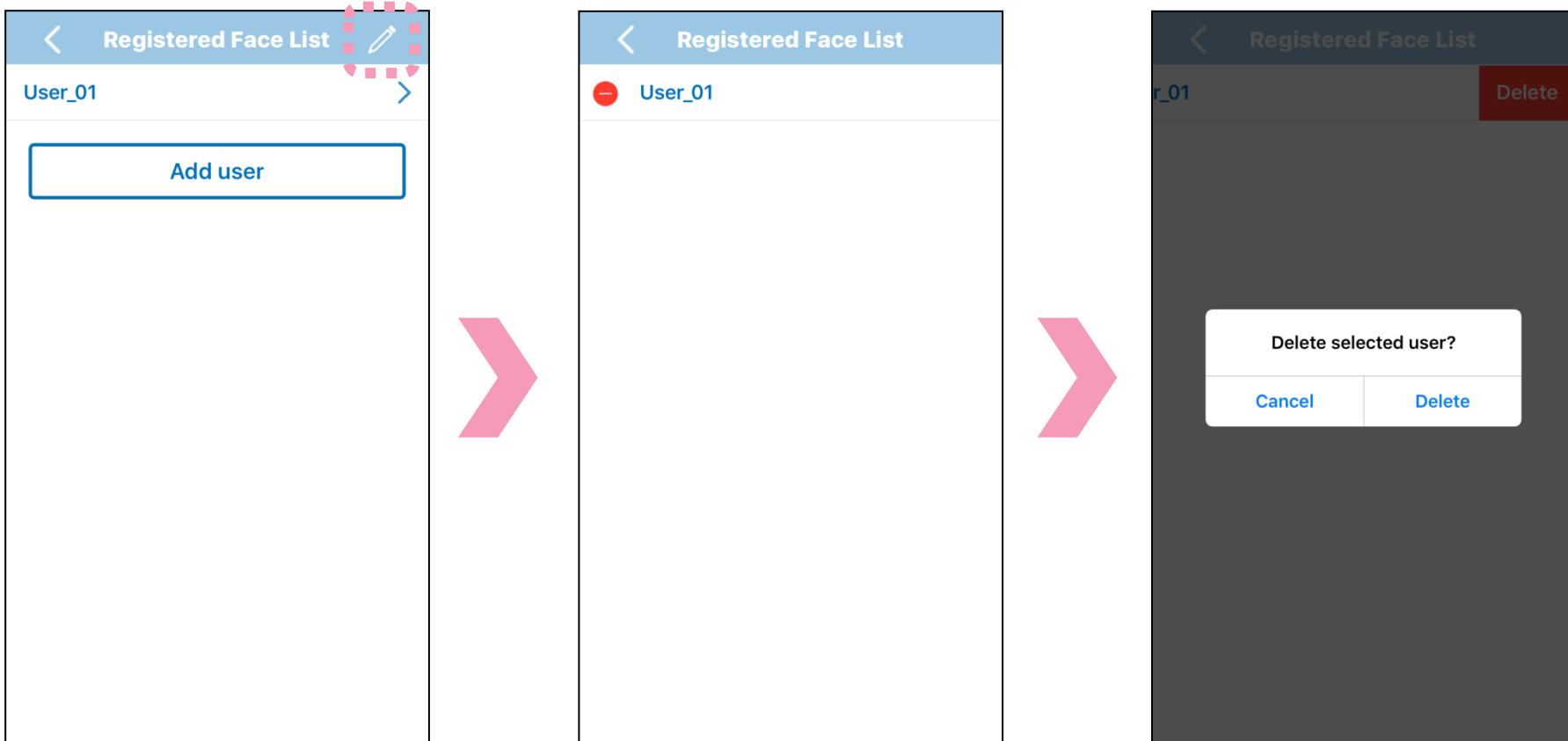
- Delete a registered image.
 - Select “Delete” and confirm to delete a registered image.



10.4 Delete User

OMRON

- Delete a registered user.
Select  and  to delete a registered user.

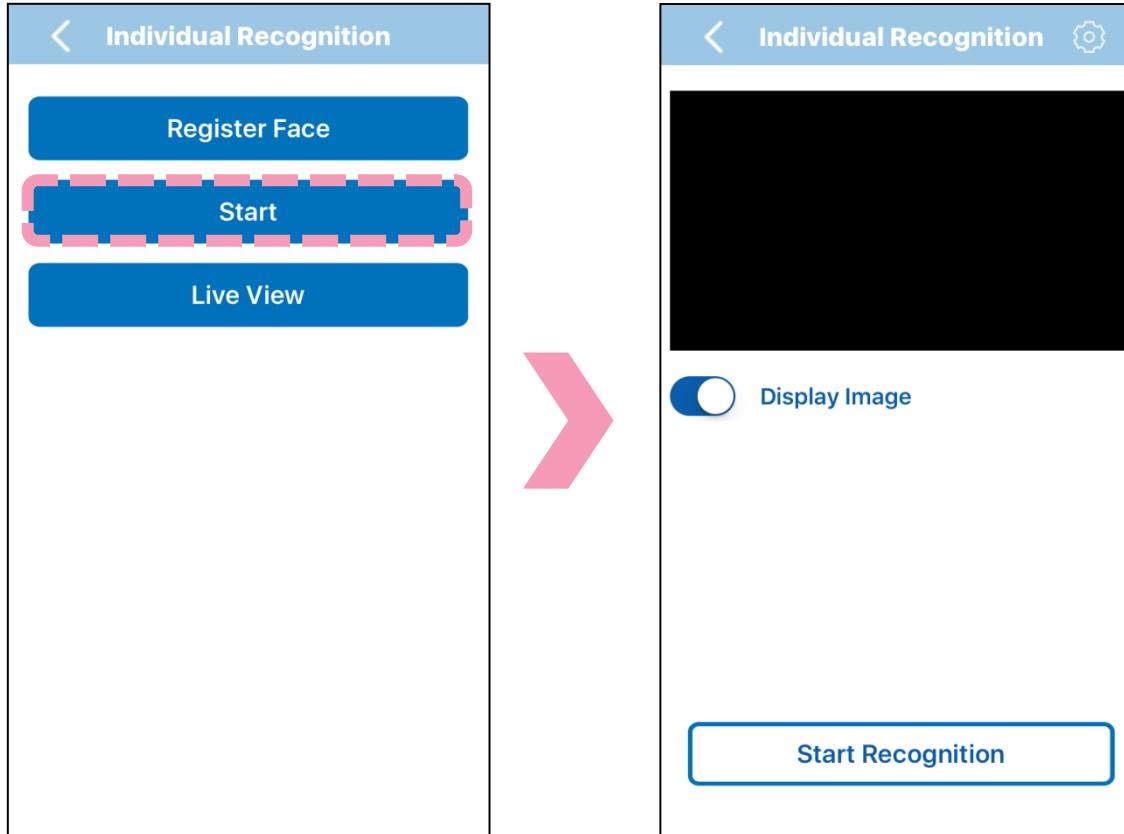


10.5 Start Individual Recognition

OMRON

Start Individual Recognition.

“Start” can now be used after registering facial images.
Select “Start” then “Start Recognition”.



10.5 Start Individual Recognition

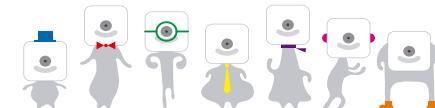
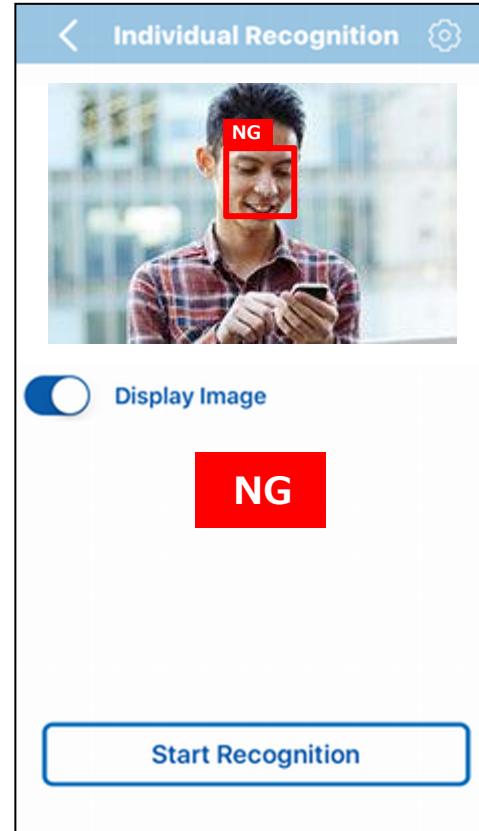
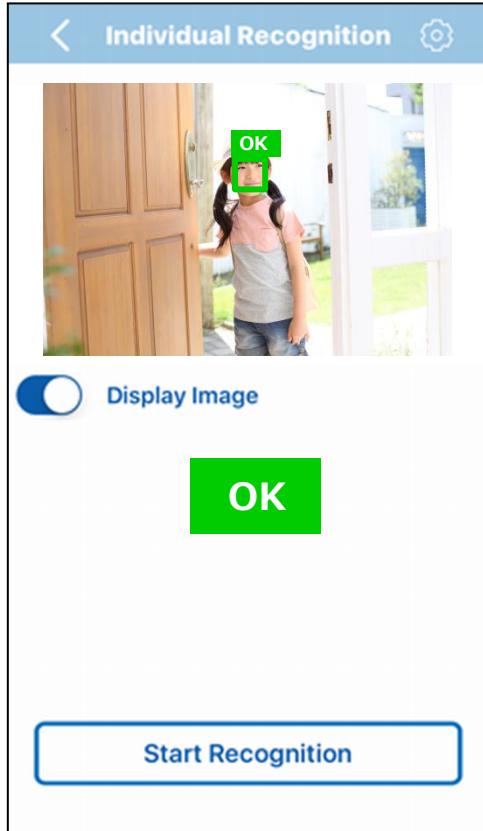
OMRON

 Individual Recognition results are as follows:

OK

will be displayed for successful recognition and
otherwise.

NG

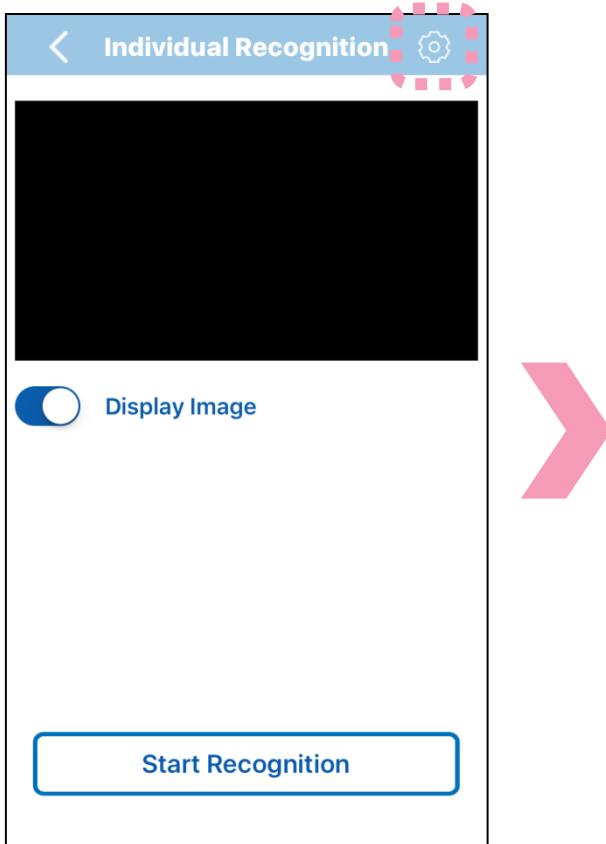


10.6 Change Individual Recognition Settings

OMRON

Change the Individual Recognition settings.

Press  to change the face detection and stabilization parameters.



Settings	
Face Detection Parameters	
 Min. Size	64
 Max. Size	8192
 Threshold Value	500
 Retry Count	2
Stabilization Parameter	
 Frame	3
 Minimum Ratio	100
 Min. Pitch Angle	-90
 Max. Pitch Angle	90
 Min. Yaw Angle	-90
 Max. Yaw Angle	90
 Degree of Confidence	300

Face Detection Parameters

- Min / Max sizes
Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.

- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.

- Retry count
Set the retry count. If a person is no longer displayed) but one reappears (regardless if same person or not) within the number of frames set with the retry count, it will be considered the same person. Note that a high retry count will increase the possibility of swapping individuals being considered the same person.

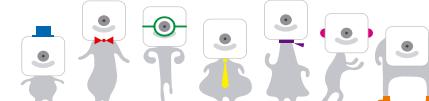
Stabilization Parameters

- Frame
Number of frames used to stabilize properties through an averaging process of past frames.

- Minimum ratio
Minimum ratio to be achieved over multiple frames, used in order to stabilize the recognition.

- Min / Max angles
Angles outside of the set value will be discarded in order to improve quality of the stabilization of estimation results.

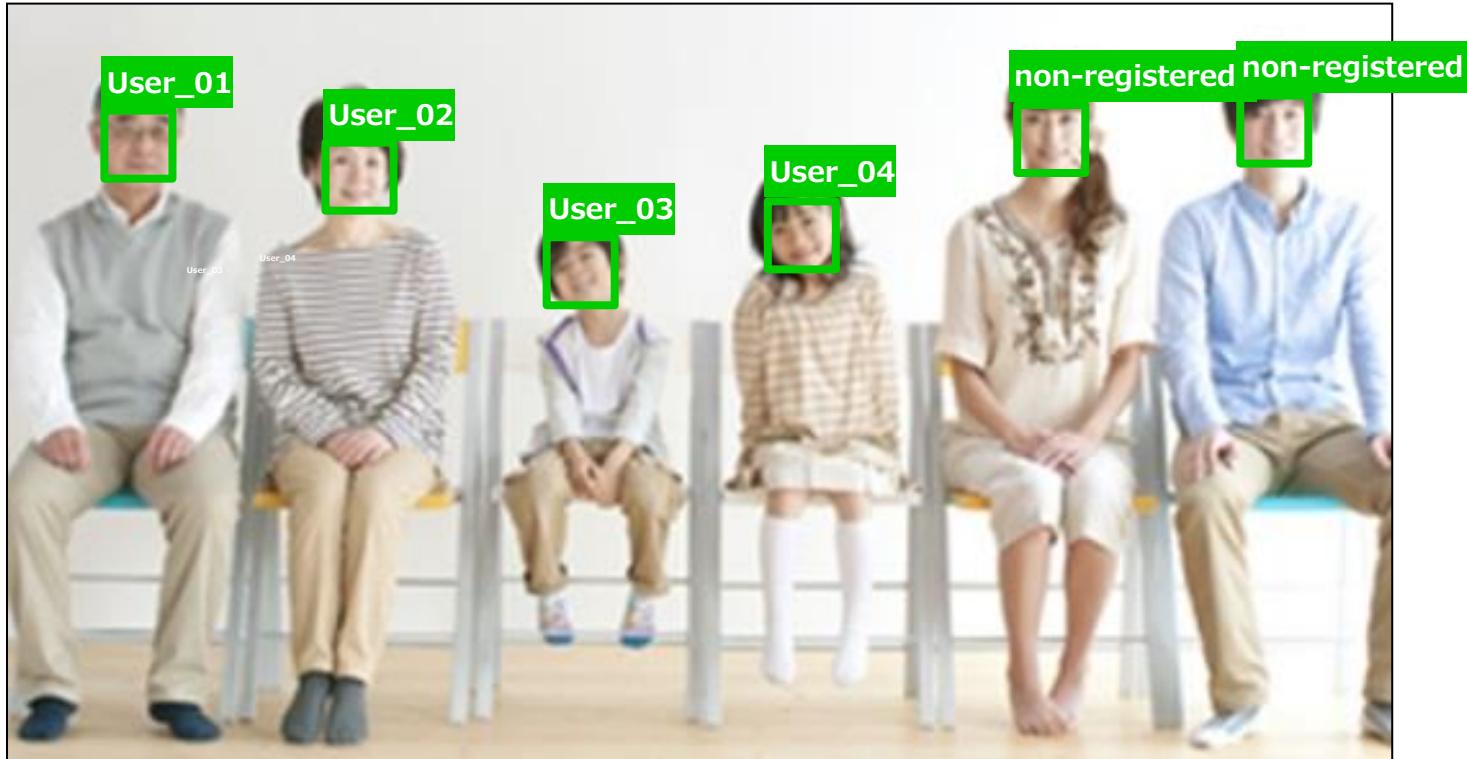
- Degree of confidence
Results with a degree of confidence lower than the set value will be discarded in order to improve the quality of the stabilization of estimation results.



11. Access Monitoring

OMRON

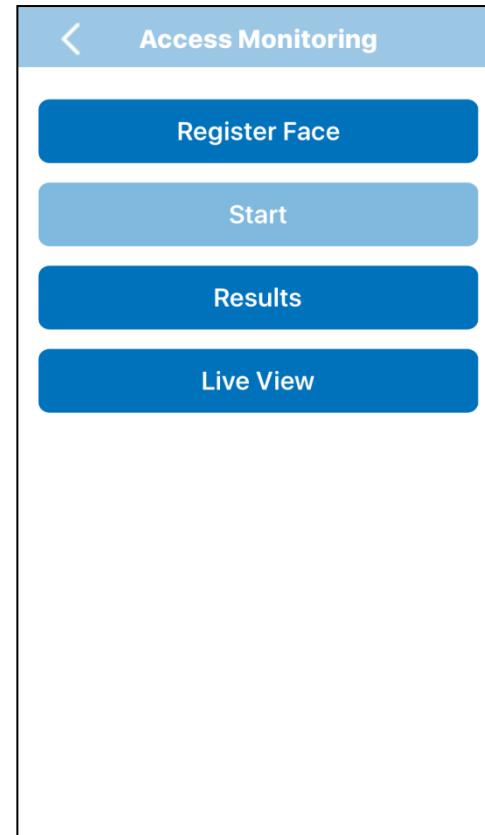
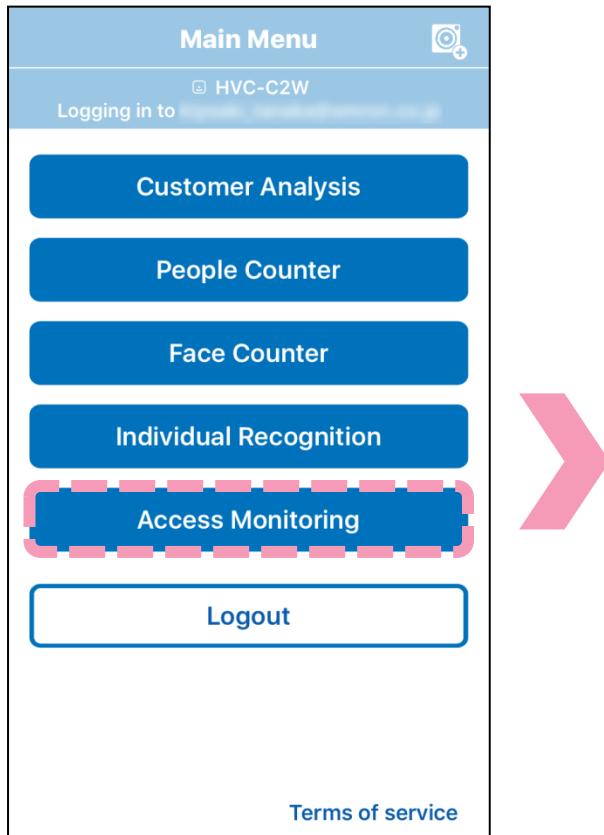
- Access Monitoring will recognize registered individuals, displaying their user ID, and “non-registered” for non-registered ones.



11.1 Access Monitoring Main Screen



① Select “Access Monitoring”.

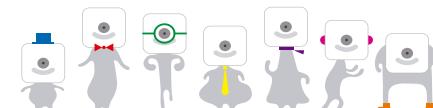


② Faces need to be registered in order to use **Access Monitoring**. The “Start” button will not be available with no face registered. The database of registered faces is shared for **Individual Recognition** and **Access Monitoring**.

③ Select “Register Face” to register a face.

④ Select “Start” to start **Access Monitoring**.

⑤ Select “Live View” to view the live camera feed.

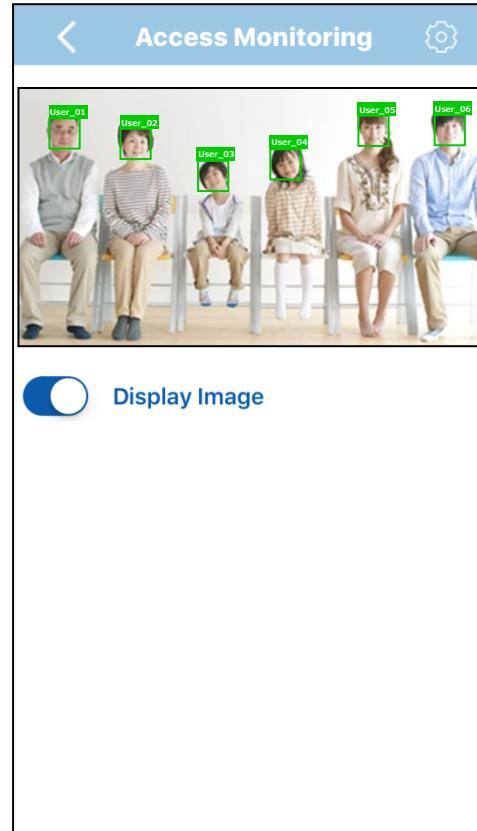
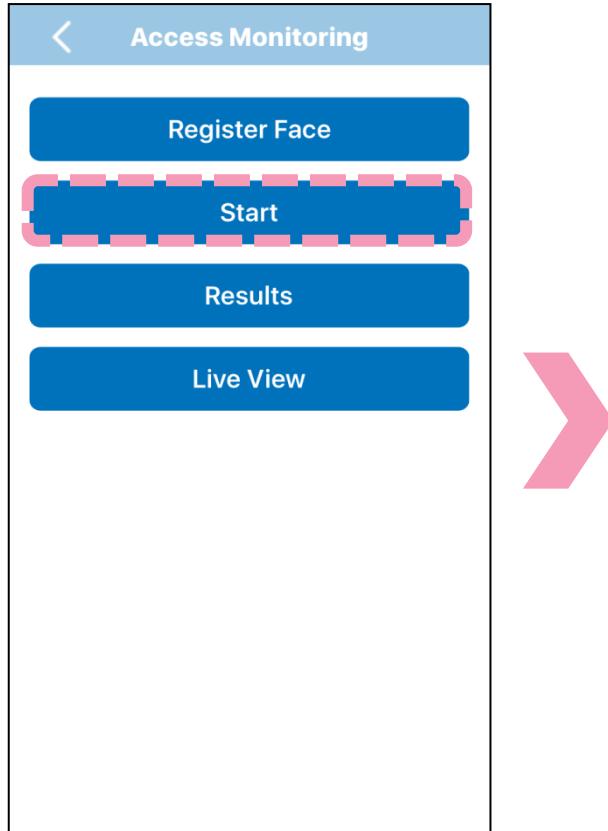


11.2 Start Access Monitoring

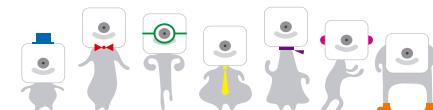
OMRON

Start Access Monitoring.

“Start” can now be used after registering facial images.
Select “Start”.



- A “?” will be displayed while the recognition process is running.
- The user ID of the registered users will be displayed while “Non-registered” will be displayed for non-registered faces.

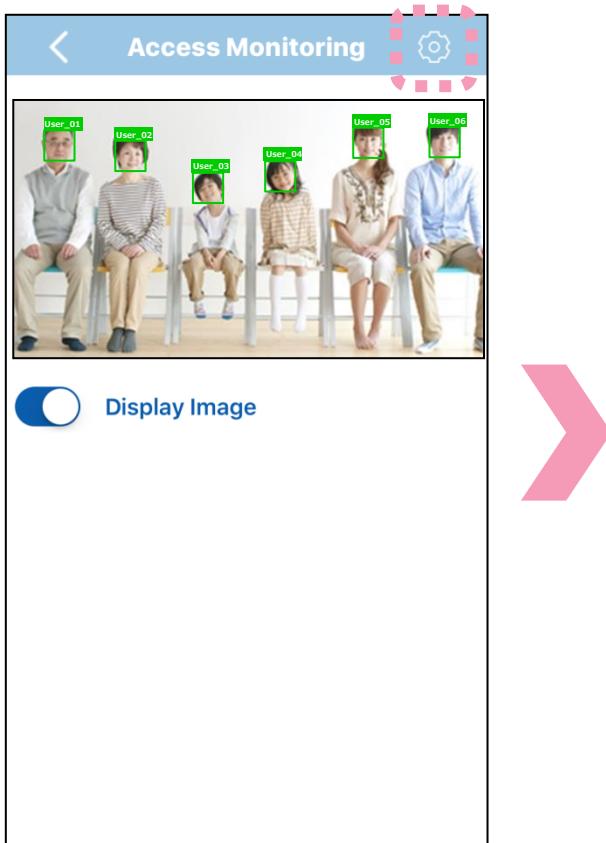


11.3 Change Access Monitoring Settings

OMRON

Change the **Access Monitoring** parameters.

Press  to change the face detection and stabilization parameters.



Settings	
Face Detection Parameters	
 Min. Size	64
 Max. Size	8192
 Threshold Value	500
 Retry Count	2
Stabilization Parameter	
 Frame	3
 Minimum Ratio	100
 Min. Pitch Angle	-90
 Max. Pitch Angle	90
 Min. Yaw Angle	-90
 Max. Yaw Angle	90
 Degree of Confidence	300

Face Detection Parameters

■ Min / Max sizes

Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.

■ Threshold value

Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.

■ Retry count

Set the retry count. If a person is no longer displayed) but one reappears (regardless if same person or not) within the number of frames set with the retry count, it will be considered the same person. Note that a high retry count will increase the possibility of swapping individuals being considered the same person.

Stabilization Parameters

■ Frame

Number of frames used to stabilize properties through an averaging process of past frames.

■ Minimum ratio

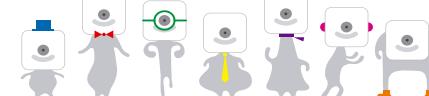
Minimum ratio to be achieved over multiple frames, used in order to stabilize the recognition.

■ Min / Max angles

Angles outside of the set value will be discarded in order to improve quality of the stabilization of estimation results.

■ Degree of confidence

Results with a degree of confidence lower than the set value will be discarded in order to improve the quality of the stabilization of estimation results.



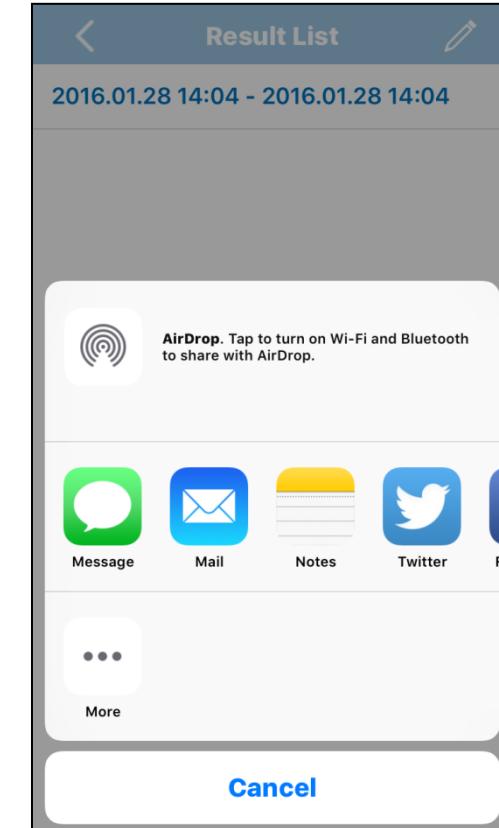
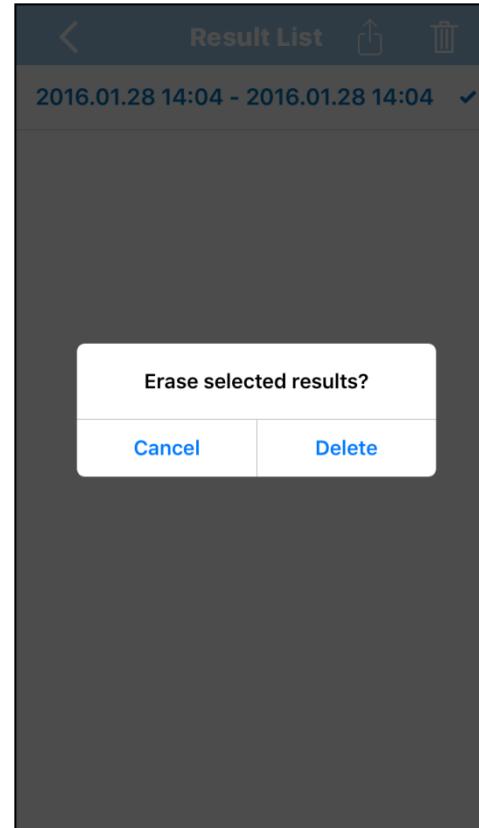
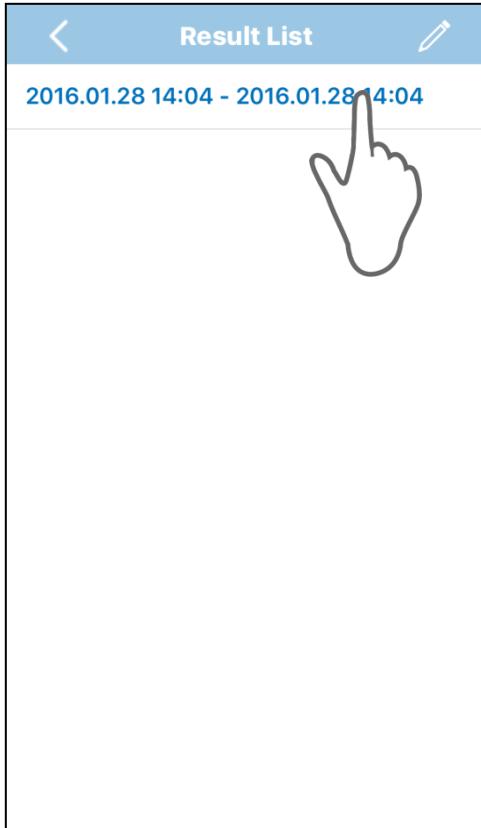
11.4 Erase or Send Access Monitoring Results



Erase or send past **Access Monitoring** results.

Press and select the results.

Press to delete them and to send them.



Revision History

OMRON

Date	Rev	Contents	Prepared by	Reviewed by	Approved by
2016/02/03	A	First release	K.Tanaka	T.Inoue	O.Matsutake

