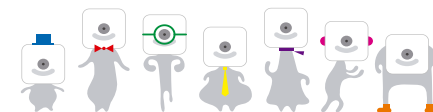
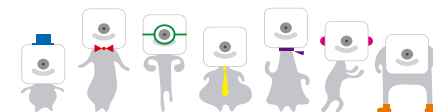


Table of Contents

- 1. Outline
- 2. Items to Prepare
- 3. User Registration
- 4. Login
- 5. Connect Camera
- 6. Change or Delete Camera Name
- 7. Customer Analysis
 - 7.1 Customer Analysis Main Screen
 - 7.2 Start Customer Analysis
 - 7.3 Display Customer Analysis Live Results
 - 7.4 Change Customer Analysis Settings
 - 7.5 Display Customer Analysis Results
 - 7.6 Erase or Send Customer Analysis Results
 - 7.7 Live View
- 8. People Counter
 - 8.1 People Counter Main Screen
 - 8.2 Start People Counter
 - 8.3 Display People Counter Live Results
 - 8.4 Change People Counter Settings
 - 8.5 Display People Counter Results
 - 8.6 Erase or Send People Counter Results
- 9. Face Counter
 - 9.1 Face Counter Main Screen
 - 9.2 Start Face Counter
 - 9.3 Display Face Counter Live Results
 - 9.4 Change Face Counter Settings
 - 9.5 Display Face Counter Results
 - 9.6 Erase or Send Face Counter Results
- 10. Individual Recognition
 - 10.1 Individual Recognition Main Screen
 - 10.2 Register Face
 - 10.3 Delete Registered Image
 - 10.4 Delete User
 - 10.5 Start Individual Recognition
 - 10.6 Change Individual Recognition Settings
- 11. Access Monitoring
 - 11.1 Access Monitoring Main Screen
 - 11.2 Start Access Monitoring
 - 11.3 Change Access Monitoring Settings
 - 11.4 Erase or Send Access Monitoring Results

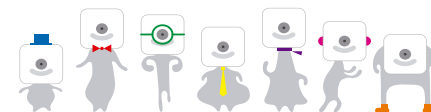


- The Basic Operations App Guide provides information on how to use the Basic Operations App for HVC-C2W.
- The features included in the Basic Operations App are **Customer Analysis, Face Counter, People Counter, Individual Recognition** and **Access Monitoring**.



2. Items to Prepare

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

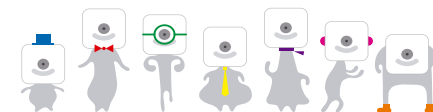


3. User Registration

- Register to use the Basic Operations App.
The user registration screen will be displayed when starting the app. The registration process is as follows.

The registration screen of the "HVC-C2W Basic Operations App". At the top, the "OMRON" logo is in blue. Below it is the app's name "HVC-C2W Basic Operations App" with a red "OKWIO" logo. There are two blue buttons: "Login" and "New Registration", with the latter being highlighted with a yellow underline. Below the buttons is a "Mail Address" input field with a blue user icon on the left and a blue "X" icon on the right. At the bottom, there is a grey "New Registration" button.

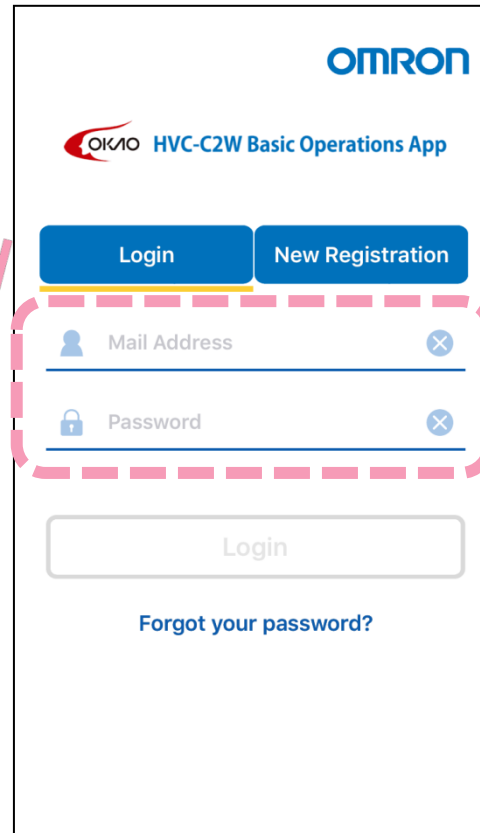
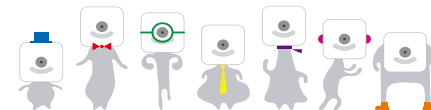
- Input your email address and select "New registration".
- Make sure to set your email account to be able to receive messages from "noreply@hvc.omron.com".





4. Login

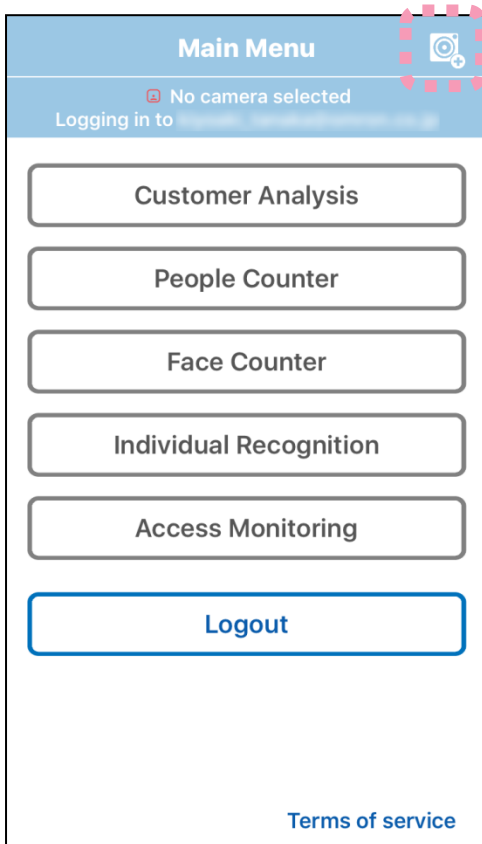
 Login to use the app.

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

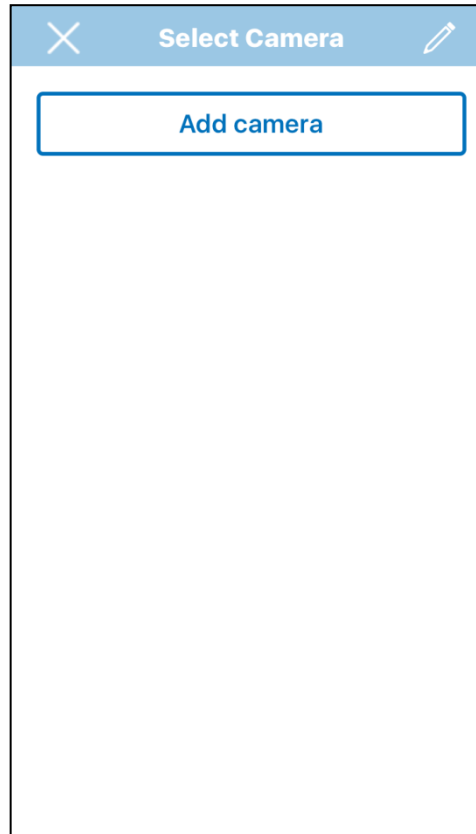
The screenshot shows the app's login interface. At the top is the OMRON logo. Below it is the app title "HVC-C2W Basic Operations App" with a red "OK/IO" logo. There are two blue buttons: "Login" and "New Registration". Below these are two input fields: "Mail Address" and "Password", each with a blue "X" icon to its right. A dashed pink rectangle highlights these two input fields. Below the input fields is a grey "Login" button. At the bottom is a blue link that says "Forgot your password?".

5. Connect Camera

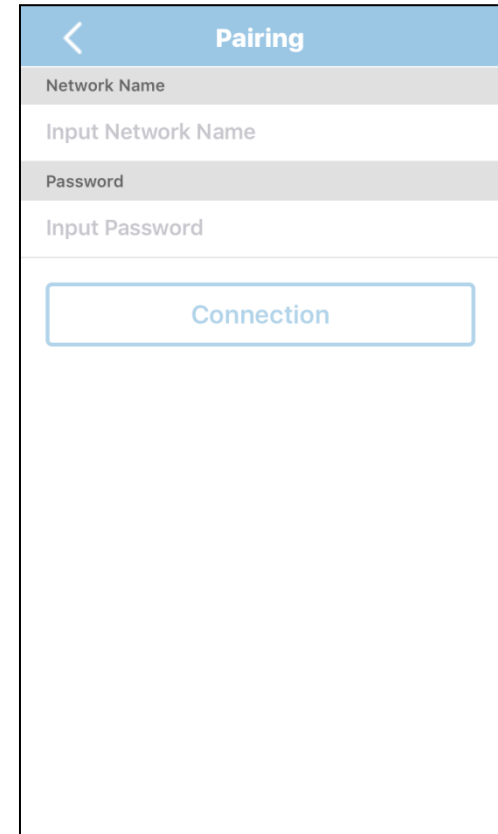
-  Input your home network info.
Press the camera  icon and select “Add camera”.



The Main Menu screen features a blue header with the title "Main Menu" and a camera icon with a plus sign. Below the header, it displays "No camera selected" and "Logging in to". The main content area contains five buttons: "Customer Analysis", "People Counter", "Face Counter", "Individual Recognition", and "Access Monitoring". At the bottom, there is a "Logout" button and a "Terms of service" link. A red dashed box highlights the camera icon in the top right corner.




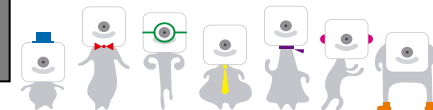
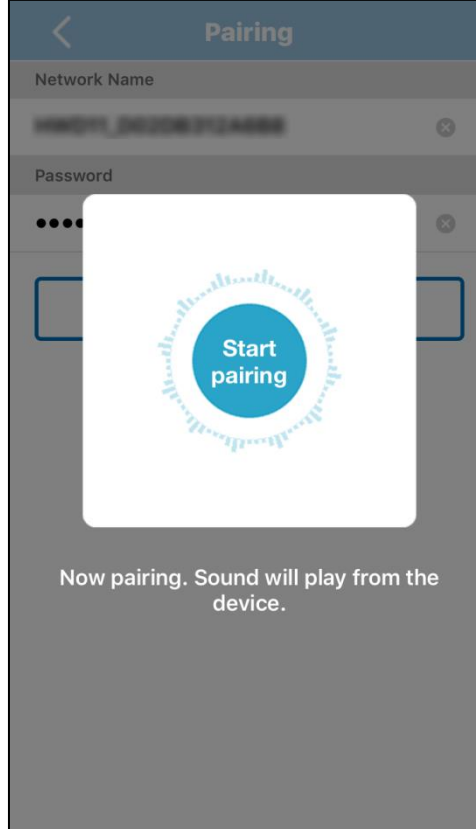
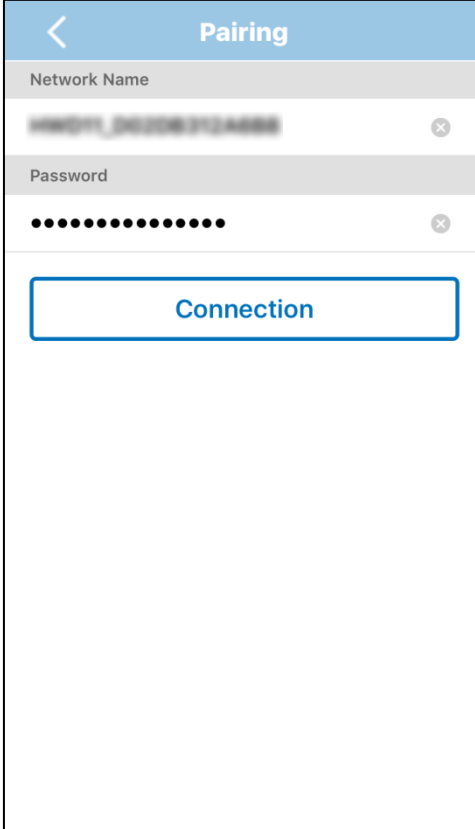
The Select Camera screen has a blue header with a close button (X), the title "Select Camera", and an edit icon (pencil). The main content area features a single button labeled "Add camera".



The Pairing screen has a blue header with a back button (<) and the title "Pairing". It contains two input fields: "Network Name" and "Password". Below these fields is a "Connection" button. At the bottom of the screen, there are several small, stylized robot icons.

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



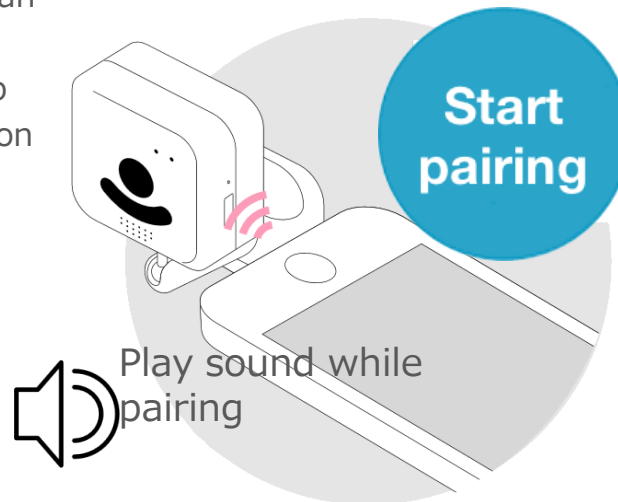
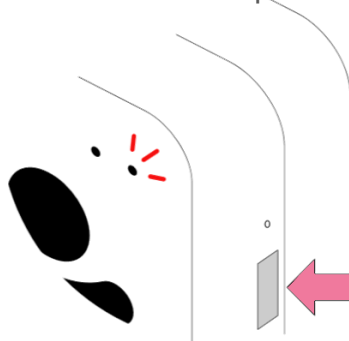
Pair the camera with your device.

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.

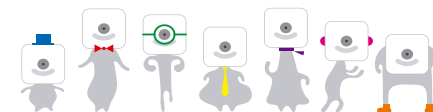
Press the function switch for more than 3 seconds. The LED will flash red.

※ 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.

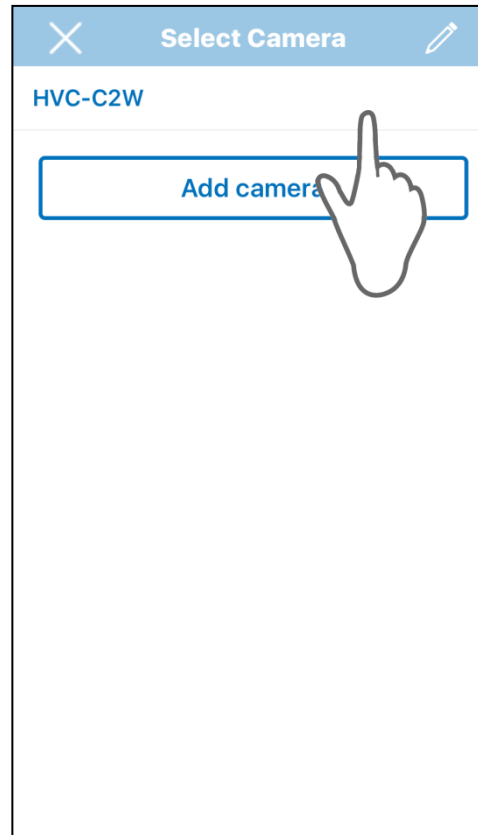
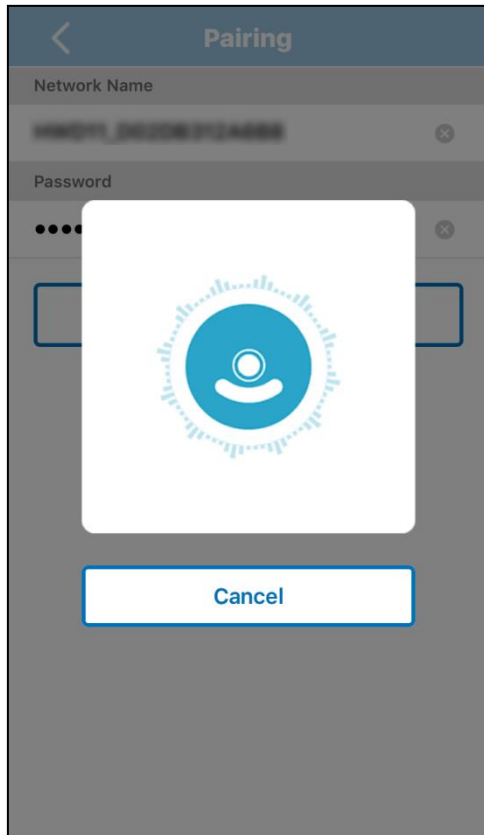


5. Connect Camera

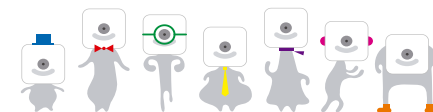
- ☑ Select a camera to be used.

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.

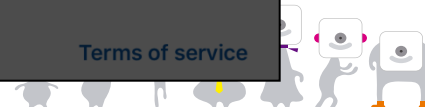
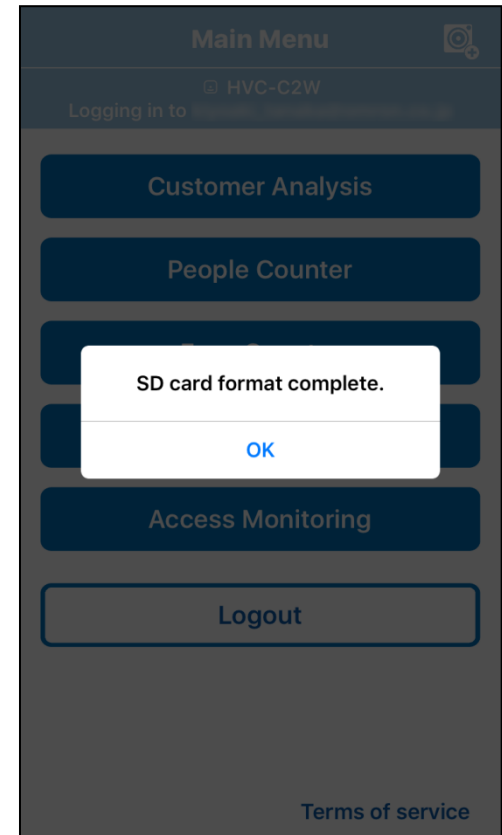
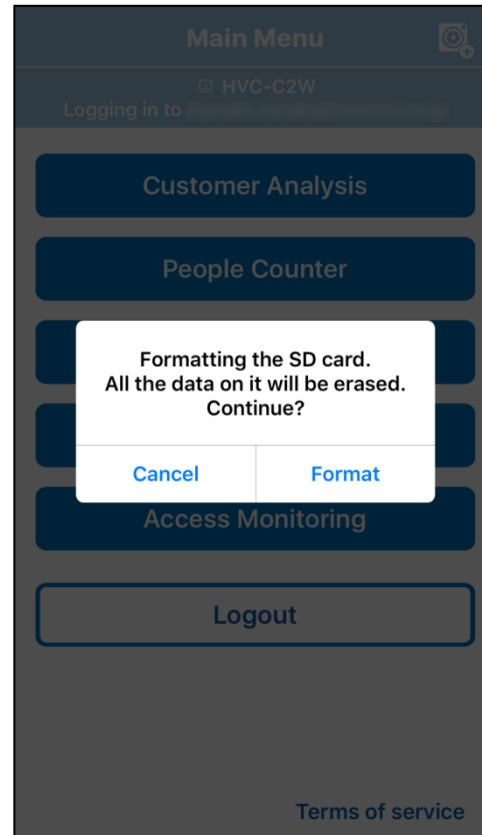
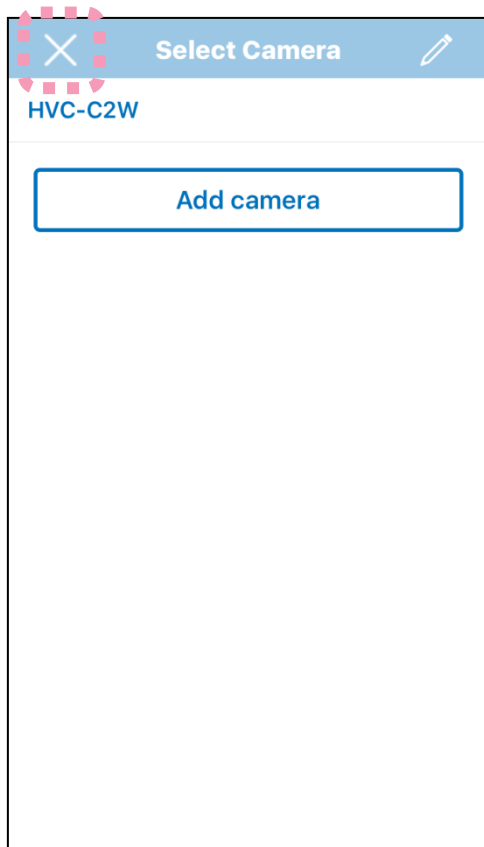


- ☑ The camera will be added to the camera list when pairing succeeds.
- ☑ Select the added camera.





5. Connect Camera

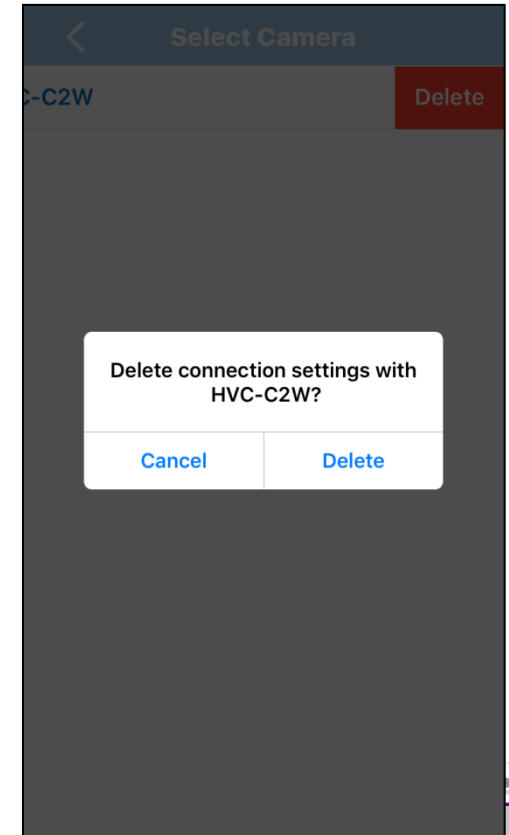
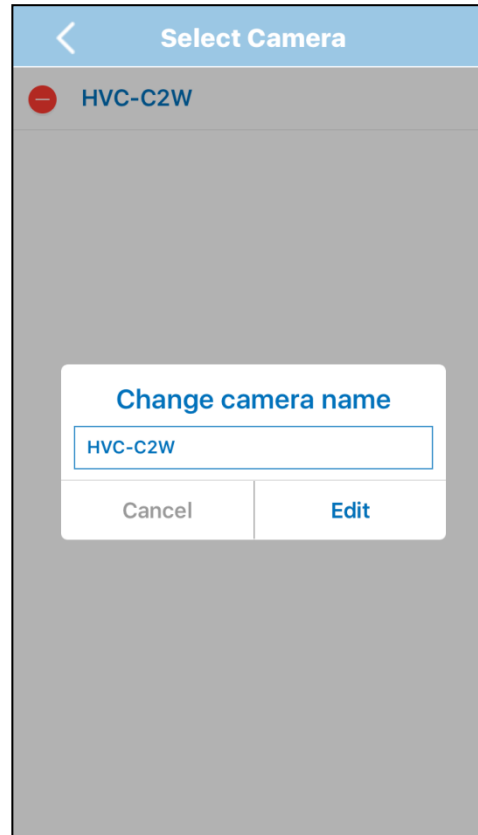
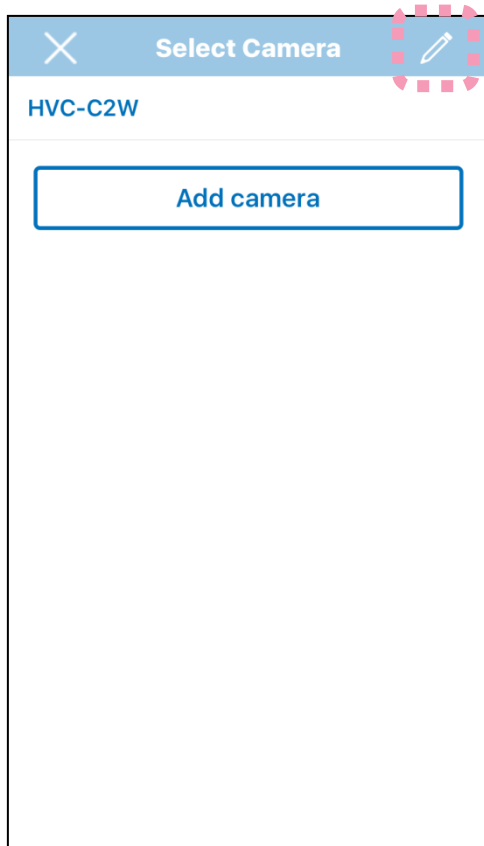
- Format the microSDHC™ card used to store images. Return to the main screen and select “Format” from the dialog window.



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

 Change or erase the camera name.

Press  to change the camera name and
 to delete it.



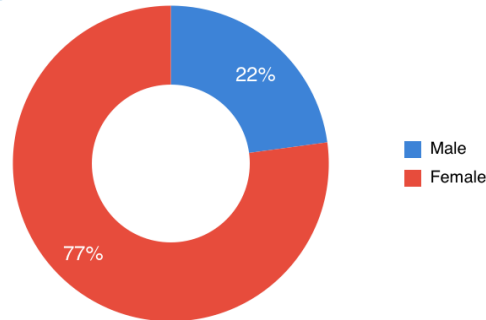
7. Customer Analysis

 **Customer Analysis** will estimate the gender and age of customers and display properties estimation results.

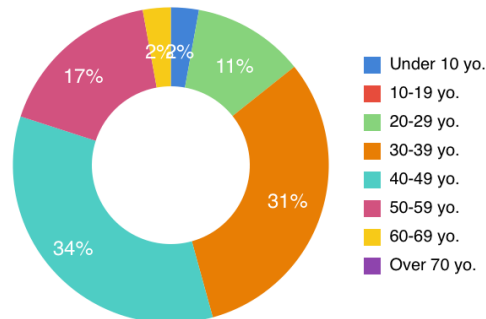
※The numbers indicate the number of people for a category.

Graph Image

Gender



Age

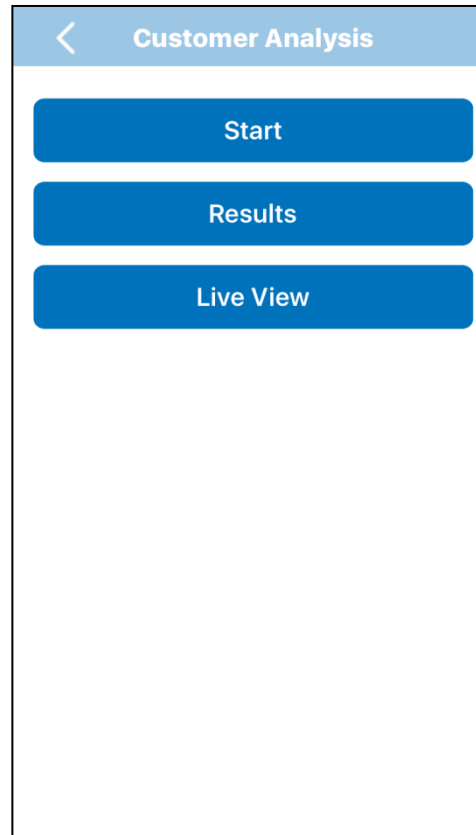
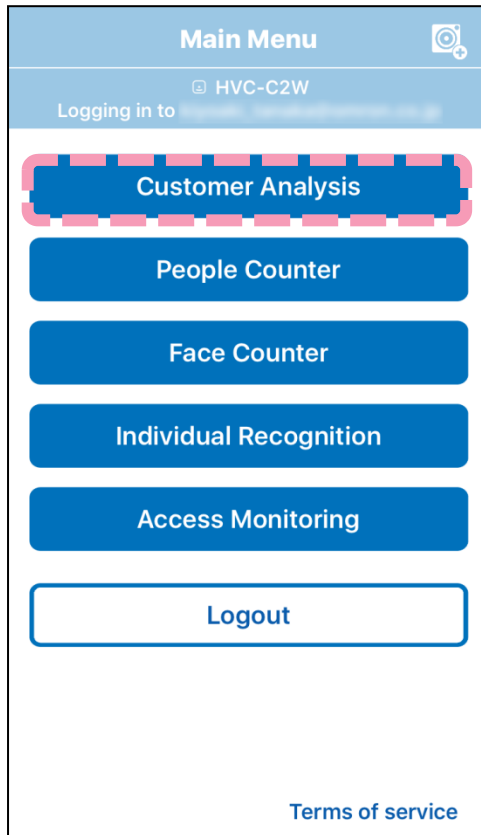


	Male	Female
Under 10 yo.	0	1
10-19 yo.	0	0
20-29 yo.	1	3
30-39 yo.	3	8
40-49 yo.	3	9
50-59 yo.	0	6
60-69 yo.	1	0
Over 70 yo.	0	0

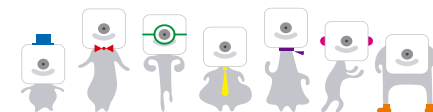


7.1 Customer Analysis Main Screen

- Select “Customer Analysis”.

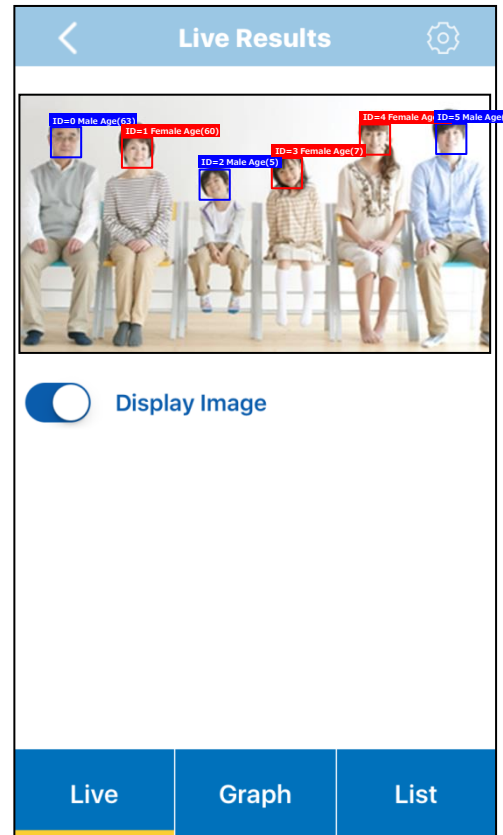
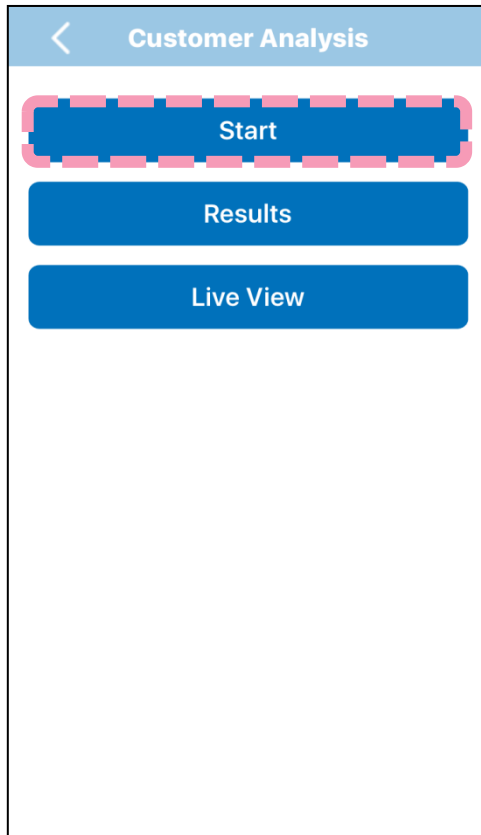


- Select “Start” to start **Customer Analysis**.
- Select “Results” in order to look at past results or to send them to a different device.
- Select “Live View” to display the live camera feed.

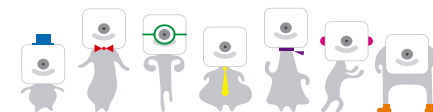


7.2 Start Customer Analysis

- Start **Customer Analysis** by pressing “Start”.

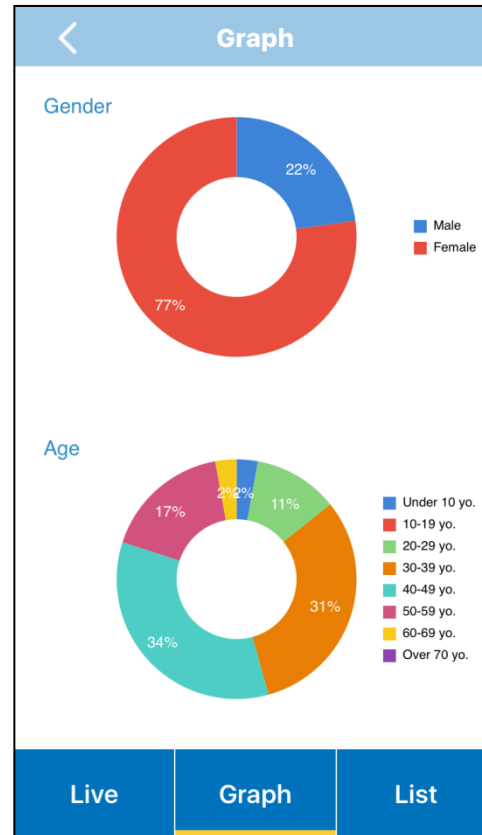
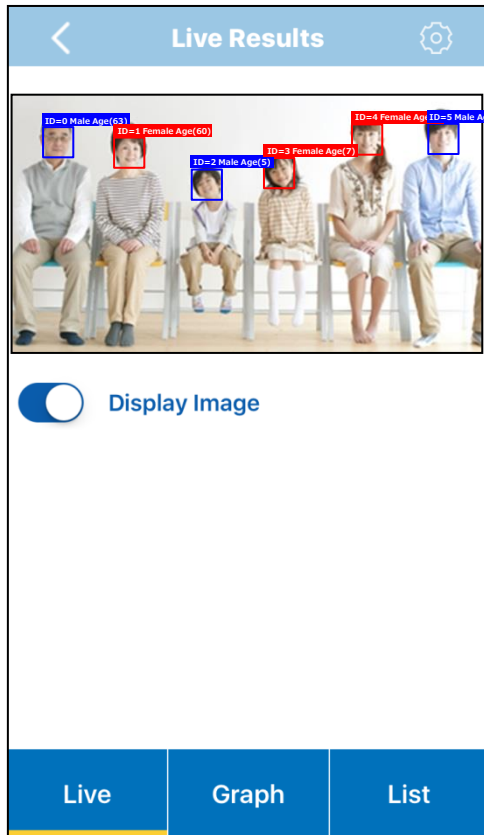


- The live camera feed and the results can be seen in the “Live” tab.
- The face rectangle will be white during the process before turning blue or red when the gender and age estimation process has ended.



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.




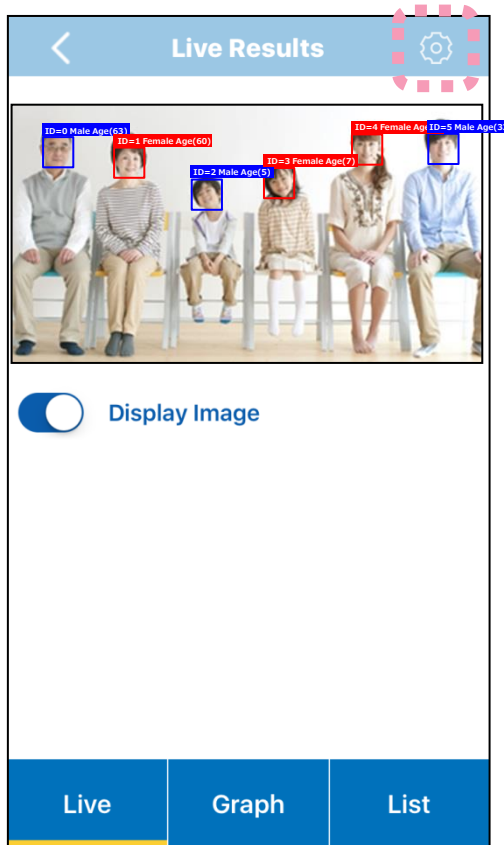
List











	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

Live Graph List

7.4 Change Customer Analysis Settings

- 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

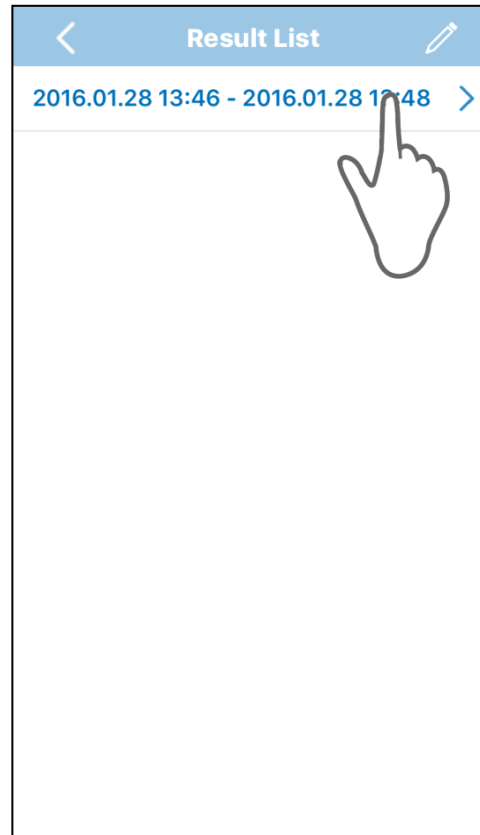
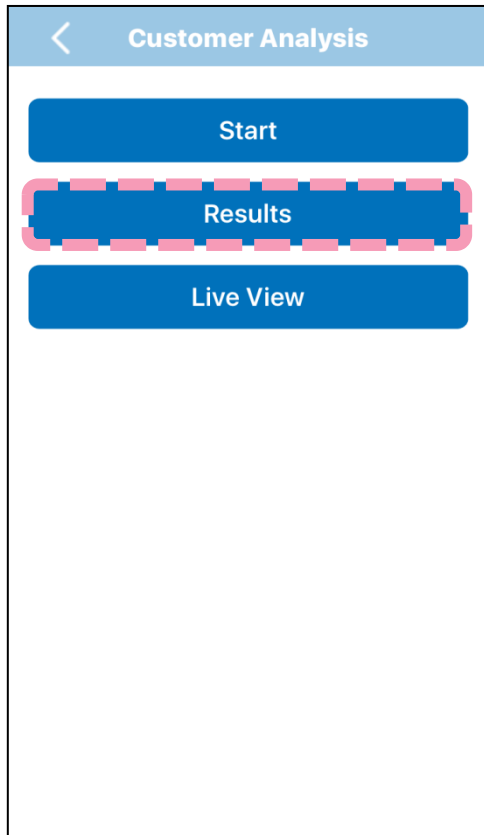
- Min / Max sizes
Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.
-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

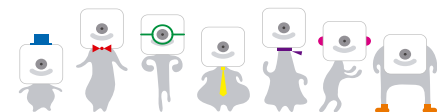
- Frame
Number of frames used to stabilize properties through an averaging process of past frames.
- Min / Max angles
Angles outside of the set value will be discarded in order to improve quality of the stabilization of estimation results.
- Degree of confidence
Results with a degree of confidence lower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


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

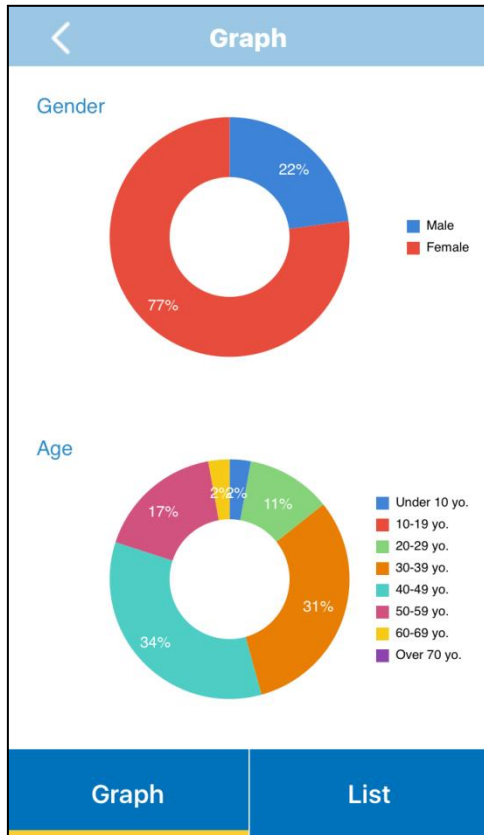


- Past results will be listed with their start and end time.



7.5 Display Customer Analysis Results

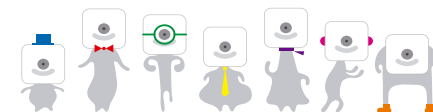
-  Display the past **Customer Analysis** results.
Past results can be displayed as a graph or as a list.






List

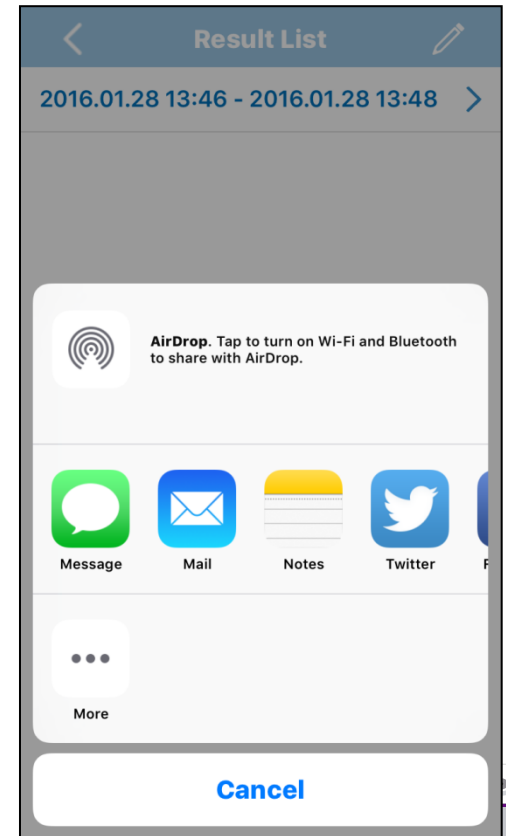
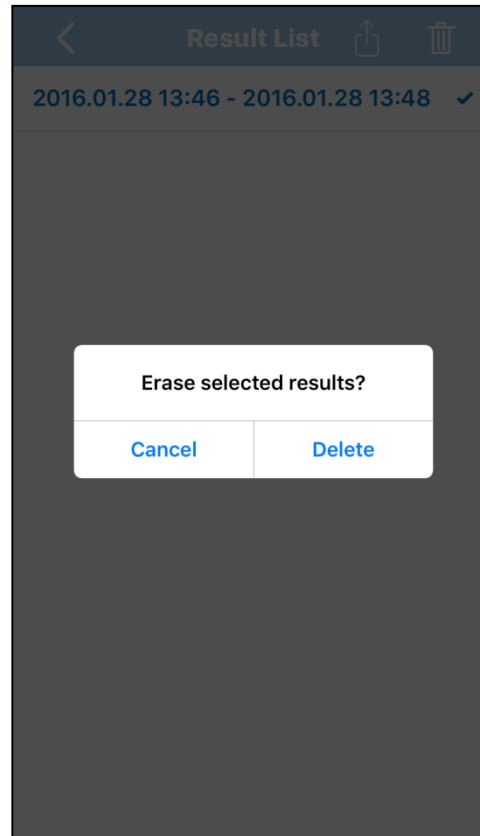
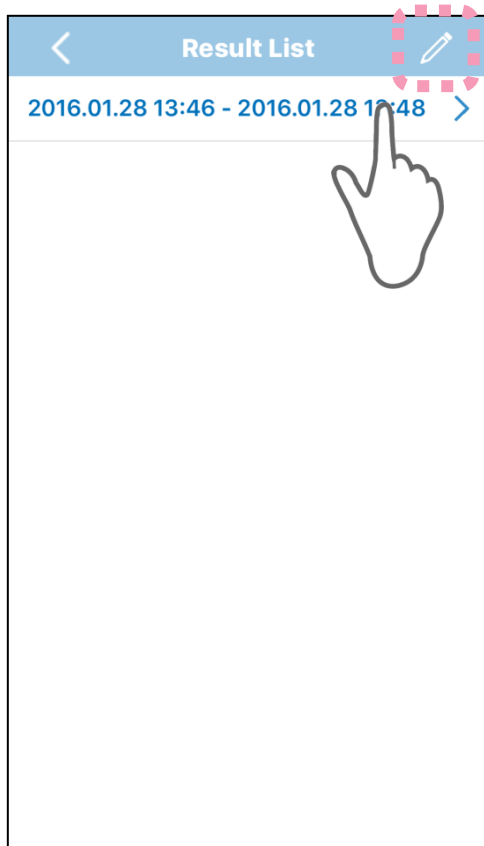
	Male	Female
Under 10 yo.	0	1
10-19 yo.	0	0
20-29 yo.	1	3
30-39 yo.	3	8
40-49 yo.	3	9
50-59 yo.	0	6
60-69 yo.	1	0
Over 70 yo.	0	0

Graph List



7.6 Erase or Send Customer Analysis Results **OMRON**

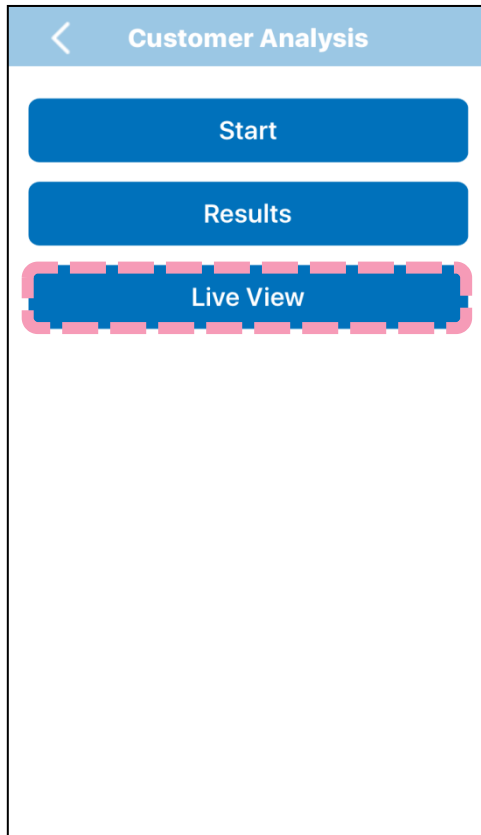
- 👁 Erase or send past **Customer Analysis** results.
- Press  and select the results.
- Press  to delete them and  to send them.





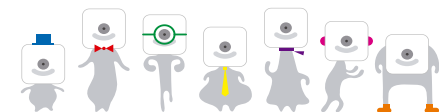
7.7 Live View

- ☑ 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.

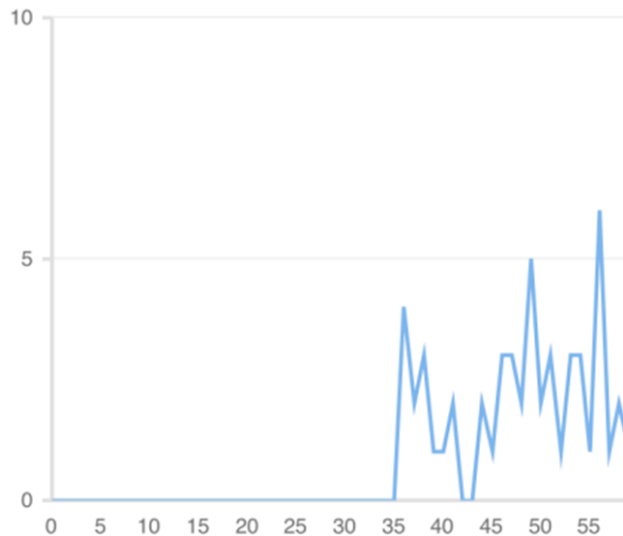


8. People Counter

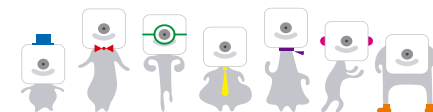
 **People Counter** will detect human bodies and display the frequency of detection on a timeline.

※The numbers indicate the total number of people counted.

Total: 57

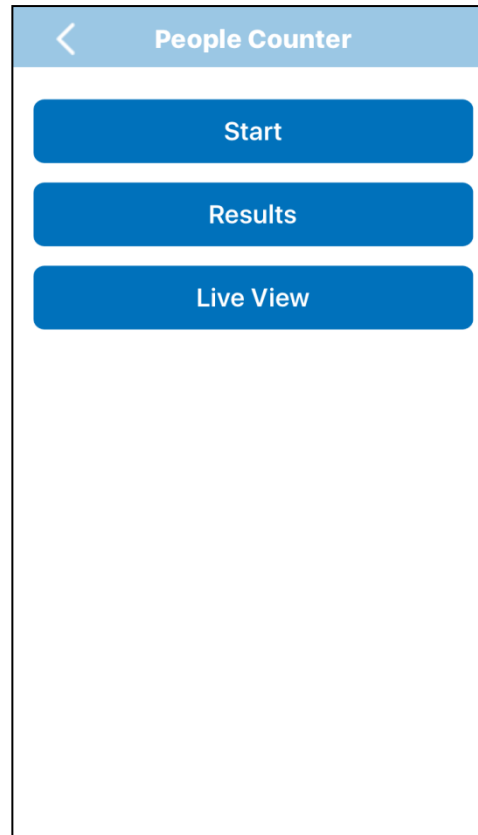
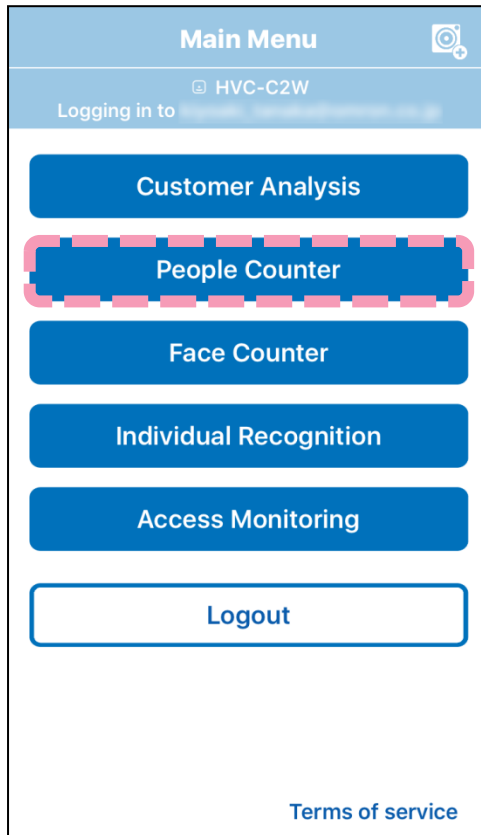


« 2016.01.18 14:00 »

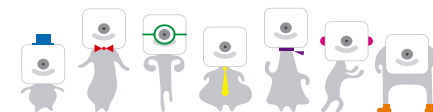


8.1 People Counter Main Screen

- Select "People Counter".

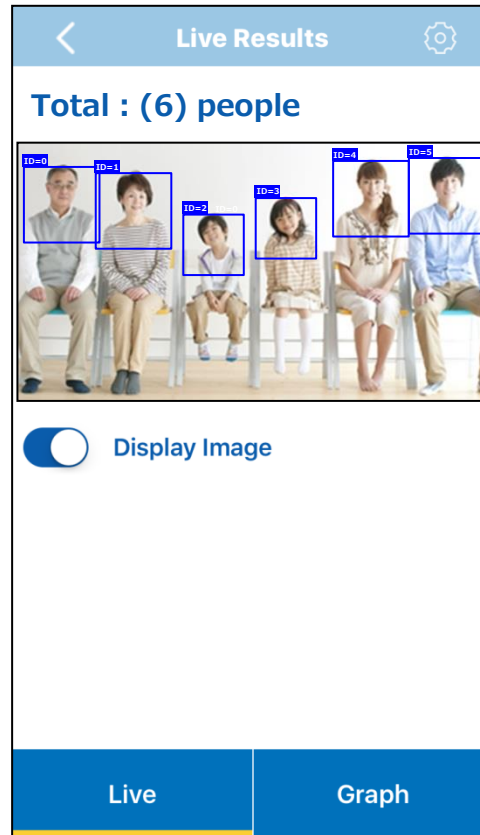
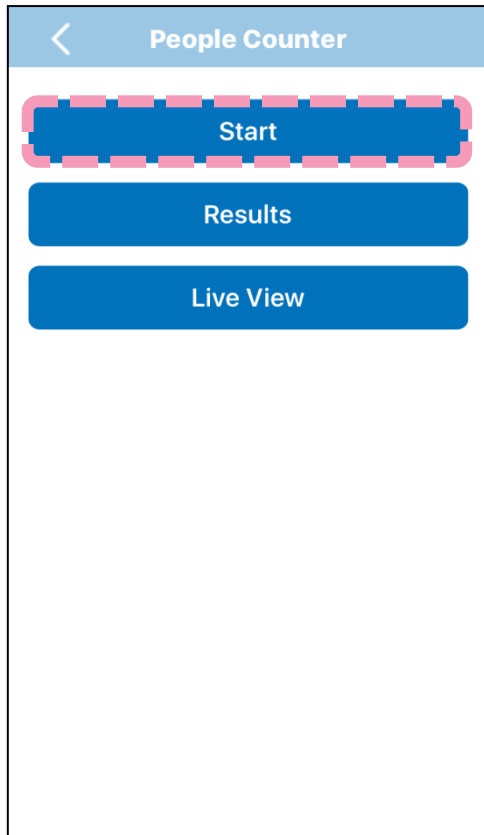




- Select "Start" to start **People Counter**.
- Select "Results" in order to look at past results or to send them to a different device.
- Select "Live View" to display the live camera feed.

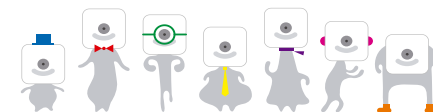


8.2 Start People Counter

 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

- Display the **People Counter** live results.
Switch to the “Graph” tab to see the live results.
Results can be displayed by day or time.

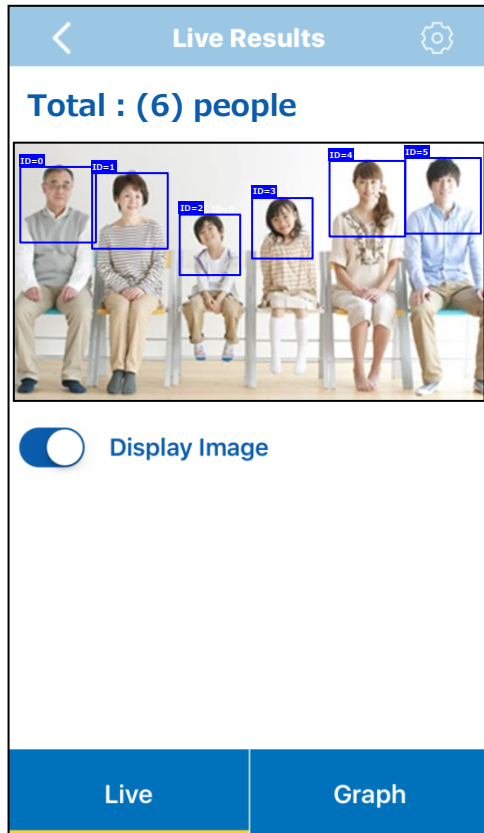






8.4 Change People Counter Settings



Change the **People Counter** settings.

Press  to change the Human Body Detection parameters.



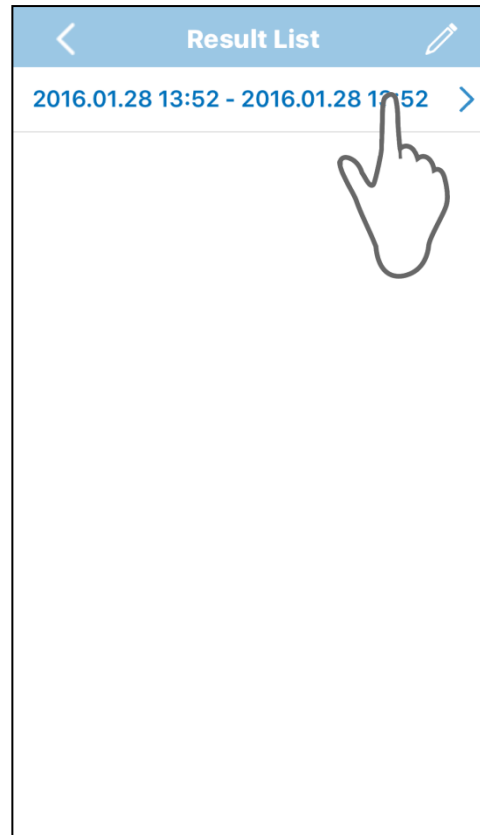
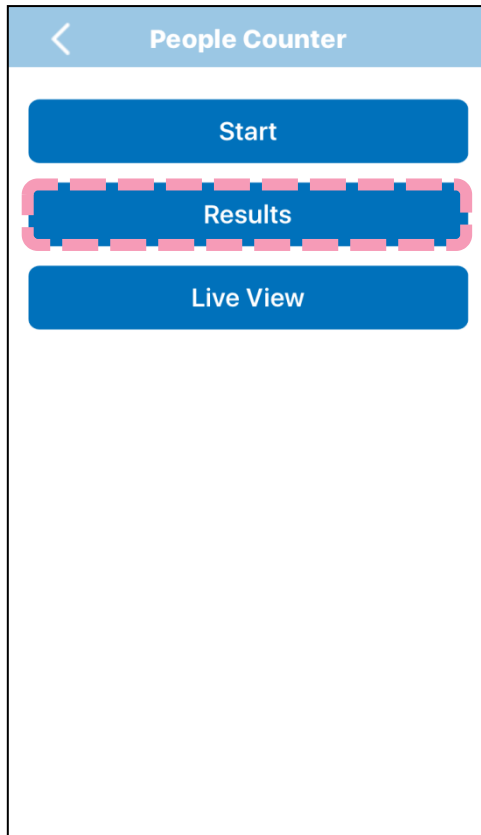
Settings		
Human Body Detection Parameters		
	Min. Size	64
	Max. Size	8192
	Threshold Value	500
	Retry Count	2

Human Body Detection Parameters

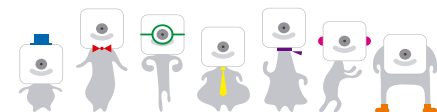
- Min / Max sizes
Set the minimum and maximum size for bodies. Setting a lower minimum size will detect more bodies but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.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

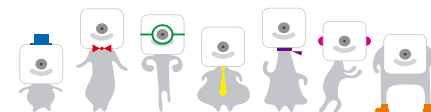
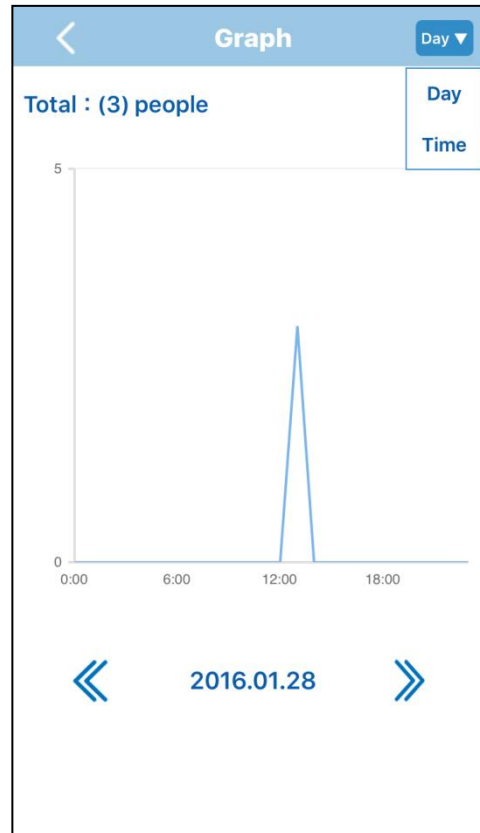
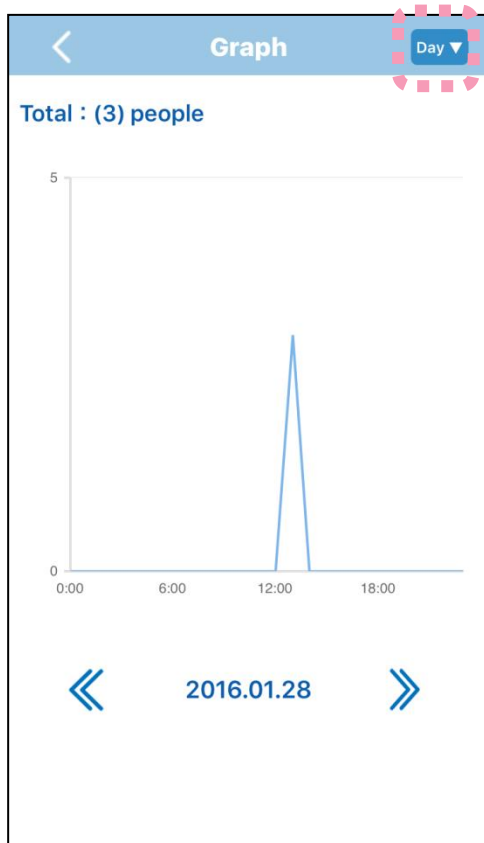


- Past results will be listed with their start and end time.






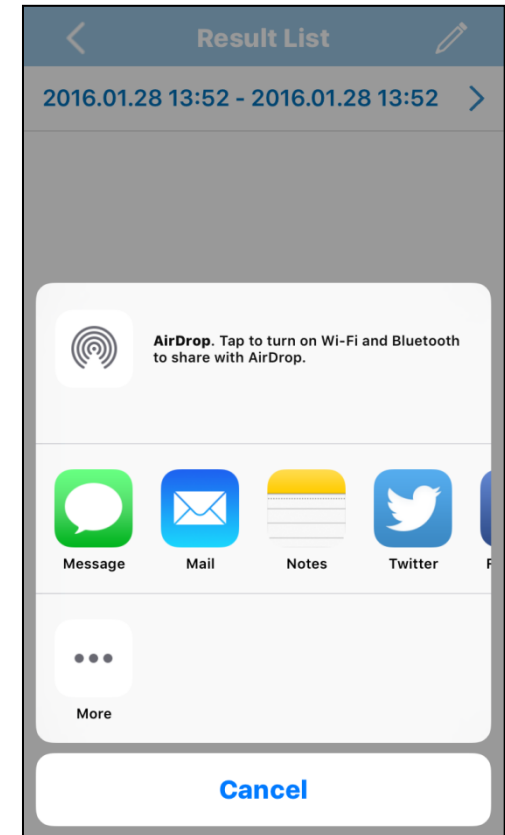
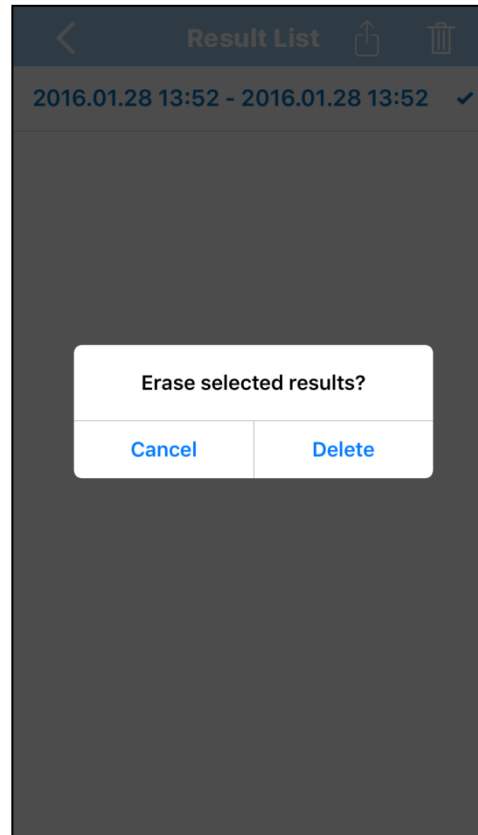
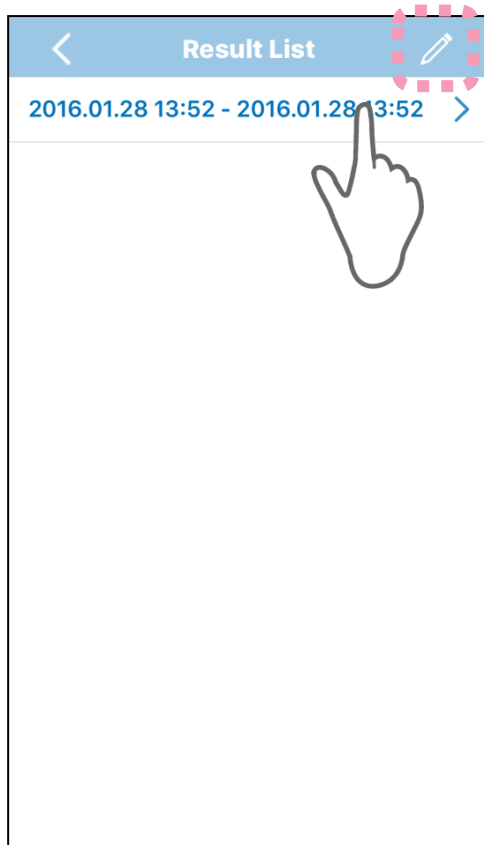
8.5 Display People Counter Results

- 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

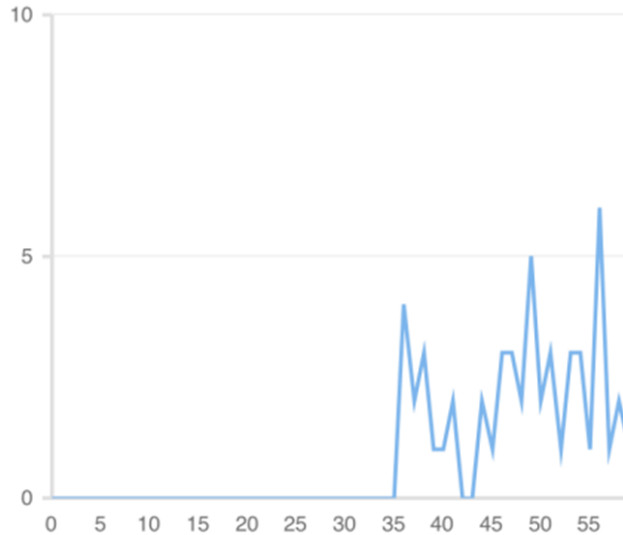
- 👤 Erase or send past **People Counter** results.
- Press  and select the results.
- Press  to delete them and  to send them.



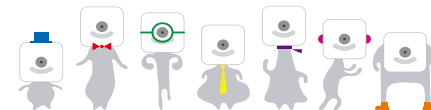
9. Face Counter

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

Total: 57

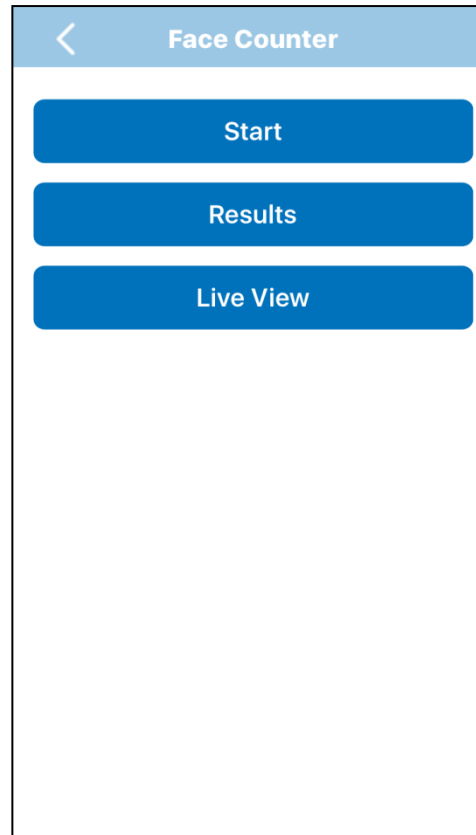
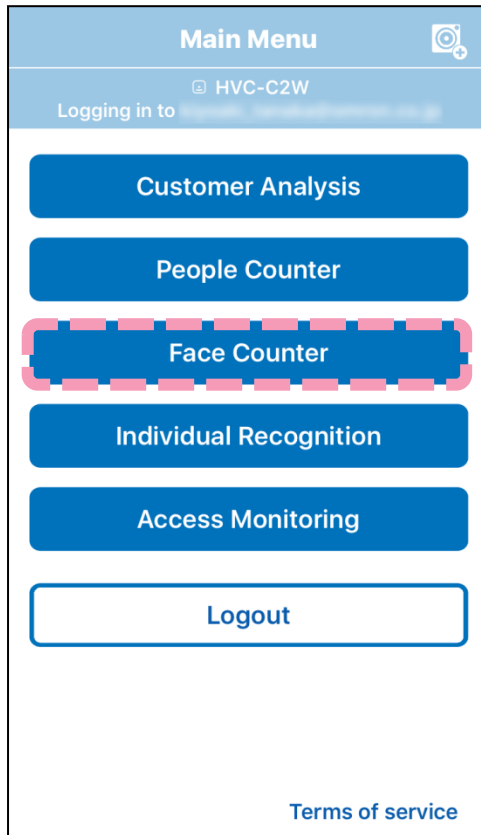


« 2016.01.18 14:00 »

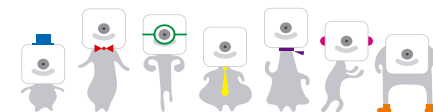


9.1 Face Counter Main Screen

- Select "Face Counter".

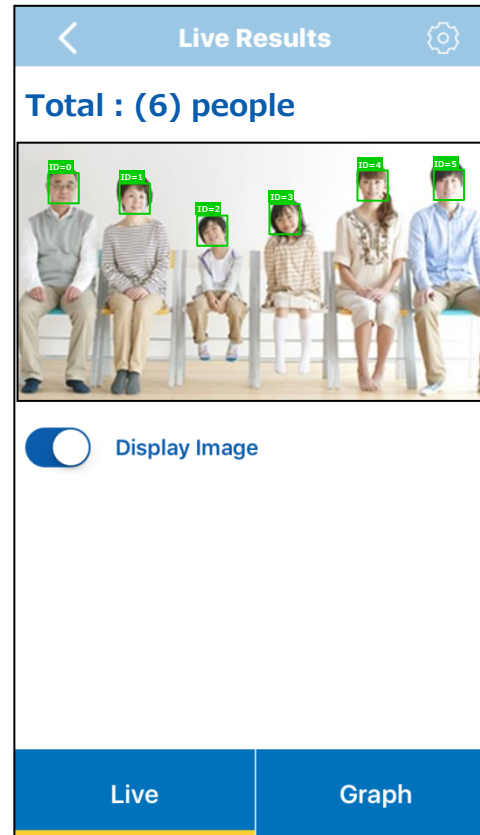
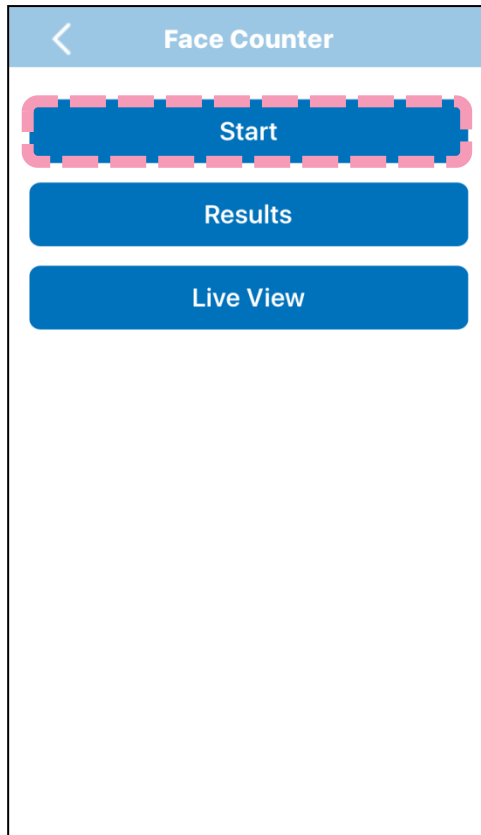


- Select "Start" to start **Face Counter**.
- Select "Results" in order to look at past results or to send them to a different device.
- Select "Live View" to view the live camera feed.

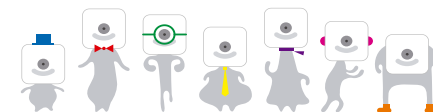


9.2 Start Face Counter

- Start Face Counter by pressing “Start”.

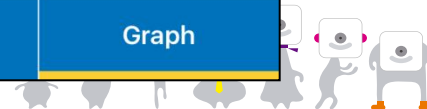
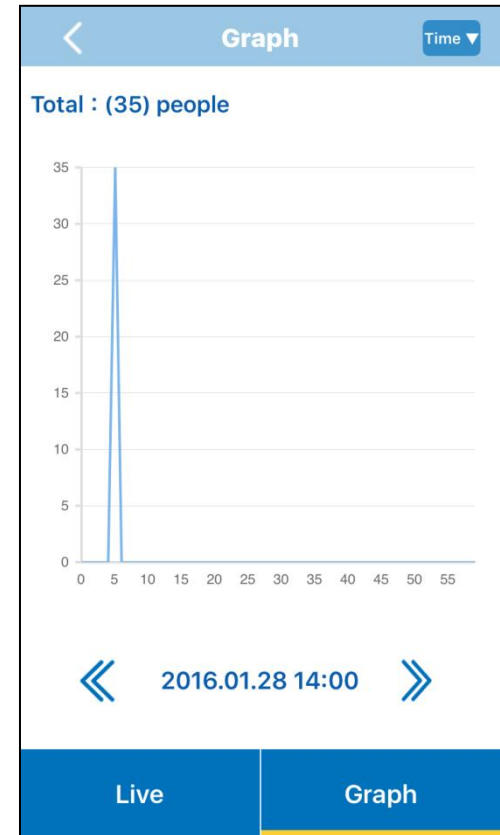
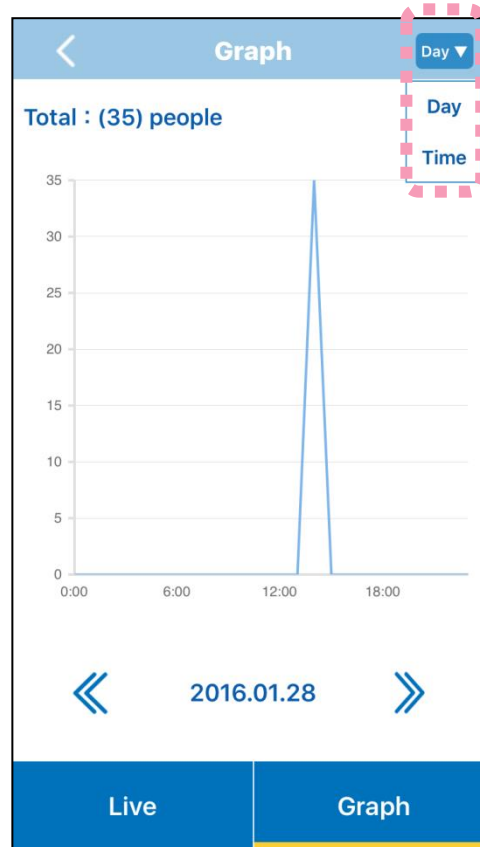
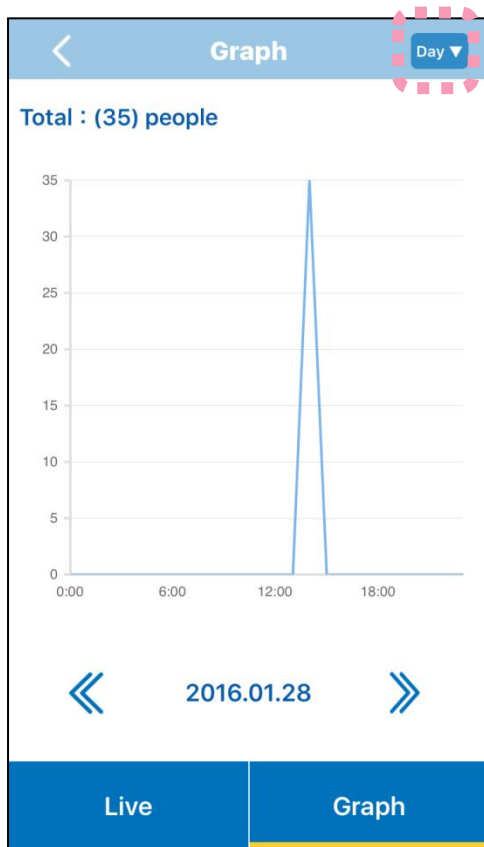


- The live camera feed and the results can be seen in the “Live” tab.
- The total indicates the total number of faces (people) counted.



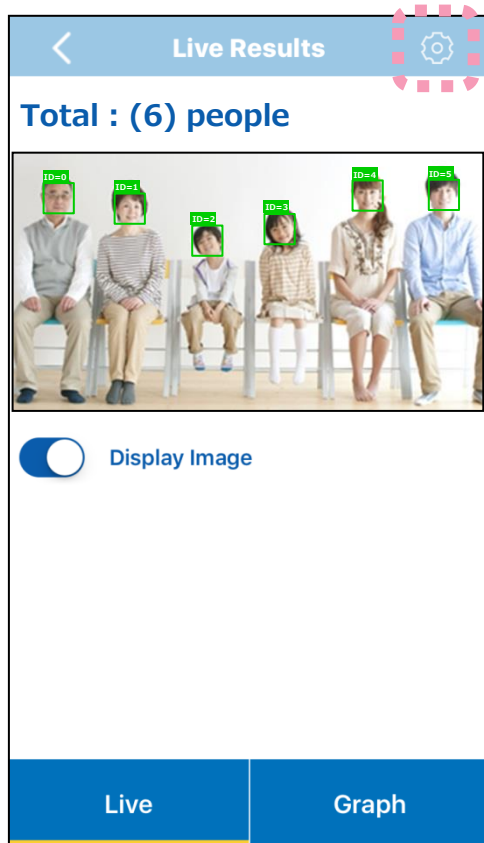
9.3 Display Face Counter Live Results





- 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

- Change the **Face Counter** settings.
Press  to change the face detection parameters.



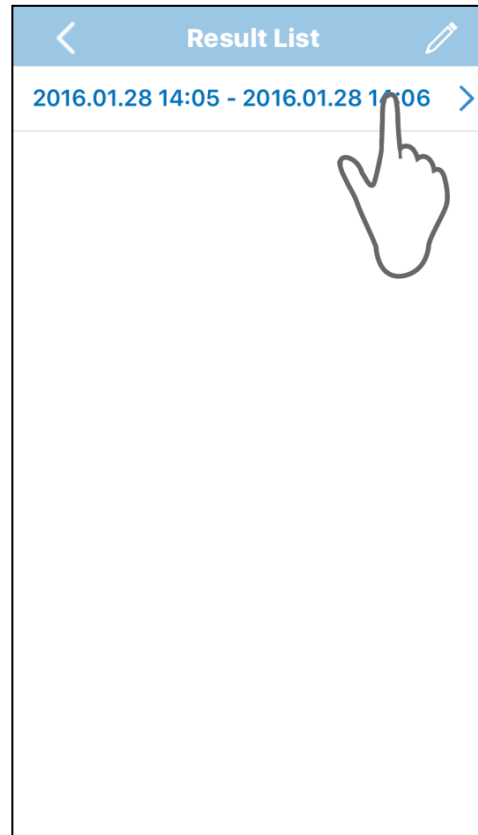
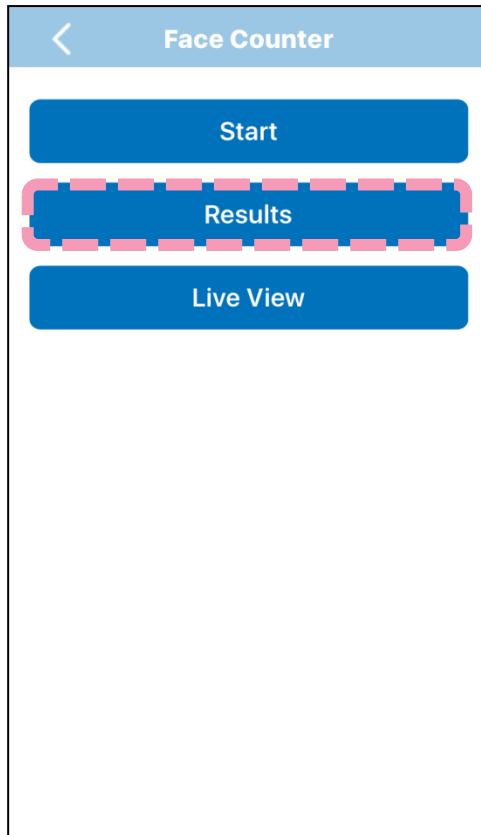
Settings		
Face Detection Parameters		
	Min. Size	64
	Max. Size	8192
	Threshold Value	500
	Retry Count	2

Face Detection Parameters

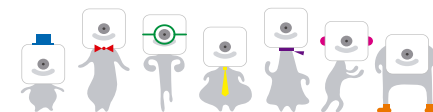
- Min / Max sizes
Set the minimum and maximum size for faces. Setting a lower minimum size will detect more faces but also make the process take longer.
- Threshold value
Set the threshold value. A higher threshold value will reduce the number of false detections but also reduce the detection rate.
-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

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

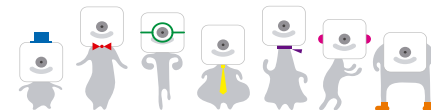
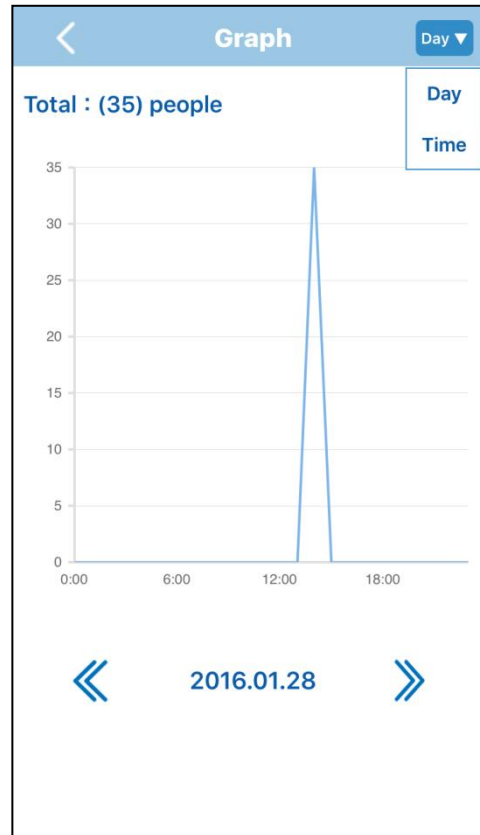
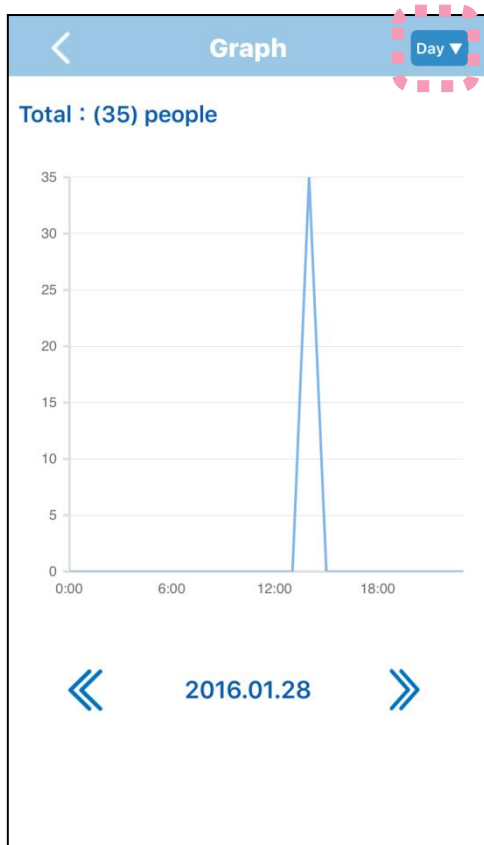


- Past results will be listed with their start and end time.






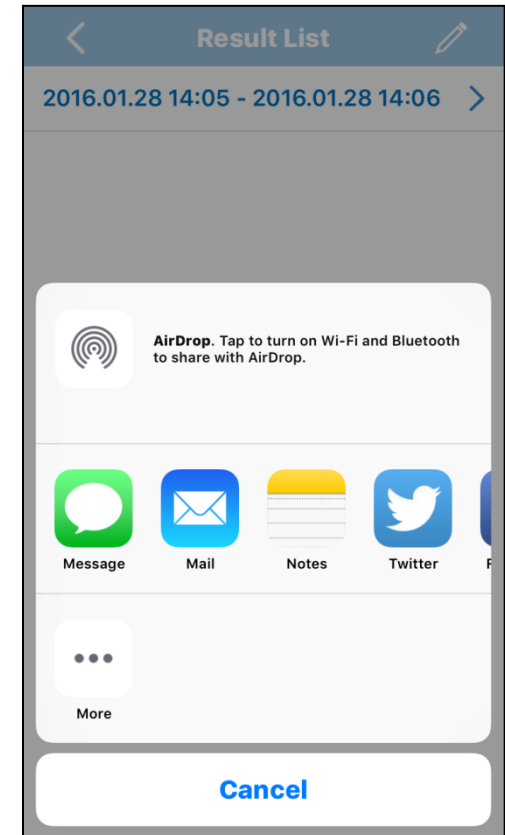
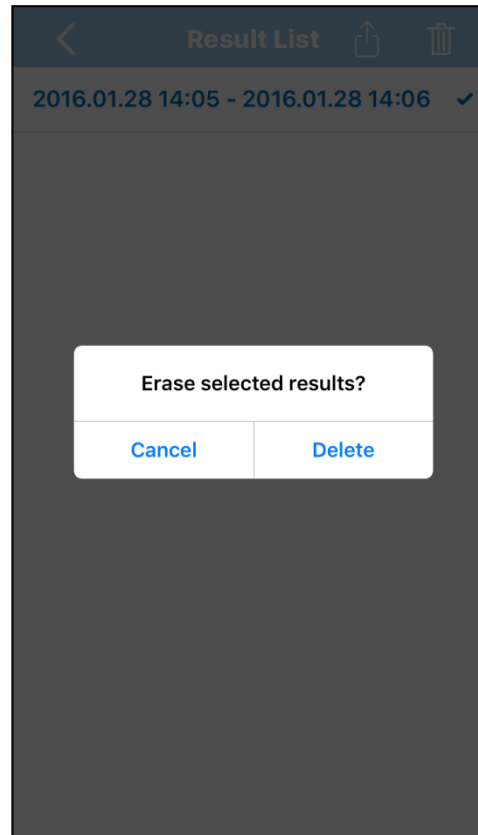
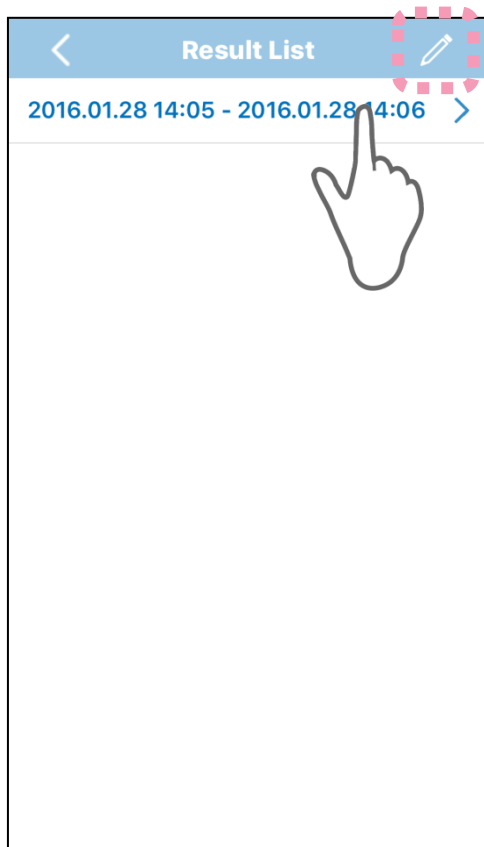
9.5 Display Face Counter Results

- 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

- 👤 Erase or send past **Face Counter** results.
- Press  and select the results.
- Press  to delete them and  to send them.



10. Individual Recognition

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



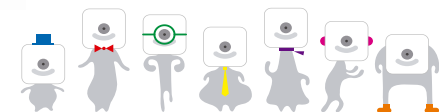
☒ Display Image

OK



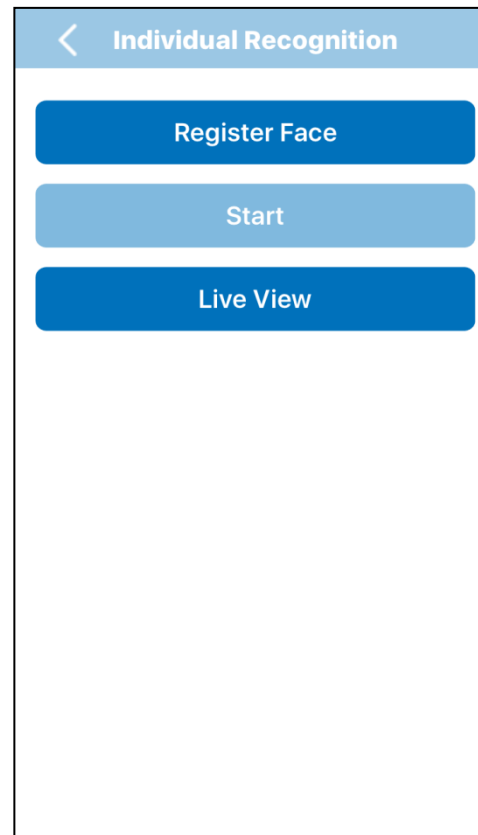
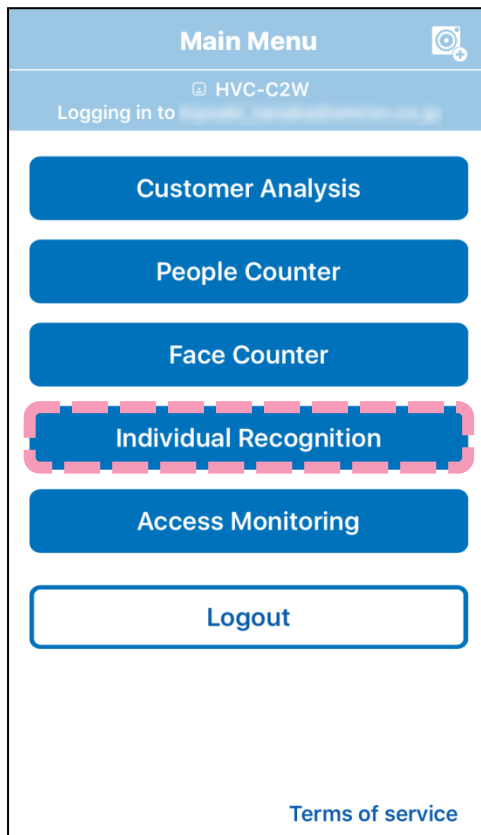
☐ Display Image


NG




10.1 Individual Recognition Screen


 Select “Individual Recognition”.

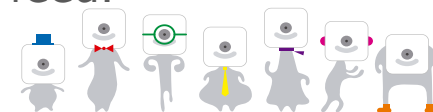


 Faces need to be registered in order to use **Individual Recognition**. The “Start” button will not be available with no face registered.

 Select “Register Face” to register a face.

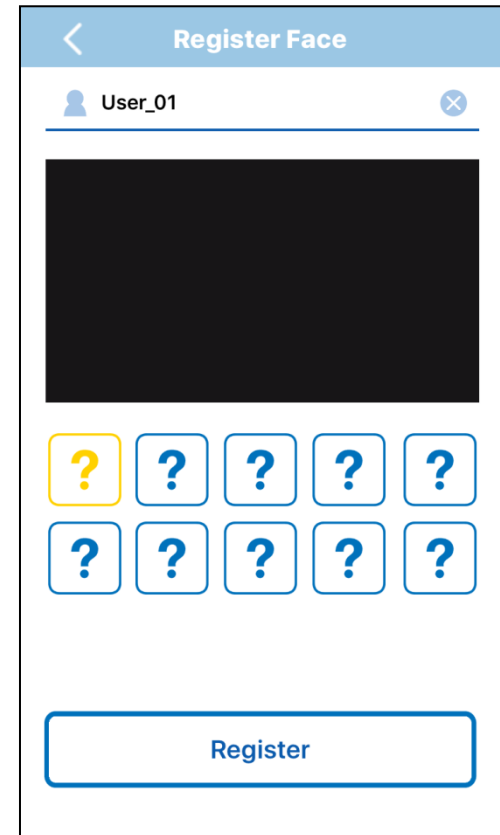
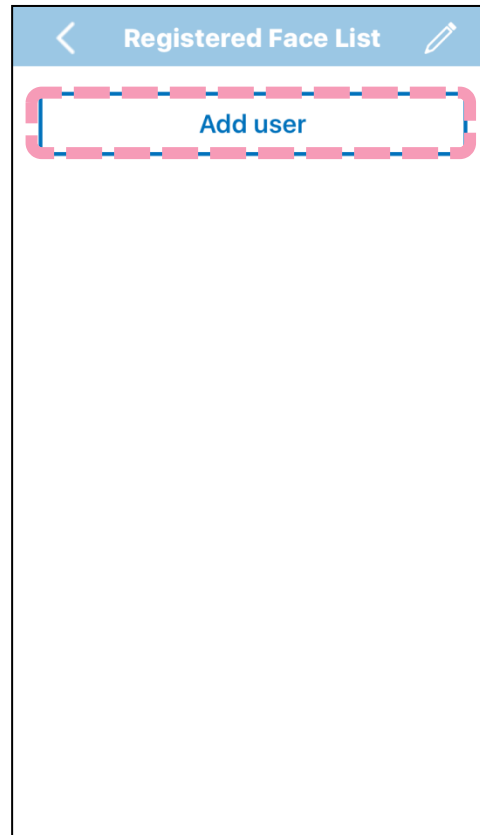
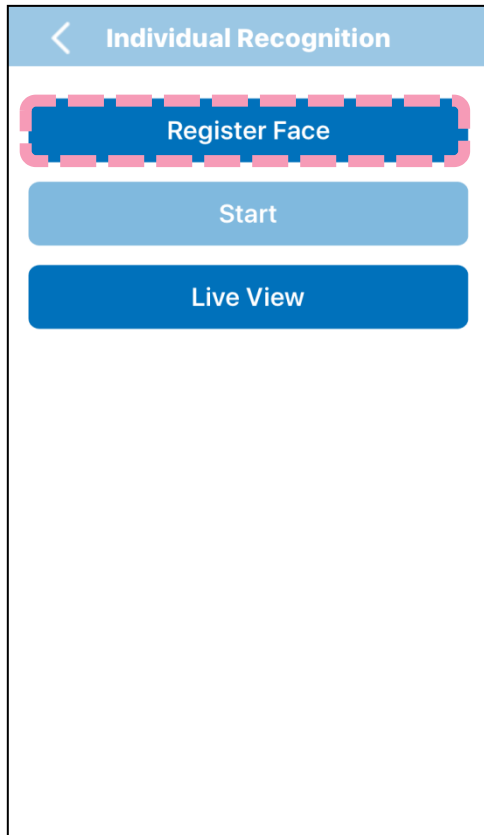
 Select “Start” to start **Individual Recognition**.

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



10.2 Register Face

- 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.

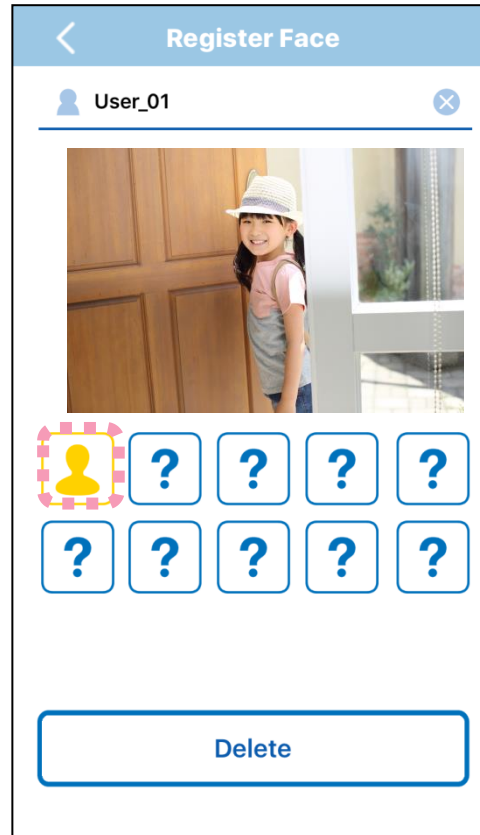
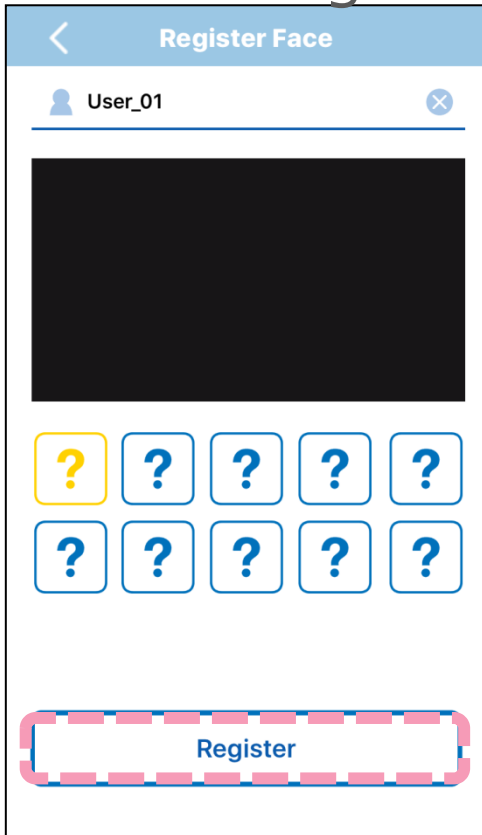




10.2 Register Face

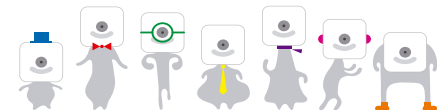
 Select "Register".

The icon for will turn to  .

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

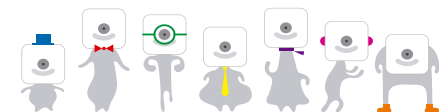
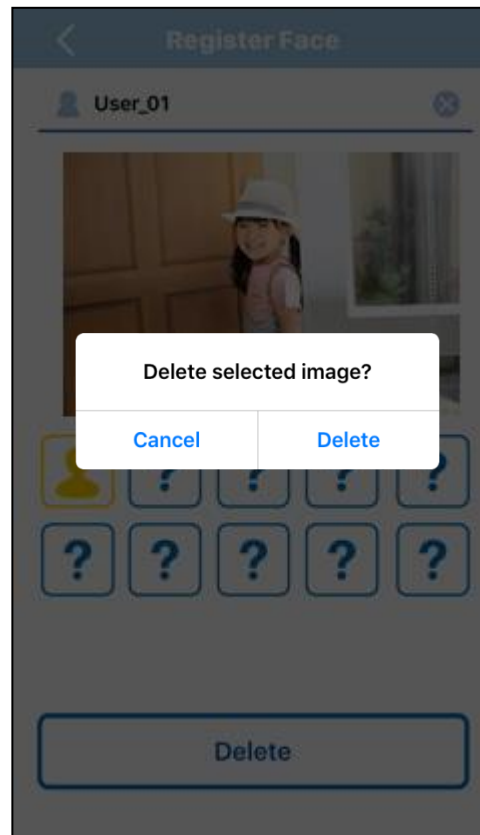
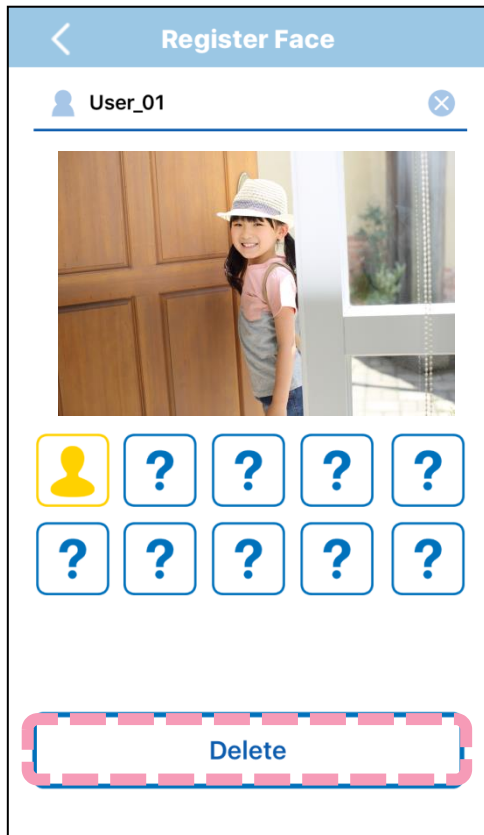


 Press  to register additional images.



10.3 Delete Registered Image

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

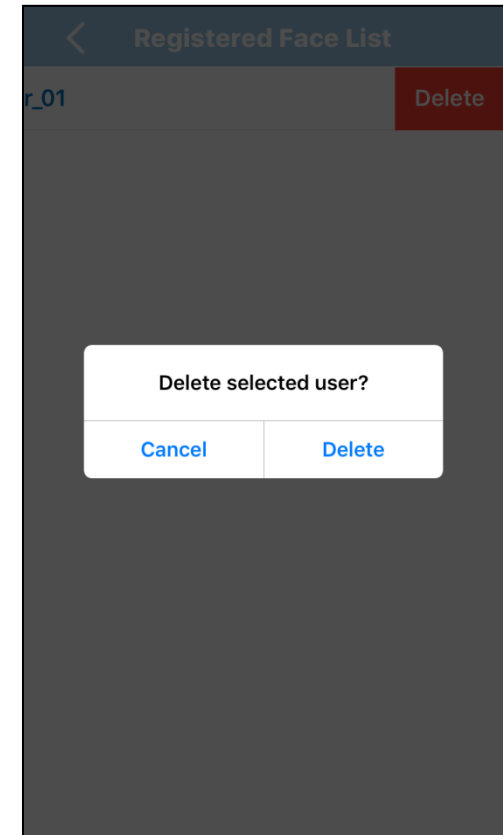
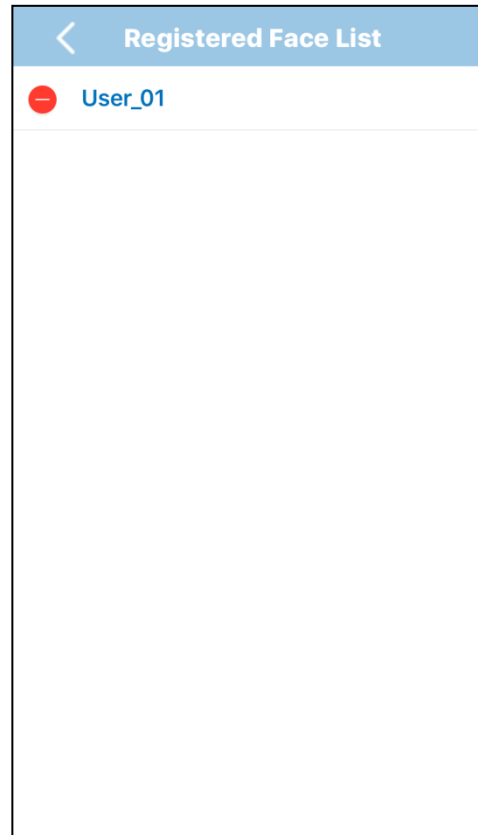
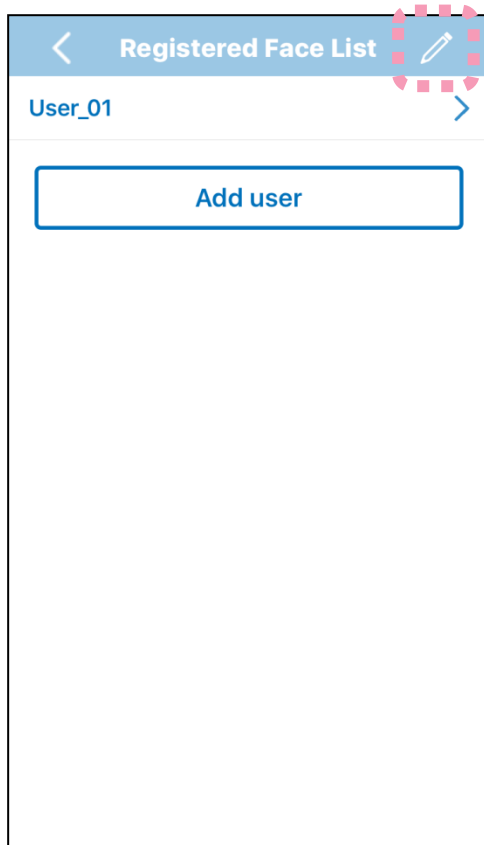


10.4 Delete User



Delete a registered user.

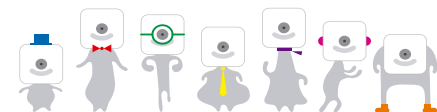
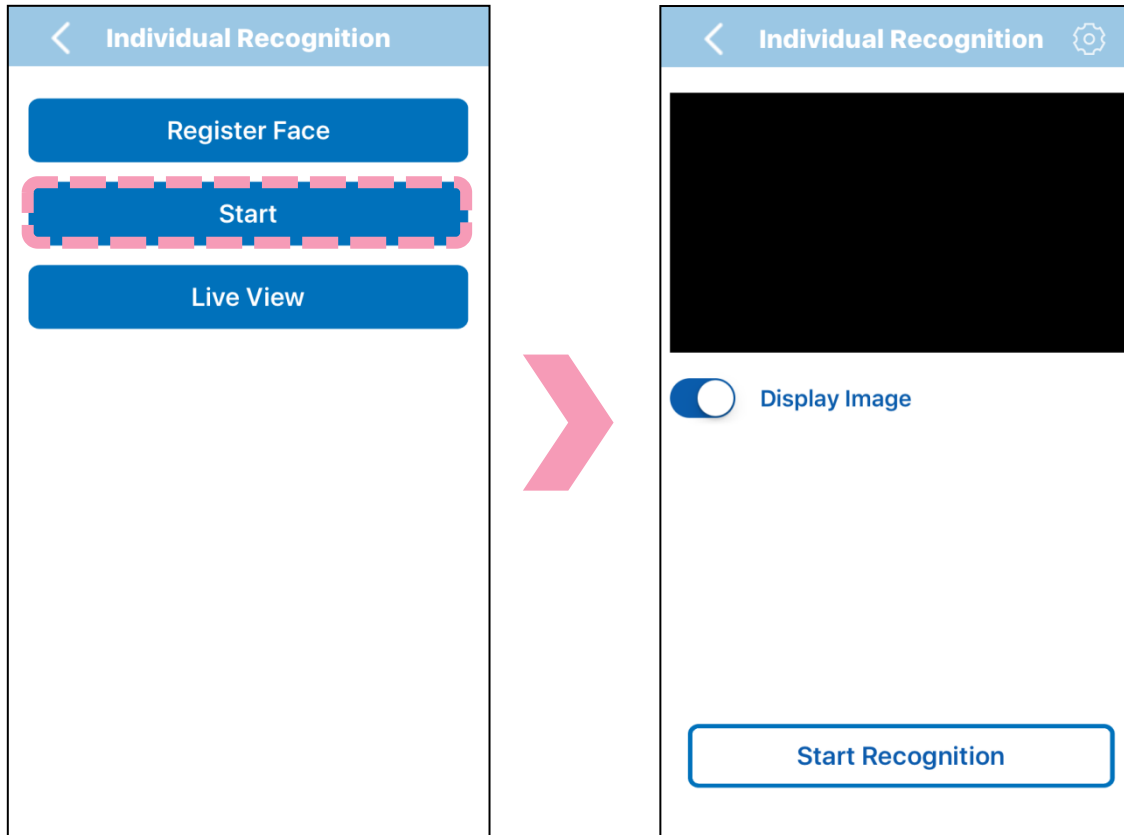
Select  and  to delete a registered user.






10.5 Start Individual Recognition

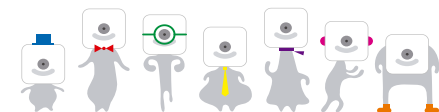
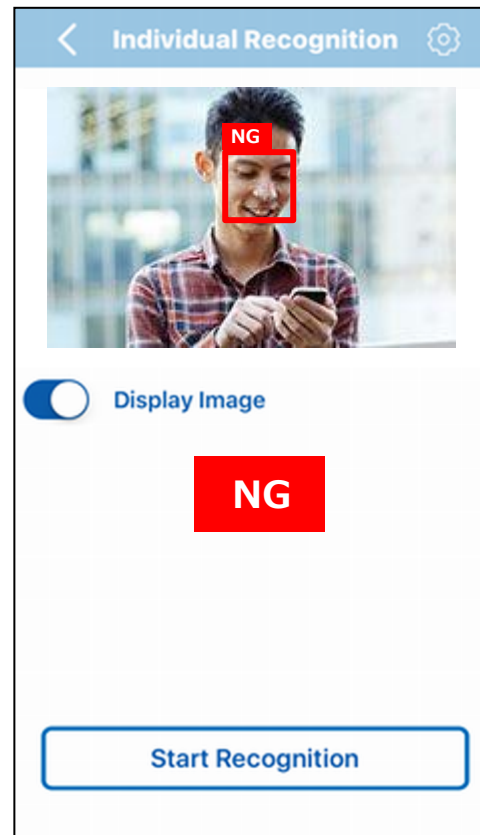
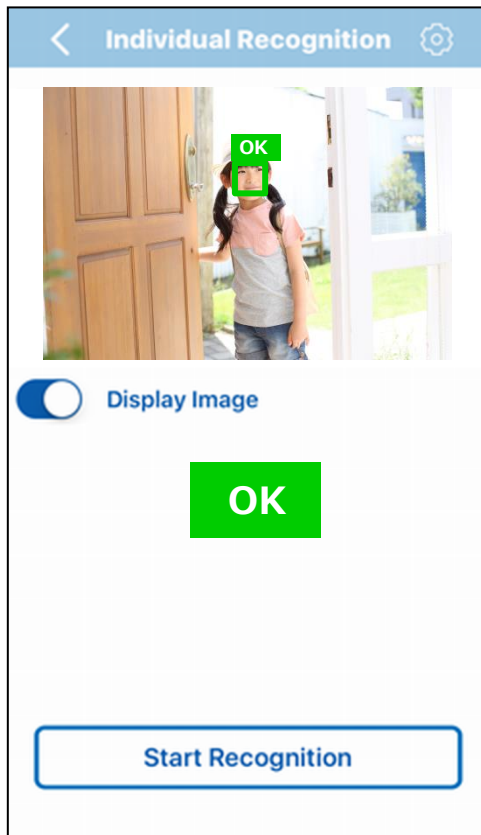
Start Individual Recognition.

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





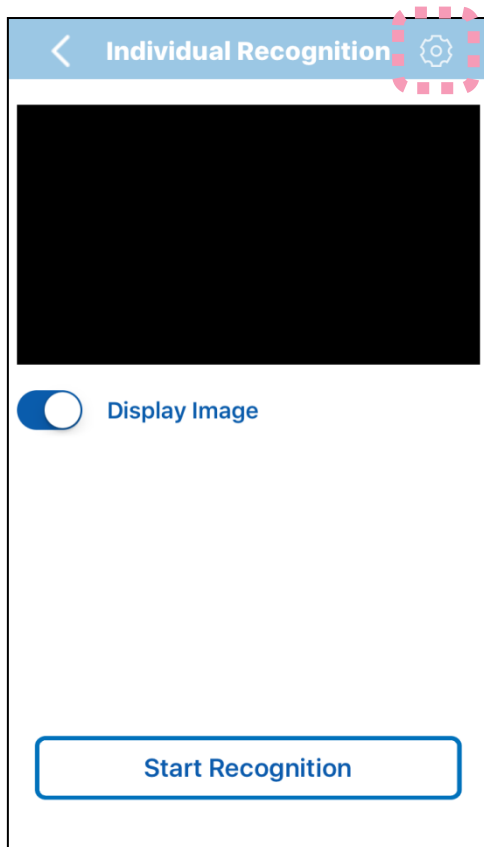
10.5 Start Individual Recognition





-  **Individual Recognition** results are as follows:
-  **OK** will be displayed for successful recognition and
 -  **NG** otherwise.



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

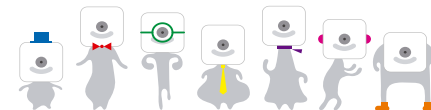
Minimum ratio to be achieved over multiple frames, used in order to stabilize the recognition.

■ Min / Max angles

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

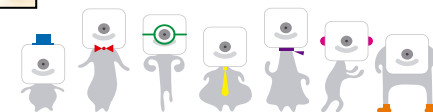
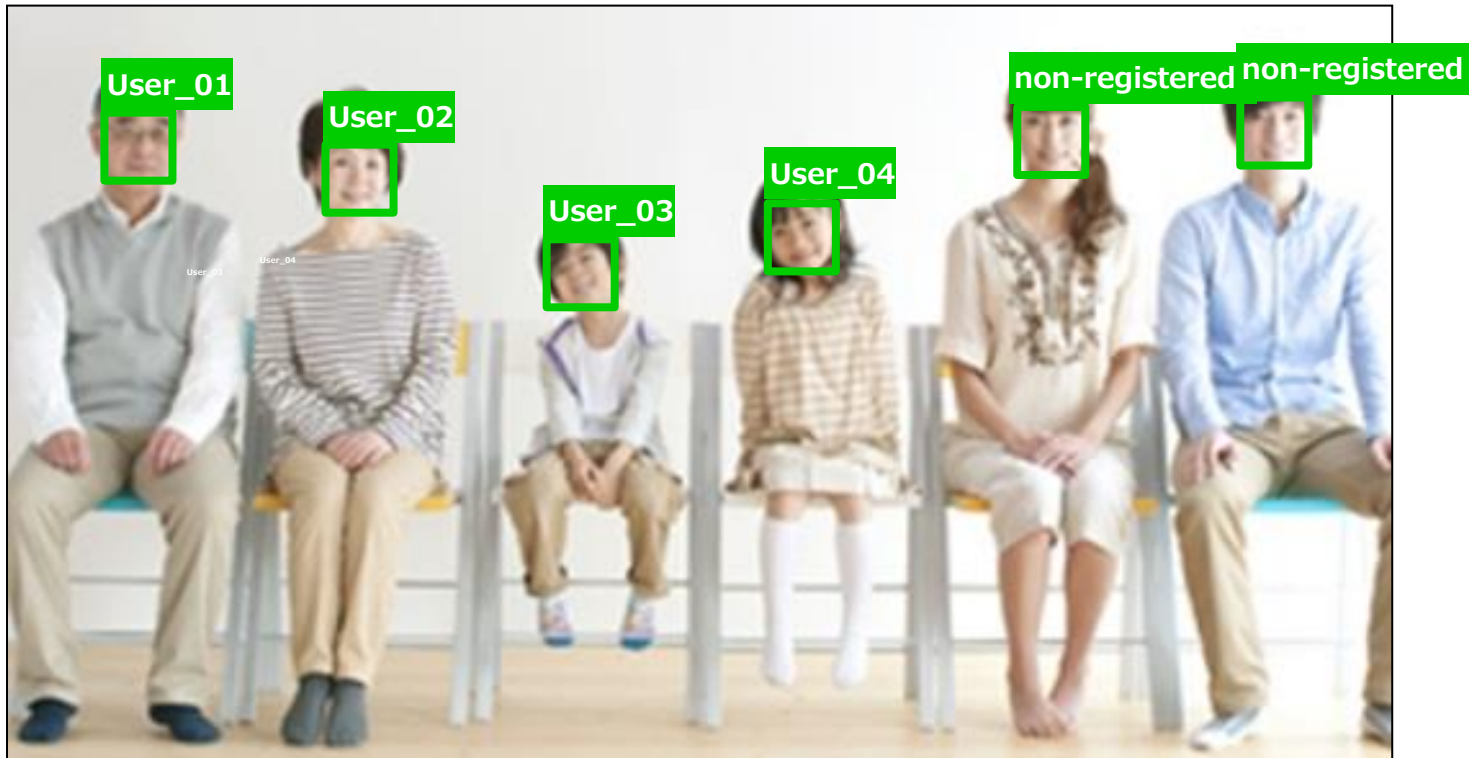
■ Degree of confidence

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.



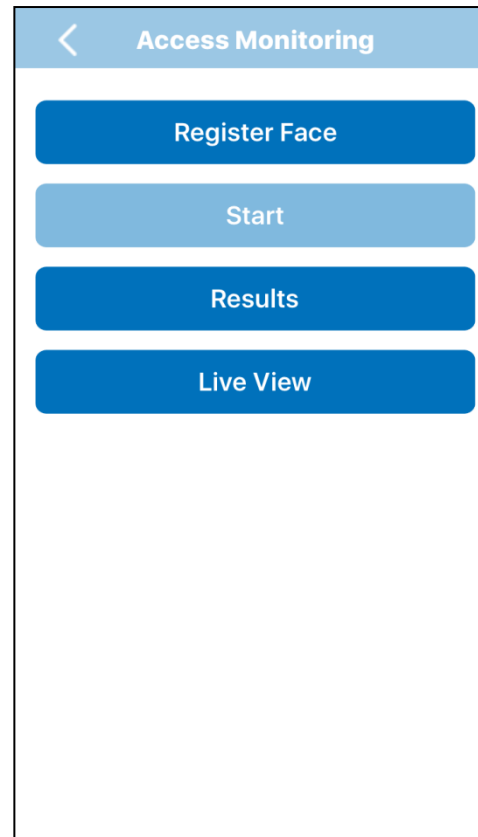
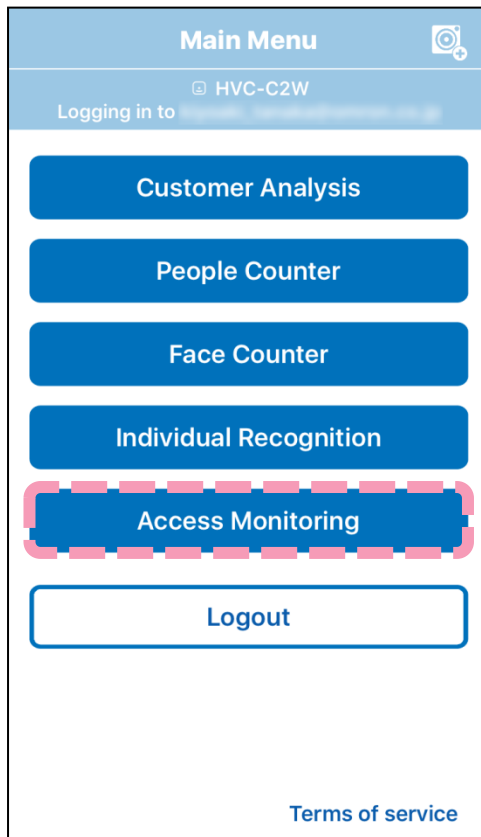
11. Access Monitoring


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




11.1 Access Monitoring Main Screen


 Select "Access Monitoring".

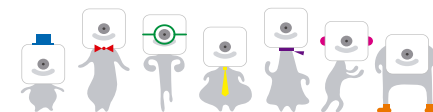


 Faces need to be registered in order to use **Access Monitoring**. The "Start" button will not be available with no face registered. The database of registered faces is shared for **Individual Recognition** and **Access Monitoring**.

 Select "Register Face" to register a face.

 Select "Start" to start **Access Monitoring**.

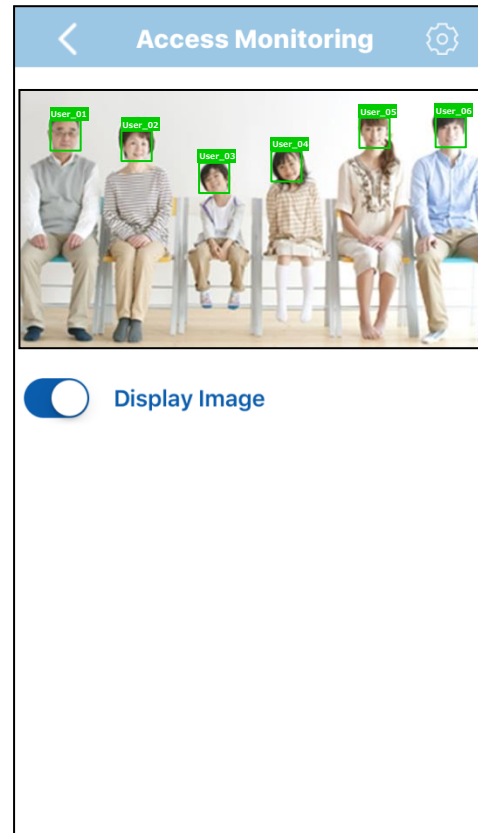
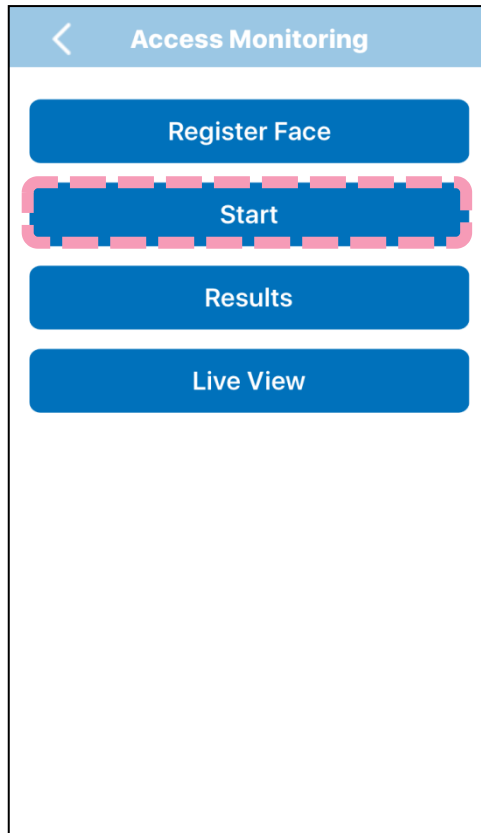
 Select "Live View" to view the live camera feed.





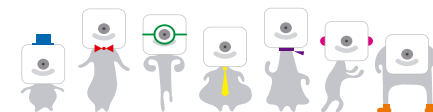
11.2 Start Access Monitoring

Start **Access Monitoring**.



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

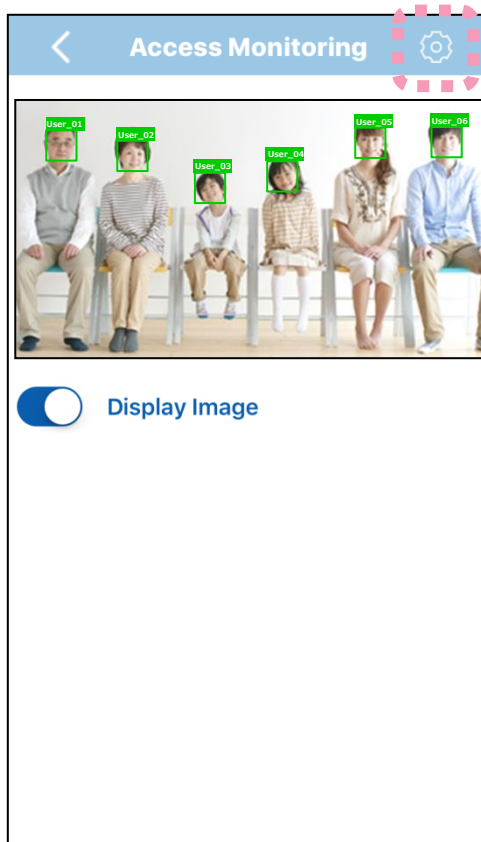













-  A “?” will be displayed while the recognition process is running.
-  The user ID of the registered users will be displayed while “Non-registered” will be displayed for non-registered faces.



11.3 Change Access Monitoring Settings

 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.

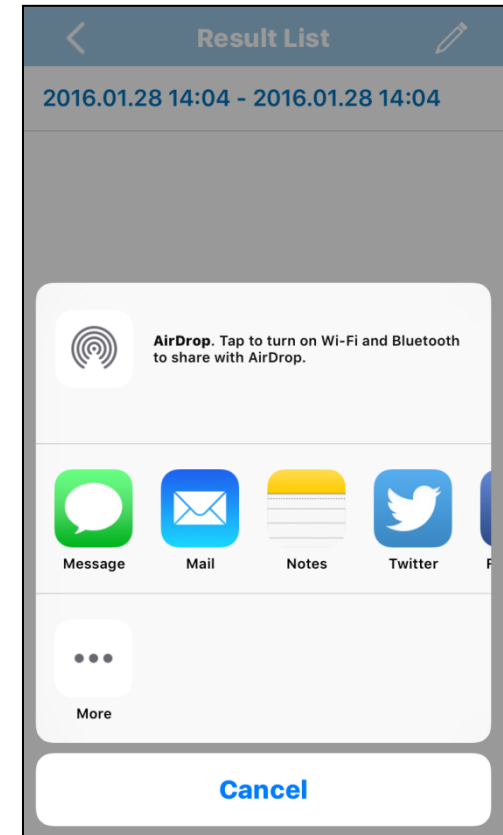
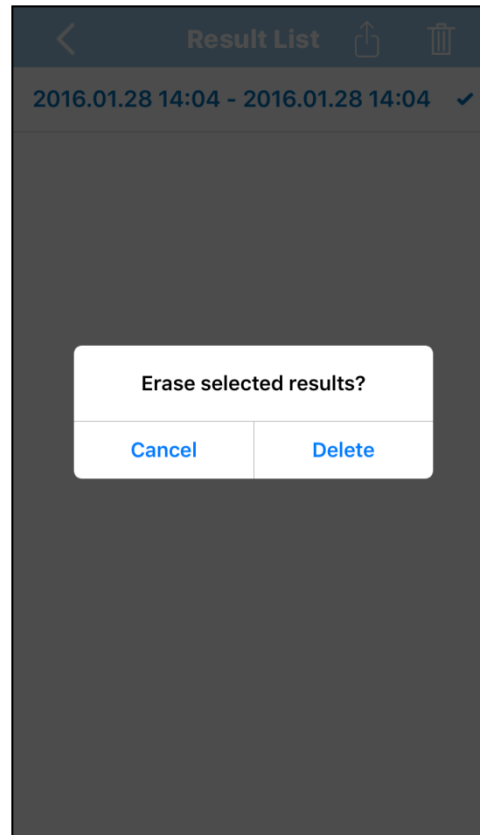
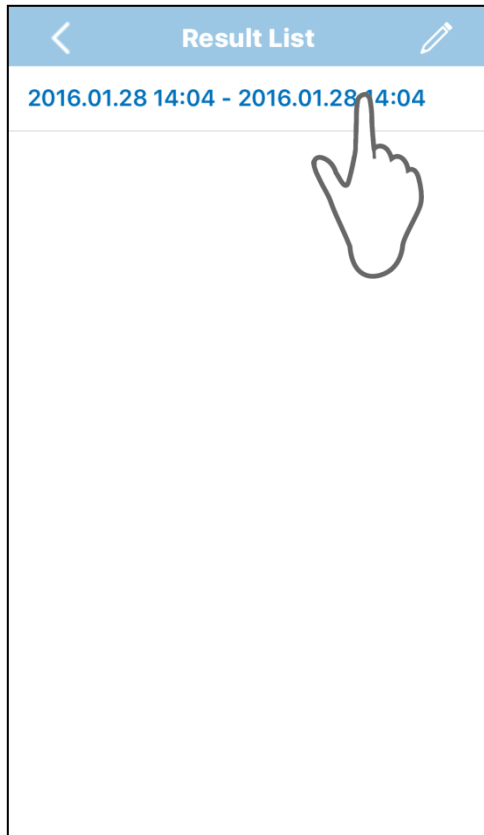
■ Degree of confidence

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.



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

