User Manual

SANSAERO Portable Camera System

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1 Network Setup

The cameras are all part of a small local network. To control these cameras you have to be part of this network. Look for the SSID “*NETGEAR94*”, “*NETGEAR94-5G-1*” or “*NETGEAR94-5G-2*” and enter the network. The password is “*melodicviolet891*”.

Currently there are 6 cameras available in the network:

Camera Name	WLAN IP-Address	Type/Description
camera00	192.168.1.10	Raspberry Pi 4
camera01	192.168.1.11	Raspberry Pi 4
camera02	192.168.1.12	Raspberry Pi Zero 2
camera03	192.168.1.13	Raspberry Pi Zero 2
camera04	192.168.1.14	Raspberry Pi Zero 2
camera05	192.168.1.15	Raspberry Pi 3 Type A

2 User Interface

The camera interface can be reached using a standard web browser. The cameras are available starting at IP address 192.168.1.10 via port 5000. Just enter http://192.168.1.10:5000 to access the interface for the first camera.

2.1 Camera Interface

User interface description:

(1) **Camera View:** Shows the camera live view.

(2) **Recording Name:** Sets the name of the recording. This name will be displayed in the recording table below the camera image. It’s also used as a file name for the recording. If no name was provided a default one will be used.

(3) **Description Text:** An additional description text for the recording.

(4) **Detector:** Sets the active object detector. Currently two detectors are selectable:

1. *Threshold*: Sets the basic threshold algorithm. Three sub-types are supported: *Standard*, *Otsu* and *Triangle* (sub-types are selected with the threshold slider).
2. *Difference*: Uses difference images to identify objects. Every movement or change is detected as an object.

(5) **Threshold:** Sets the detector threshold. There are two specific values for automatic threshold selection: -2: *Triangle*-Method and -1 *Otsu*-Method. Default is *Otsu*.

(6) **Capture Interval:** Sets the capture interval for Image sequences and the object detection.

(7) **Capture Still Image:** Captures a single Image and saves it as a *PNG (Portable Network Graphics)* file.

(8) **Record Video:** Records a video file. It’s saved as a raw *h264*-Stream.

(9) **Capture Image Sequence:** Captures an image sequence.

(10) **Detect Objects:** Runs the object detection algorithm with the given settings.

(11) **Sync Time:** Synchronizes the time and date of the camera with the client system.

(12) **Delete All Recordings:** Deletes all the recordings. This can not be undone!

(13) **Reset Camera Settings:** Resets all camera settings to it's default values.

(14) **Resolution:** Select a camera resolution. Standard camera used is a *Raspberry V2 Camera*.

(15) **Shutter Speed:** Shutter speed in µs. Sets the exposure time length for a single frame.

(16) **ISO:** Sets the *ISO* value. An *ISO*-value of 0 means aromatic *ISO* control.

(17) **Brightness:** Controls the brightness of the image. This is a software based brightness correction.

(18) **Contrast:** Controls the contrast of the image. This is a software based contrast control.

(19) **Zoom:** Zooms to the centre of the live view. This control only affects the live view! It has no affect on the captured image sizes, videos or the detected objects within the current view!

(20) **X-Resolution:** Resolution of the camera in x-direction.

(21) **Y-Resolution:** Resolution in y-direction.

(22) **Ruler Length:** The length of the ruler shown in the left bottom corner of the live view.

(23) **Horizontal Passe-Partout:** Default value is 20%.

(24) **Vertical Passe-Partout:** Default value is 20%.

2.2 Camera Administration

The Camera Administration Interface is used to control multiple Cameras. The camera administration interface consist of the following user interface elements:

(1) **Show Overview:** Live view of all cameras.

(2) **Capture Still Image:** Captures a still image.

(3) **Record Video:** Records a *h264*-Stream

(4) **Capture Image Sequence:**

(5) **Start Object Detection:**

(6) **Sync Time:** Synchronizes the time and date of the camera with the client system.

(7) **Reset:** Resets alls parameters of the cameras to the defaults.

(8) **Delete All Recordings:** Deletes all the recordings. This can not be undone!

(9) **Update State:** Queries the current state of all cameras.

(10) **Recording Name:** Sets the name of the recording. This name will be displayed in the recording table below the camera image. It's also used as a file name for the recording. If no name was provided a default one will be used.

(11) **Description Text:** An additional description text for the recording.

(12) **Detector:** Sets the active object detector. See Chapter 2.1 for selectable detectors.

3 File Formats

3.1 Meta Data Format

The meta-data format is generated for each captured image, video an sequence.

3.2 Still Image Captures

Still images are save as standard Portable Network Graphics files (PNG).

3.3 Video Recording

Video Recordings are saved as raw *h264* stream. Can be viewed with the *VLC Media Player*[1].

3.4 Image Sequences

Image sequences are saved in zip files. The archive contains the recorded images as PNG files. And a timings.csv file. This file contains the timings for each image.

3.5 Object Detections

Contains a zip file with the

TODO:

Threshold: camadmin

Downloadable manual pdf.

1 https://www.videolan.org