Camera for CRS

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Pavel Krsek

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CONTENTS

1 Basler camera class 1

CHAPTER

ONE

BASLER CAMERA CLASS

The BaslerCamera is the main class which represents interface to the Basler IP cameras. For each camera one object of the class is created and conected with the physical camera based on the IP address or the camera name.

`class basler_camera.BaslerCamera`

Class represents the basledr camera interface

`close()`

The method close communication with the camera.

`config_attrs: list[str]`

List of attributes to be save to config file. The attributes are exported/ imported as dictionary by methodss get_as_dict and set_from_dict.

`connect_by_ip(ip_addr='')`

The method conects the camera by its IP address. The methods lists cameras nearby and selects the camera with appropriate IP address. In case of error the exeptions are raised.

Parameters
ip_addr (*str*) – The desired IP address of the camera.

`connect_by_name(name='')`

The method conects the camera by its user defined name. The methods lists cameras nearby and selects the camera with appropriate name. In case of error the exeptions are raised.

Parameters
name (*str*) – The desired name of the camera.

`exposure_time: float`

Camera exposure time [ms]] (default value 0.0 mean auto exposure on)

`frame_rate: float`

Image capture framerate (frames per sec.) (default value 0.0 mean automatic / maximal) `gain: float`

Camera gain (default is 0.0, switch off)

`gamma: float`

Camera gama correction (default is 1.0)

`get_as_dict()`

The method returns the class parameters as a dictionary. This method is used for writing data into the configuration file. Default implementation should be reimplemented.

Returns
Parameters names and values in the form of a dictionary.

Return type
dict[str, Any]

`get_image`(*time_out=0*)

The method obtain one image from the camera. The method waits for the image until the image is obtained or timeout is reached.

Parameters
time_out (*int*) – Timeout for the image obtaining [ms]. When the value 0 is used the timeout defined by corresponding attribute of camera object is applied.

Returns
The obtained image is returned. When the image has size 0, means that the image was not obtained within the timeout or other error ocured.

Return type
NDArray[Shape["row, col, 3"], Any]

`grab_image`(*time_out=0*)

The method is enccapsulation of the method get_image. This method chceck if the grabing of images is started. If not, the grabbing is started and than the image is obtained. State of grabbing is set back to the state before calling the method.

Parameters
time_out (*int*) – Timeout for the image obtaining [ms]. When the value 0 is used the timeout defined by corresponding attribute of camera object is applied.

Returns
The obtained image is returned. When the image has size 0, means that the image was not obtained within the timeout or other error ocured.

Return type
NDArray[Shape["row, col, 3"], Any]

`grab_timeout: int`

Time out for obtaining the image from camera [ms]

`ip_address: str`

Camera IP address as string

`open()`

The method opens comunication with connected camera and prepare covnverter for converting the image from camera into the format accepted by OpenCV (cv2).

`set_from_dict(`*data*`)`

The method sets the class parameters from the dictionary. This method is used for reading data from the configuration file. Default implementation should be reimplemented.

Parameters

`data` (*dict[str, Any]*) – Parameters names and values in the form of a dictionary.

Return type

None

`set_parameters()`

The method sets the camera parameters (in the camera) by values storeed in the corresponding attributes of this class. The attribustes must be set to desired values before setting the parameters in the camera.

`start()`

The method starts image capturing when the camera is connected and the comunication is open.

`stop()`

The method stops capturing of images.