Ohm - Android Version

1.0

Generated by Doxygen 1.8.12

Contents

Chapter 1

Module Index

1.1 Modules

Here is a list of all modules:

Chapter 2

Namespace Index

2.1 Packages

Here are the packages with brief descriptions (if available):

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 5

Module Documentation

5.1 CameraInput

Classes

- class ca.ryanmarks.ohm.input.ScanningCameraView

5.1.1 Detailed Description

Author

Ryan Marks

5.2 UserInterface

Classes

- class ca.ryanmarks.ohm.userinterface.CameraActivity

5.2.1 Detailed Description

Author

Ryan Marks

5.3 ColourMapping

Classes

- enum ca.ryanmarks.ohm.valueidentification.ResistorColour

  Enum containing all of the possible colours that a resistor can take on. Also features member functions used to map the colours of bands to values used in the calculation process.

5.3.1 Detailed Description

Author

Jonathan Brown

5.4 ValueCalculator

Classes

- class ca.ryanmarks.ohm.valueidentification.ValueCalculator

  Object used to calculate the resistance of the resistor based on the mapped colours.

5.4.1 Detailed Description

Author

Jonathan Brown

5.5 BandLocation

Classes

- class ca.ryanmarks.ohm.imageprocessing.BandReader

  Module used to analyze the line of pixels selected by the user through the UI. It uses high values of the differential of the RGB colours to detect edges of bands.

5.5.1 Detailed Description

Module used to analyze the line of pixels selected by the user through the UI. It uses high values of the differential of the RGB colours to detect edges of bands.

Chapter 6

Namespace Documentation

6.1 Package imageprocessing

6.1.1 Detailed Description

Contains the Band Location and Resistor Body Identification modules.

6.2 Package valueidentification

6.2.1 Detailed Description

Contains the Colour Mapping and Value Identification Modules

Chapter 7

Class Documentation

7.1 ca.ryanmarks.ohm.imageprocessing.BandReader Class Reference

Module used to analyze the line of pixels selected by the user through the UI. It uses high values of the differential of the RGB colours to detect edges of bands.

Static Public Member Functions

- static List< Point > read (Mat frame, Point p1, Point p2)

7.1.1 Detailed Description

Module used to analyze the line of pixels selected by the user through the UI. It uses high values of the differential of the RGB colours to detect edges of bands.

Author

Ryan Marks & Jonathan Brown

7.1.2 Member Function Documentation

7.1.2.1 read()

```
static List<Point> ca.ryanmarks.ohm.imageprocessing.BandReader.read (
            Mat frame,
            Point p1,
            Point p2 )  [static]
```

Parameters

frame	Image to Sample.
p1	Starting point of the sampling line.
p2	Ending point of the sampling line.

Returns

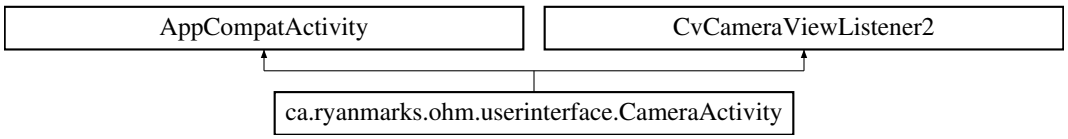
List of points along the line that are likely band edges.

The documentation for this class was generated from the following file:

- ca/ryanmarks/ohm/imageprocessing/BandReader.java

7.2 ca.ryanmarks.ohm.userinterface.CameraActivity Class Reference

Inheritance diagram for ca.ryanmarks.ohm.userinterface.CameraActivity:



Public Member Functions

- void onCreate (Bundle savedInstanceState)
- void onPause ()
- void onResume ()
- void **onDestroy** ()
- void onCameraViewStarted (int width, int height)
- void onCameraViewStopped ()
- Mat onCameraFrame (CameraBridgeViewBase.CvCameraViewFrame inputFrame)

7.2.1 Member Function Documentation

7.2.1.1 onCameraFrame()

```
Mat ca.ryanmarks.ohm.userinterface.CameraActivity.onCameraFrame (
            CameraBridgeViewBase.CvCameraViewFrame inputFrame )
```

This method performs the transformation from the acquired camera frame to the image that is shown to the user. It identifies resistances and overlays the resistance value

Parameters

inputFrame	The camera frame captured

Returns

The image to be shown to the user

7.2.1.2 onCameraViewStarted()

```
void ca.ryanmarks.ohm.userinterface.CameraActivity.onCameraViewStarted (
            int width,
            int height )
```

Unneeded interface method from openCV

Parameters

width	- the width of the frames that will be delivered
height	- the height of the frames that will be delivered

7.2.1.3 onCameraViewStopped()

```
void ca.ryanmarks.ohm.userinterface.CameraActivity.onCameraViewStopped ( )
```

Unneeded interface method from openCV

7.2.1.4 onCreate()

```
void ca.ryanmarks.ohm.userinterface.CameraActivity.onCreate (
            Bundle savedInstanceState )
```

Called when the activity is first created by Android.

7.2.1.5 onPause()

```
void ca.ryanmarks.ohm.userinterface.CameraActivity.onPause ( )
```

Disable camera acquisition while the application is paused

7.2.1.6 onResume()

```
void ca.ryanmarks.ohm.userinterface.CameraActivity.onResume ( )
```

Whenever the application resumes ensures opencv is loaded.

The documentation for this class was generated from the following file:

- ca/ryanmarks/ohm/userinterface/CameraActivity.java

7.3 ca.ryanmarks.ohm.Pair< T, T1 > Class Template Reference

This class represents a generic key, value pair.

Public Member Functions

- **Pair** (T key, T1 val)
- T **getKey** ()
- T1 **getValue** ()

7.3.1 Detailed Description

This class represents a generic key, value pair.

Author

Ryan Marks

The documentation for this class was generated from the following file:

- ca/ryanmarks/ohm/Pair.java

7.4 ca.ryanmarks.ohm.valueidentification.ResistorColour Enum Reference

Enum containing all of the possible colours that a resistor can take on. Also features member functions used to map the colours of bands to values used in the calculation process.

Public Member Functions

- ResistorColour (int v)

Static Public Member Functions

- static void **trainNN** (Reader trainingData)
- static int fit (float r, float g, float b)
- static int fit (int r, int g, int b, int colorSpace)

Public Attributes

- **BLACK** =(0)
- **BROWN** =(1)
- **RED** =(2)
- **ORANGE** =(3)
- **YELLOW** =(4)
- **GREEN** =(5)
- **BLUE** =(6)
- **VIOLET** =(7)
- **GREY** =(8)
- **WHITE** =(9)
- **GOLD** =(11)
- **BASE** =(10)
- int **value**

Static Public Attributes

- static KNearest **KNN**
- static DTrees **dt**

7.4.1 Detailed Description

Enum containing all of the possible colours that a resistor can take on. Also features member functions used to map the colours of bands to values used in the calculation process.

Author

Jonathan Brown

7.4.2 Constructor & Destructor Documentation

7.4.2.1 ResistorColour()

```
ca.ryanmarks.ohm.valueidentification.ResistorColour.ResistorColour (
            int v )
```

Parameters

v	The number represented by the colour in the calculation of the resistor's ohmage.

7.4.3 Member Function Documentation

7.4.3.1 fit() [1/2]

```
static int ca.ryanmarks.ohm.valueidentification.ResistorColour.fit (
            float r,
            float g,
            float b )  [static]
```

Function takes in a sampled colour from the images and attempts to fit it to the closest known colour a resistor can possess.

Parameters

r	The red colour value of the colour to be fit.
g	The green colour value of the colour to be fit.
b	The blue colour value of the colour to be fit.

Returns

The known colour that best represents the sampled colour.

7.4.3.2 fit() [2/2]

```
static int ca.ryanmarks.ohm.valueidentification.ResistorColour.fit (
            int r,
            int g,
            int b,
            int colorSpace )  [static]
```

Function takes in a sampled colour from the images and attempts to fit it to the closest known colour a resistor can possess. Function takes in a sampled colour from the images and attempts to fitOld it to the closest known colour a resistor can possess.

Parameters

r	The red colour value of the colour to be fitOld.
g	The green colour value of the colour to be fitOld.
b	The blue colour value of the colour to be fitOld.

Returns

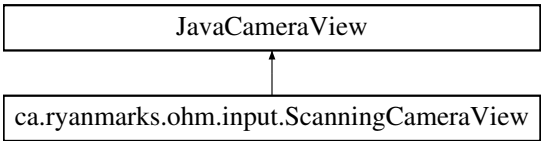
The known colour that best represents the sampled colour.

The documentation for this enum was generated from the following file:

- ca/ryanmarks/ohm/valueidentification/ResistorColour.java

7.5 ca.ryanmarks.ohm.input.ScanningCameraView Class Reference

Inheritance diagram for ca.ryanmarks.ohm.input.ScanningCameraView:



Public Member Functions

- **ScanningCameraView** (Context context, int cameraId)
- **ScanningCameraView** (Context context, AttributeSet attrs)

Protected Member Functions

- boolean initializeCamera (int width, int height)

7.5.1 Member Function Documentation

7.5.1.1 initializeCamera()

```
boolean ca.ryanmarks.ohm.input.ScanningCameraView.initializeCamera (
            int width,
            int height )  [protected]
```

Initialize a camera with the preferred parameters for resistor scanning

Parameters

width	the width of the pictures, in pixels
height	the height of the pictures, in pixels

Returns

The success of the initialization

The documentation for this class was generated from the following file:

- ca/ryanmarks/ohm/input/ScanningCameraView.java

7.6 ca.ryanmarks.ohm.valueidentification.ValueCalculator Class Reference

Object used to calculate the resistance of the resistor based on the mapped colours.

Public Member Functions

- **ValueCalculator** (Integer a, Integer b, Integer c, Integer d)
- String **getValue** ()

7.6.1 Detailed Description

Object used to calculate the resistance of the resistor based on the mapped colours.

Author

Jonathan Brown

The documentation for this class was generated from the following file:

- ca/ryanmarks/ohm/valueidentification/ValueCalculator.java

Index