Gaze Toolset

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Chapter 1

v3.1.0

New Features

- Add a custom drift compensation process
- Allow to pass the argument `outputPath` to the application for dynamic output path assignement.

Improvements

- Integrate calibration into `Gaze.exe`
- Remove Tobii research dependencies from everywhere except the eye tracker device class
- Cleanup and rearrangement of code to improve readability

v3.0.0

New Features

- A custom calibration application is added to the portfolio. This allows to calibrate a device without the need for a 3rd party application.
- Proper shutdown handling of `GazeToMouse` through named pipes.
- Allow to enable/disable gaze recording through named pipes.
- Allow to enable/disable mouse tracking through named pipes.
- Allow to pass argument subject to the application.

Improvements

- Update all projects to .NET version 6.0.
- Cleanup code base, split functions into seperate libraries.
- Apply MVVM architectural pattern where sensible.

Changes

- Remove Tobii Interaction Library
- Remove all configuration options for Tobii Core (only Tobii Pro SDK is supported)
- Remove Tobii Core application wrapper (TobiiTest, TobiiGuestCalibrate)
- Use the Tobii pro eye tracker manager for device calibration instead of the Tobii Core software.
- Rename `GazeToMouse` to `Gaze` and `GazeToMouseClose` to `GazeClose`.

v2.3.0

New Features

- A mouse tracker device can now be used instead of an eyetracker device. The mouse tracker logs the timestamp and the x and y coordinates of the mouse pointer whenever the mouse-move event is fired. The mouse tracker is used when the configuration filed 'TrackerDevice' is set to the value 2.

Improvements

- Rename the configuration field 'TobiiSDK' to 'TrackerDevice'.

v2.2.0

New Features

- Configuration file
  - Dump the configurations used for an experiment to a file at the "DataLogPath"
  - Allow to configure an experiment name which is used as a postfix of the dumped configuration file name
  - Consider the config file as invalid if not all required configuration parameters are defined
  - Consider the config file as invalid if unknown parameters are defined
  - Allow to configure whether to log data sets where all data is invalid (eyes closed, no subject in front of the screen, etc)
- Error Handling
  - Attach an error string to the output file, indicating errors that occurred during the run
  - Attach an error string to the dumped configuration file, indicating errors of the configuration

Improvements

- Fall back to Core SDK if the license file cannot be applied to the device

v2.1.0

New Features

- Log eye origin coordinates
  - x, y, z coordinates of the left and the right eye
  - compute distance of the left and right eye to the eyetracker
  - compute the average distance of the two eyes

Improvements

- Check the three format values and the column order individually to produce more specific log entries

v2.0.1

Bug Fix

- with SDK Pro, use system timestamp to cope with disconnected device
- fix the path in the z-tree sample file

v2.0.0

New Features

- Support for Tobii Pro SDK
  - apply license to eyetracker device at stratup
  - logging of pupil diameter
  - logging of individual eye data
- Allow to configure column headers of output file

Improvements

- Improved configuration options for the output file

v1.0.0

New Features

- Notify user with popup if eyetracker is not ready
- Allow to configure time interval for the software to wait for the eyetracker to become ready

Improvements

- Rename default output file for data from `<prefix>_data.txt` to `<prefix>_gaze.txt`

v0.3.2

Improvements

- add header to the data log file.
- change the default value of allowed gaze data files.
- check and wait for ready state of the eye tracker before performing operations with it.

Bug Fix

- create a log file per machine to prevent concurrency conflicts.

v0.3.1

Improvements

- ignore the option "HideMouse" when "ControlMouse" is disabled.

Bug Fix

- remove double log entry of mouse hiding and restoring event.

v0.3.0

New Features

- allow to configure whether the gaze data is logged.
- allow to configure the maximum allowed amount of gaze data files in the output folder. Oldest files are deleted first.

Improvements

- limit the logfile size to 1MB. If the size is exceeded a new file is created. At any time only two log files are allowed, The older file is overwritten once both files exceed 1MB.

v0.2.0

New Features

- allow to configure whether the mouse is controlled by the gaze of the subject or not.
- allow to configure the output format of the gaze data.

v0.1.0

First release of the GazeToMouse toolset.

The toolset was tested on **Windows 7** in conjunction with **ztree v3.6.7** and Tobii **Eye Tracking Core v2.11.1.6952**.

Chapter 2

Toolset to Control Tobii Eye Tracker

This repository contains the source code for multiple simple tools that allow to control a Tobii eye tracker from a 3rd party application. Specifically, this project aims at providing a set of executables that can be called from within `ztree` to allow eye tracker support for economic experiments.

For more details please refer to the `documentation`.

Installation

The complete toolset package can be downloaded from the `release folder`. The package contains the following executables:

- `**Gaze.exe**` This program uses the `Tobii Pro SDK` to extract the gaze position on the screen where the subject is looking at. The extracted data is recorded and stored to a file. Optionally, the mouse cursor position is updated to this position such that the mouse cursor is controlled by the gaze of the subject. Instead of using an eye tracker device it is also possible to simply log the mouse coordinates. `**Gaze.exe**` runs infinitely until it is terminated by an external command. This should **not** be done with a forced kill (e.g. by executing the command `taskkill /F /IM Gaze.exe` or by killing the task with the task manager) because it prevents the program from terminating gracefully. This as several consequences:
  - open files are not closed properly and the data stream is cut off. This can lead to corrupt files.
  - if the feature of hiding the mouse pointer is used, the mouse will remain hidden.
  - memory is not freed properly. Instead the program `**GazeControls.exe /command TERMINATE**` should be used.
- `**GazeControl.ext**` This program allows to interact with `**Gaze.exe**` by passing the argument `/command <COMMAND>` to the application. Passing an argument to an application can be done in command line or by crating a shortcut to the program. Corresponding shortcuts for all available `<COMMAND>`s are provided in the release package. The following `<COMMAND>`s are available:
  - `CUSTOM_CALIBRATE` uses the `Tobii Pro SDK` and launches a custom calibration process which allows to calibrate the eye tracker without having to rely on the calibration software provided by Tobii.
  - `DRIFT_COMPENSATION` launches a custom drift compensation process to compensate gaze drifts that may occur during experimentation.
  - `GAZE_RECORDING_DISABLE` requests `**Gaze.exe**` to stop recording gaze data. Gaze.exe will continue to run (and update the mouse pointer if configured accordingly) but no longer store gaze data to the disk.

  - GAZE_RECORDING_ENABLE requests **Gaze.exe** to start recording gaze data.
  - MOUSE_TRACKING_DISABLE requests **Gaze.exe** to stop updating the mouse pointer by the gaze position.
  - MOUSE_TRACKING_ENABLE requests **Gaze.exe** to start updating the mouse pointer by the gaze position.
  - RESET_DRIFT_COMPENSATION resets the drift compensation computed with the command DRI↩FT_COMPENSATION.
  - TERMINATE requests **Gaze.exe** to close gracefully and logs these events to the log file.
- **ShowMouse.exe** This program allows to restore the standard mouse pointer. It might be useful if the program \texttt{Gaze.exe} crashes or is closed forcefully such that the mouse pointer is not restored after terminating. The subject might end up with a hidden mouse pointer. A good solution for such a case is to install a shortcut to \texttt{ShowMouse.exe} on the desktop in order to execute it with the keyboard.

In order to run the executables the following files need to be placed in the same directory as the executables:

- tobii_pro.dll
- tobii_firmware_upgrade.dll
- assets/blank.cur
- config.json

Further, the Tobii engine must be running and the eye tracker must be enabled.

Tobii Eye Tracker 4c

To install the driver for the Tobii Eye Tracker 4c install Tobii Experience Driver.

This will start the following services:

- Tobii Runtime Service
- Tobii Service

and the following processs:

- Tobii Interaction Engine

Tobii Pro Spark

To install the driver for the Tobii Pro Spark use the Tobii Pro Eye Tracker Manager:

1. Install Tobii Pro Eye Tracker Manager (ETM)
2. Connect the Tobii Pro SPark device to the computer
3. Install the driver with the ETM

This starts the service Tobii Pro Spark Runtime.

3rd Party Applications

This section provides some infromation on how to run the here provided executables from within 3rd party applications.

ztree

For quick starters, a simple `ztree sample program` is available.

Opensesame

To start a process from within opensesame use a python script. The following example starts the custom calibartion program with the subject number passed as argument:

```
import subprocess
subprocess.run(["CustomCalibrate.exe", "/subject", var.get(u'subject_nr')])
```

Release Notes

Information about the releases can be found in the `CHANGELOG`

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

Chapter 4

Hierarchical Index

4.1 Class Hierarchy

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

Chapter 5

Class Index

5.1 Class List

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

Chapter 6

Namespace Documentation

6.1 CustomCalibrationLibrary Namespace Reference

6.2 CustomCalibrationLibrary.Commands Namespace Reference

Classes

- class CalibrationCommand

  Comand class to trigger calibration events.
- class **GazeVisibilityCommand**

  Command class to change the gaze visibility

6.3 CustomCalibrationLibrary.Converters Namespace Reference

Classes

- class HasDataToVisibilityConverter

  Converts True to Hidden and False to Visible
- class PositionConverter

  Converter class to convert a normalized coordinate to a pixel coordinate.
- class ProximityColorConverter

  Converter class to convert the proximito of a normailezed coordinate to the center point (0.5) into colors.

6.4 CustomCalibrationLibrary.Models Namespace Reference

Classes

- class CalibrationModel

  The model for the calibration process.

Enumerations

- enum CalibrationEventType { **Start**, **Accept**, **Restart**, **Abort** }

  Events to trigger changes in the calibration process.
- enum CalibrationStatus {
  HeadPosition, **DataCollection**, **Computing**, **DataResult**,
  Error, **Disconnect** }

  The status of the calibarion process.

6.4.1 Enumeration Type Documentation

6.4.1.1 CalibrationEventType

`enum CustomCalibrationLibrary.Models.CalibrationEventType [strong]`

Events to trigger changes in the calibration process.

6.4.1.2 CalibrationStatus

`enum CustomCalibrationLibrary.Models.CalibrationStatus [strong]`

The status of the calibarion process.

6.5 CustomCalibrationLibrary.ViewModels Namespace Reference

Classes

- class CalibrationPointViewModel

  The view model for a calibration point.
- class CalibrationResultViewModel

  View model class of the gaze calibration result.
- class CalibrationViewModel

  The view model class of the calibration view
- class DriftCompensationViewModel

  The view model class of the drift compensation view.
- class UserPositionGuideViewModel

  The view model class for the user position guide view.

6.6 CustomCalibrationLibrary.Views Namespace Reference

Classes

- class Calibration

  Interaction logic for Calibration.xaml
- class CalibrationFailed

  Interaction logic for CalibrationFailed.xaml
- class CalibrationFrame

  Interaction logic for CalibrationCollection.xaml
- class CalibrationPoint

  Interaction logic for CalibrationPoint.xaml
- class CalibrationResult

  Interaction logic for CalibrationResult.xaml
- class CalibrationResultPoint

  Interaction logic for CalibrationResultPoint.xaml
- class CalibrationWindow

  Interaction logic for MainWindow.xaml
- class Computing

  Interaction logic for Computing.xaml
- class Disconnect

  Interaction logic for Disconnect.xaml
- class DriftCompensationWindow

  Interaction logic for DriftCompensation.xaml
- class FixationPoint

  Interaction logic for FixationPoint.xaml
- class UserPositionGuide

  Interaction logic for UserPositionGuide.xaml

6.7 GazeControl Namespace Reference

Classes

- class App

  Interaction logic for App.xaml

6.8 GazeToMouse Namespace Reference

Classes

- class App

  Interaction logic for App.xaml

6.9 GazeUtilityLibrary Namespace Reference

helper class to show and hide the system curser

Classes

- class CalibrationDataError
- class **ConfigChecker**
- class ConfigItem

  configuration file class
- class DriftCompensation

  The class to handle drift compensation.
- class GazeConfigError
- class GazeConfiguration
- class GazeDataError
- class GazeError
- class JsonConfigParser

  The config file "config.json" is parsed and its values are attributed to the ConfigItem class.
- class MouseHider

  hide standard mouse pointer and resore it
- class **NamedPipeClient**
- class ScreenArea

  The class describing the Screen area in 3d and 2d space.
- class ScreenTriangle

  A class to describe a triangle. This was supposed to be used to construct the ScreenArea but it turned out that it is simpler to work with the screen plane and use the normalised intersection points to check wheter the gaze point is outside the screen area.
- class TrackerLogger

  Simple logger class.
- class TrackerMessageBox

  Interaction logic for TrackerMessageBox.xaml

Enumerations

- enum **EOutputType** { **gaze**, **calibration** }
- enum EGazeConfigError {
  FallbackToDefaultConfigName = 0x001, **FallbackToCurrentOutputDir** = 0x002, **FallbackToDefault**↩
  Config = 0x004, **FallbackToDefaultDiameterFormat** = 0x008,
  FallbackToDefaultOriginFormat = 0x010, **FallbackToDefaultTimestampFormat** = 0x020, **OmitColumn**↩
  Titles = 0x040, **FallbackToDefualtColumnOrder** = 0x080,
  FallbackToDefaultNormalizedFormat = 0x100 }

  Error values of the configuration
- enum EGazeDataError { **FallbackToMouse** = 0x01, **DeviceInterrupt** = 0x02 }

  Error values of the gaze output data
- enum ECalibrationDataError { **DeviceNotSupported** = 0x01, **DeviceInterrupt** = 0x02 }

  Error values of the gaze output data

6.9.1 Detailed Description

helper class to show and hide the system curser

6.9.2 Enumeration Type Documentation

6.9.2.1 ECalibrationDataError

enum GazeUtilityLibrary.ECalibrationDataError [strong]

Error values of the gaze output data

6.9.2.2 EGazeConfigError

enum GazeUtilityLibrary.EGazeConfigError [strong]

Error values of the configuration

6.9.2.3 EGazeDataError

enum GazeUtilityLibrary.EGazeDataError [strong]

Error values of the gaze output data

6.10 GazeUtilityLibrary.DataStructs Namespace Reference

Classes

- class CalibrationPoint

  A calibration point class holding several metrics connected to a calibration point.
- class DriftCompensationData

  The drift compensation data structure
- class EyeData

  The eye data set, including pupil information.
- class GazeCalibrationData

  The event argument class for Tobii eyetracker data
- class GazeData

  The class definition of a gaze data set
- class GazeData2d

  The 2d gaze data set.
- class GazeData3d

  The 3d gaze data set.
- class GazeDataCollection

  The gaze data set, including 2d and (optionally) 3d gaze data as well as optional eye data.
- class **GazeDataConverter**
- class LiveGazePoint
- class UserPositionData

Enumerations

- enum GazeOutputValue {
  DataTimeStamp = 0, **CombinedGazePoint2dCompensatedX**, **CombinedGazePoint2dCompensatedY**, **CombinedGazePoint2dX**,
  CombinedGazePoint2dY, **CombinedGazePoint2dIsValid**, **CombinedGazePoint3dCompensatedX**, **CombinedGazePoint3dCompensatedY**,
  CombinedGazePoint3dCompensatedZ, **CombinedGazePoint3dX**, **CombinedGazePoint3dY**, **CombinedGazePoint3dZ**,
  CombinedGazePoint3dIsValid, **CombinedGazeOrigin3dX**, **CombinedGazeOrigin3dY**, **CombinedGazeOrigin3dZ**,
  CombinedGazeOrigin3dIsValid, **CombinedGazeDistance**, **CombinedPupilDiameter**, **CombinedPupilDiameterIsValid**,
  LeftGazePoint2dX, **LeftGazePoint2dY**, **LeftGazePoint2dIsValid**, **LeftGazePoint3dX**,
  LeftGazePoint3dY, **LeftGazePoint3dZ**, **LeftGazePoint3dIsValid**, **LeftGazeOrigin3dX**,
  LeftGazeOrigin3dY, **LeftGazeOrigin3dZ**, **LeftGazeOrigin3dIsValid**, **LeftGazeDistance**,
  LeftPupilDiameter, **LeftPupilDiameterIsValid**, **RightGazePoint2dX**, **RightGazePoint2dY**,
  RightGazePoint2dIsValid, **RightGazePoint3dX**, **RightGazePoint3dY**, **RightGazePoint3dZ**,
  RightGazePoint3dIsValid, **RightGazeOrigin3dX**, **RightGazeOrigin3dY**, **RightGazeOrigin3dZ**,
  RightGazeOrigin3dIsValid, **RightGazeDistance**, **RightPupilDiameter**, **RightPupilDiameterIsValid** }

  enummerates output values produced by the eyetracker
- enum CalibrationOutputValue {
  XCoord, **YCoord**, **XCoordLeft**, **YCoordLeft**,
  ValidCoordLeft, **XCoordRight**, **YCoordRight**, **ValidCoordRight** }

  enummerates output values produced by the eyetracker

6.10.1 Enumeration Type Documentation

6.10.1.1 CalibrationOutputValue

`enum GazeUtilityLibrary.DataStructs.CalibrationOutputValue [strong]`

enummerates output values produced by the eyetracker

6.10.1.2 GazeOutputValue

`enum GazeUtilityLibrary.DataStructs.GazeOutputValue [strong]`

enummerates output values produced by the eyetracker

6.11 GazeUtilityLibrary.Tracker Namespace Reference

Classes

- class BaseTracker

  The common interface for the Tobii eyetracker Engines Core and Pro
- class EyeTrackerPro

  Interface to the Tobii SDK Pro engine
- class MouseTracker

  This class is used to hook into the system mouse events and track the position

6.12 ShowMouse Namespace Reference

Classes

- class App

  Interaction logic for App.xaml

6.13 Tobii Namespace Reference

6.14 Tobii.Research Namespace Reference

6.15 Tobii.Research.Addons Namespace Reference

Classes

- class CalibrationValidationPoint

  Represents a collected point that goes into the calibration validation. It contains calculated values for accuracy and precision as well as the original gaze samples collected for the point.
- class CalibrationValidationResult

  Contains the result of the calibration validation.
- class ScreenBasedCalibrationValidation

  Provides methods and properties for managing calibration validation for screen based eye trackers.

6.16 Tobii.Research.Addons.Utility Namespace Reference

Classes

- class **Extensions**

  Extensions with some operations on Point3D and NormalizedPoint2D among other things.
- class **TimeKeeper**

6.17 TobiiCalibrate Namespace Reference

Classes

- class App

  Interaction logic for App.xaml

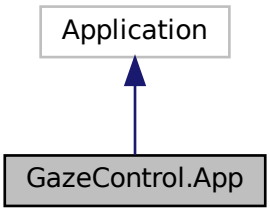
Chapter 7

Class Documentation

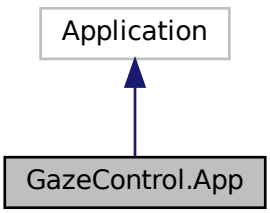
7.1 GazeControl.App Class Reference

Interaction logic for App.xaml

Inheritance diagram for GazeControl.App:



Collaboration diagram for GazeControl.App:



7.1.1 Detailed Description

Interaction logic for App.xaml

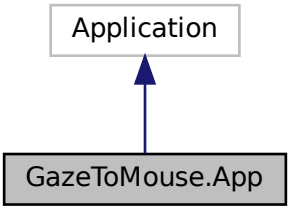
The documentation for this class was generated from the following file:

- source/GazeControl/App.xaml.cs

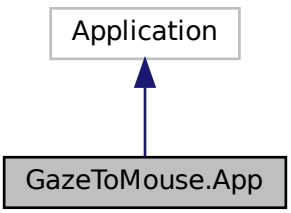
7.2 GazeToMouse.App Class Reference

Interaction logic for App.xaml

Inheritance diagram for GazeToMouse.App:



Collaboration diagram for GazeToMouse.App:



Public Member Functions

- void GazeRecordingEnable ()

  Enable gaze recordings to disk.
- void GazeRecordingDisable ()

  Disable gaze recordings.
- void MouseTrackingEnable ()

  Enable mouse tracking which updates the mouse position to the current gaze point.
- void MouseTrackingDisable ()

  Disable mouse tracking.
- void ResetDriftCompensation ()

  Reset the current drift compensation offset to zero.
- async Task< bool > CompensateDrift ()

  Start the drift compensation process
- async Task< bool > CustomCalibrate ()

  Start the gaze calibration process
- App ()

  Constructor: initialised logger, gaze configuration, pipe server, and calibration model

7.2.1 Detailed Description

Interaction logic for App.xaml

7.2.2 Constructor & Destructor Documentation

7.2.2.1 App()

```
GazeToMouse.App.App ( )  [inline]
```

Constructor: initialised logger, gaze configuration, pipe server, and calibration model

7.2.3 Member Function Documentation

7.2.3.1 CompensateDrift()

```
async Task<bool> GazeToMouse.App.CompensateDrift ( )  [inline]
```

Start the drift compensation process

Returns

True on success, false on failure

7.2.3.2 CustomCalibrate()

```
async Task<bool> GazeToMouse.App.CustomCalibrate ( )  [inline]
```

Start the gaze calibration process

Returns

True on success, false on failure

7.2.3.3 GazeRecordingDisable()

```
void GazeToMouse.App.GazeRecordingDisable ( )  [inline]
```

Disable gaze recordings.

7.2.3.4 GazeRecordingEnable()

```
void GazeToMouse.App.GazeRecordingEnable ( )  [inline]
```

Enable gaze recordings to disk.

7.2.3.5 MouseTrackingDisable()

```
void GazeToMouse.App.MouseTrackingDisable ( )  [inline]
```

Disable mouse tracking.

7.2.3.6 MouseTrackingEnable()

```
void GazeToMouse.App.MouseTrackingEnable ( )  [inline]
```

Enable mouse tracking which updates the mouse position to the current gaze point.

7.2.3.7 ResetDriftCompensation()

```
void GazeToMouse.App.ResetDriftCompensation ( )  [inline]
```

Reset the current drift compensation offset to zero.

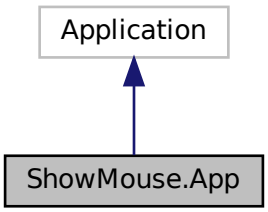
The documentation for this class was generated from the following file:

- source/GazeToMouse/App.xaml.cs

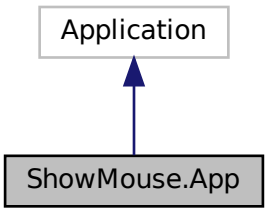
7.3 ShowMouse.App Class Reference

Interaction logic for App.xaml

Inheritance diagram for ShowMouse.App:



Collaboration diagram for ShowMouse.App:



7.3.1 Detailed Description

Interaction logic for App.xaml

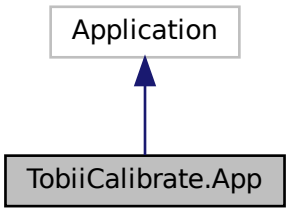
The documentation for this class was generated from the following file:

- source/ShowMouse/App.xaml.cs

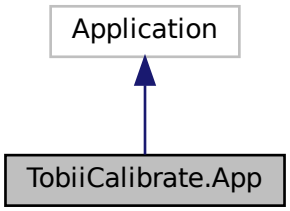
7.4 TobiiCalibrate.App Class Reference

Interaction logic for App.xaml

Inheritance diagram for TobiiCalibrate.App:



Collaboration diagram for TobiiCalibrate.App:



7.4.1 Detailed Description

Interaction logic for App.xaml

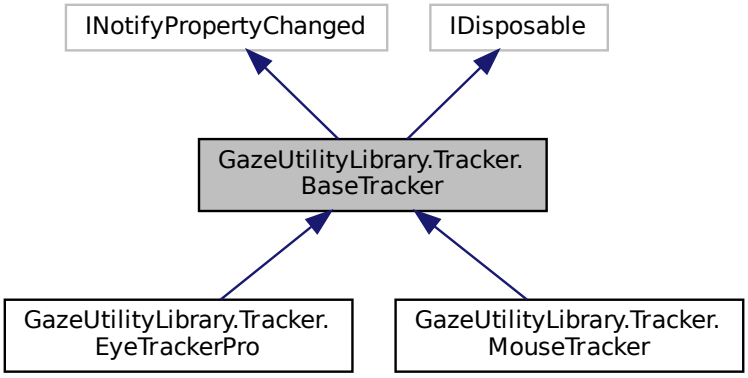
The documentation for this class was generated from the following file:

- source/TobiiCalibrate/App.xaml.cs

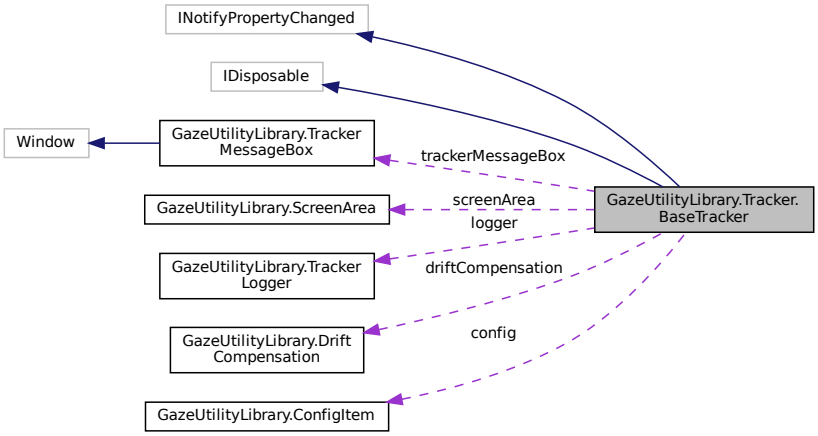
7.5 GazeUtilityLibrary.Tracker.BaseTracker Class Reference

The common interface for the Tobii eyetracker Engines Core and Pro

Inheritance diagram for GazeUtilityLibrary.Tracker.BaseTracker:



Collaboration diagram for GazeUtilityLibrary.Tracker.BaseTracker:



Public Types

- enum **DeviceStatus** {
  Configuring, **Initializing**, **InvalidConfiguration**, **DeviceNotConnected**,
  Tracking }

Public Member Functions

- delegate void GazeDataHandler (object sender, GazeData gazeData)

  Event handler for gaze data events of the eyetracker
- delegate void DriftCompensationEventHandler (object sender, Quaternion driftCompensation)

  Event handler for drift compensation events
- delegate void UserPositionDataHandler (object sender, UserPositionData e)

  Event handler for user position data events of the eyetracker
- BaseTracker (TrackerLogger logger, ConfigItem config, string deviceName)

  Initializes a new instance of the EyeTrackerHandler class.
- void Dispose ()

  Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.
- virtual string PatternReplace (string pattern)

  Replaces a patten string with information from the eye tracker. This is device specific and may be overwritten by the device class.
- abstract Task InitCalibration ()

  Initialise the calibartion process. This is device specific and must be overwritten by the device class.
- abstract Task FinishCalibration ()

  Finish the calibartion process. This is device specific and must be overwritten by the device class.
- abstract Task< List< GazeCalibrationData > > ApplyCalibration ()

  Apply the calibration data. This is device specific and must be overwritten by the device class.
- abstract Task< bool > CollectCalibrationData (Point point)

  Collect calibration data on a calibration point. This is device specific and must be overwritten by the device class.
- void StartDriftCompensation ()

  Start the drift compensation process.
- void ResetDriftCompensation ()

  Reset the drift compensation value
- virtual bool IsInitialised ()

  Checks wheter the device is connected and initialised. This is device specific and may be overwritten. Otherwise true is always returned.

Public Attributes

- readonly string DeviceName

  The name of the tracker device

Protected Member Functions

- abstract void InitDriftCompensation ()

  Initialise the drift compensation. This is device specific and must be overwritten by the device class.
- abstract int GetFixationFrameCount ()

  Get the number of required gaze samples to compute a fixation. This is device specific and must be overwritten by the device because the duration of fixation point detection depends on the frame rate of the device.
- abstract Vector3 GetUnitDirection ()

  Get the unit vector pointing in the direction of the gaze vector. This is device specific as the gaze data are represented in a coordinate system as defined by the device.
- virtual void Dispose (bool disposing)

  Releases unmanaged and - optionally - managed resources.
- bool IsReady ()

  Determines whether this eye tracker is ready.

- virtual void OnGazeDataReceived (GazeData gazeData)

  Called when [gaze data received].
- virtual void OnUserPositionDataReceived (UserPositionData e)

  Called when [user position data received].
- virtual void OnPropertyChanged (string property_name)

  Called when when the state property of EyeTracker is changing.
- virtual void OnTrackerDisabled (EventArgs e)

  Raises the E:TrackerDisabled event.
- void OnTrackerDisabledTimeout (object? source, ElapsedEventArgs e)

  Called after a specified amount of time of the eyetracker not being ready.
- virtual void OnTrackerEnabled (EventArgs e)

  Raises the E:TrackerEnabled event.

Protected Attributes

- Timer? dialogBoxTimer

  Timer to control the apperance of the dialog box
- TrackerLogger logger

  The logger
- TrackerMessageBox? trackerMessageBox

  The dialog box that is controlled by the dialogBoxTimer
- DriftCompensation? driftCompensation

  drift compensation handler
- ScreenArea? screenArea = null

  The scrren area structure holding the metrics of the screen in 3d space.
- ConfigItem config

  The gaze configuration item

Properties

- DeviceStatus State `[get, set]`

  Gets or sets the state of the eyetracker device.

Events

- EventHandler? TrackerEnabled

  Occurs when [tracker enabled].
- EventHandler? TrackerDisabled

  Occurs when [tracker disabled].
- PropertyChangedEventHandler? PropertyChanged

  Occurs when a property value changes.
- GazeDataHandler? GazeDataReceived

  Occurs when [gaze data received].
- DriftCompensationEventHandler? DriftCompensationComputed

  Occurs when drift compensation was computed.
- UserPositionDataHandler? UserPositionDataReceived

  Occurs when [user position data received].

7.5.1 Detailed Description

The common interface for the Tobii eyetracker Engines Core and Pro

See also

INotifyPropertyChanged, IDisposable

7.5.2 Constructor & Destructor Documentation

7.5.2.1 BaseTracker()

```
GazeUtilityLibrary.Tracker.BaseTracker.BaseTracker (
            TrackerLogger logger,
            ConfigItem config,
            string deviceName )  [inline]
```

Initializes a new instance of the EyeTrackerHandler class.

Parameters

logger	The logger.
ready_timer	The ready timer.
device_name	Name of the device.

7.5.3 Member Function Documentation

7.5.3.1 ApplyCalibration()

```
abstract Task<List<GazeCalibrationData> > GazeUtilityLibrary.Tracker.BaseTracker.Apply↩
Calibration ( )  [pure virtual]
```

Apply the calibration data. This is device specific and must be overwritten by the device class.

Returns

The calibration data result wrapped by an async handler.

Implemented in GazeUtilityLibrary.Tracker.EyeTrackerPro, and GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.2 CollectCalibrationData()

```
abstract Task<bool> GazeUtilityLibrary.Tracker.BaseTracker.CollectCalibrationData (
            Point point )  [pure virtual]
```

Collect calibration data on a calibration point. This is device specific and must be overwritten by the device class.

Parameters

point	The calibration point for which to collect data

Returns

True on success, false on failure, wrapped by an async handler.

Implemented in GazeUtilityLibrary.Tracker.EyeTrackerPro, and GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.3 Dispose() [1/2]

```
void GazeUtilityLibrary.Tracker.BaseTracker.Dispose ( )  [inline]
```

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

7.5.3.4 Dispose() [2/2]

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.Dispose (
            bool disposing )  [inline], [protected], [virtual]
```

Releases unmanaged and - optionally - managed resources.

Parameters

disposing	`true` to release both managed and unmanaged resources; `false` to release only unmanaged resources.

Reimplemented in GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.5 DriftCompensationEventHandler()

```
delegate void GazeUtilityLibrary.Tracker.BaseTracker.DriftCompensationEventHandler (
            object sender,
            Quaternion driftCompensation )
```

Event handler for drift compensation events

Parameters

sender	The sender.
driftCompensation	The drift compensation quaternion

7.5.3.6 FinishCalibration()

```
abstract Task GazeUtilityLibrary.Tracker.BaseTracker.FinishCalibration ( )  [pure virtual]
```

Finish the calibartion process. This is device specific and must be overwritten by the device class.

Returns

An async handler

Implemented in GazeUtilityLibrary.Tracker.EyeTrackerPro, and GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.7 GazeDataHandler()

```
delegate void GazeUtilityLibrary.Tracker.BaseTracker.GazeDataHandler (
            object sender,
            GazeData gazeData )
```

Event handler for gaze data events of the eyetracker

Parameters

sender	The sender.
gazeData	The e.

7.5.3.8 GetFixationFrameCount()

```
abstract int GazeUtilityLibrary.Tracker.BaseTracker.GetFixationFrameCount ( )  [protected],
[pure virtual]
```

Get the number of required gaze samples to compute a fixation. This is device specific and must be overwritten by the device because the duration of fixation point detection depends on the frame rate of the device.

Returns

The number of gaze samples to require for fixation detection.

Implemented in GazeUtilityLibrary.Tracker.EyeTrackerPro, and GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.9 GetUnitDirection()

```
abstract Vector3 GazeUtilityLibrary.Tracker.BaseTracker.GetUnitDirection ( )  [protected],
[pure virtual]
```

Get the unit vector pointing in the direction of the gaze vector. This is device specific as the gaze data are represented in a coordinate system as defined by the device.

Returns

The unit vector

Implemented in GazeUtilityLibrary.Tracker.EyeTrackerPro, and GazeUtilityLibrary.Tracker.MouseTracker.

7.5.3.10 InitCalibration()

```
abstract Task GazeUtilityLibrary.Tracker.BaseTracker.InitCalibration ( )  [pure virtual]
```

Initialise the calibartion process. This is device specific and must be overwritten by the device class.

Returns

An async handler

Implemented in GazeUtilityLibrary.Tracker.MouseTracker, and GazeUtilityLibrary.Tracker.EyeTrackerPro.

7.5.3.11 InitDriftCompensation()

```
abstract void GazeUtilityLibrary.Tracker.BaseTracker.InitDriftCompensation ( )  [protected],
[pure virtual]
```

Initialise the drift compensation. This is device specific and must be overwritten by the device class.

Implemented in GazeUtilityLibrary.Tracker.MouseTracker, and GazeUtilityLibrary.Tracker.EyeTrackerPro.

7.5.3.12 IsInitialised()

```
virtual bool GazeUtilityLibrary.Tracker.BaseTracker.IsInitialised ( )  [inline], [virtual]
```

Checks wheter the device is connected and initialised. This is device specific and may be overwritten. Otherwise true is always returned.

Returns

True

Reimplemented in GazeUtilityLibrary.Tracker.EyeTrackerPro.

7.5.3.13 IsReady()

```
bool GazeUtilityLibrary.Tracker.BaseTracker.IsReady ( )  [inline], [protected]
```

Determines whether this eye tracker is ready.

Returns

`true` if this instance is ready; otherwise, `false`.

7.5.3.14 OnGazeDataReceived()

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.OnGazeDataReceived (
            GazeData gazeData )  [inline], [protected], [virtual]
```

Called when [gaze data received].

Parameters

data	The gaze data event data.

7.5.3.15 OnPropertyChanged()

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.OnPropertyChanged (
            string property_name )  [inline], [protected], [virtual]
```

Called when when the state property of EyeTracker is changing.

Parameters

property_name	Name of the property in WPF.

7.5.3.16 OnTrackerDisabled()

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.OnTrackerDisabled (
            EventArgs e )  [inline], [protected], [virtual]
```

Raises the E:TrackerDisabled event.

Parameters

e	The EventArgs instance containing the event data.

7.5.3.17 OnTrackerDisabledTimeout()

```
void GazeUtilityLibrary.Tracker.BaseTracker.OnTrackerDisabledTimeout (
            object?  source,
            ElapsedEventArgs e )  [inline], [protected]
```

Called after a specified amount of time of the eyetracker not being ready.

Parameters

source	The source.
e	The ElapsedEventArgs instance containing the event data.

7.5.3.18 OnTrackerEnabled()

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.OnTrackerEnabled (
            EventArgs e )  [inline], [protected], [virtual]
```

Raises the E:TrackerEnabled event.

Parameters

e	The EventArgs instance containing the event data.

7.5.3.19 OnUserPositionDataReceived()

```
virtual void GazeUtilityLibrary.Tracker.BaseTracker.OnUserPositionDataReceived (
            UserPositionData e )  [inline], [protected], [virtual]
```

Called when [user position data received].

Parameters

e	The gaze data event data.

7.5.3.20 PatternReplace()

```
virtual string GazeUtilityLibrary.Tracker.BaseTracker.PatternReplace (
            string pattern )  [inline], [virtual]
```

Replaces a patten string with information from the eye tracker. This is device specific and may be overwritten by the device class.

Returns

The string where patterns were replaced.

Reimplemented in GazeUtilityLibrary.Tracker.EyeTrackerPro.

7.5.3.21 ResetDriftCompensation()

```
void GazeUtilityLibrary.Tracker.BaseTracker.ResetDriftCompensation ( )  [inline]
```

Reset the drift compensation value

7.5.3.22 StartDriftCompensation()

```
void GazeUtilityLibrary.Tracker.BaseTracker.StartDriftCompensation ( )  [inline]
```

Start the drift compensation process.

7.5.3.23 UserPositionDataHandler()

```
delegate void GazeUtilityLibrary.Tracker.BaseTracker.UserPositionDataHandler (
            object sender,
            UserPositionData e )
```

Event handler for user position data events of the eyetracker

Parameters

sender	The sender.
e	The e.

7.5.4 Member Data Documentation

7.5.4.1 config

```
ConfigItem GazeUtilityLibrary.Tracker.BaseTracker.config  [protected]
```

The gaze configuration item

7.5.4.2 DeviceName

```
readonly string GazeUtilityLibrary.Tracker.BaseTracker.DeviceName
```

The name of the tracker device

7.5.4.3 dialogBoxTimer

```
Timer?  GazeUtilityLibrary.Tracker.BaseTracker.dialogBoxTimer  [protected]
```

Timer to control the apperance of the dialog box

7.5.4.4 driftCompensation

```
DriftCompensation?  GazeUtilityLibrary.Tracker.BaseTracker.driftCompensation  [protected]
```

drift compensation handler

7.5.4.5 logger

```
TrackerLogger GazeUtilityLibrary.Tracker.BaseTracker.logger  [protected]
```

The logger

7.5.4.6 screenArea

```
ScreenArea?  GazeUtilityLibrary.Tracker.BaseTracker.screenArea = null  [protected]
```

The scrren area structure holding the metrics of the screen in 3d space.

7.5.4.7 trackerMessageBox

```
TrackerMessageBox?  GazeUtilityLibrary.Tracker.BaseTracker.trackerMessageBox  [protected]
```

The dialog box that is controlled by the dialogBoxTimer

7.5.5 Property Documentation

7.5.5.1 State

```
DeviceStatus GazeUtilityLibrary.Tracker.BaseTracker.State  [get], [set]
```

Gets or sets the state of the eyetracker device.

The state.

7.5.6 Event Documentation

7.5.6.1 DriftCompensationComputed

```
DriftCompensationEventHandler?  GazeUtilityLibrary.Tracker.BaseTracker.DriftCompensation↩
Computed
```

Occurs when drift compensation was computed.

7.5.6.2 GazeDataReceived

```
GazeDataHandler?  GazeUtilityLibrary.Tracker.BaseTracker.GazeDataReceived
```

Occurs when [gaze data received].

7.5.6.3 PropertyChanged

```
PropertyChangedEventHandler?  GazeUtilityLibrary.Tracker.BaseTracker.PropertyChanged
```

Occurs when a property value changes.

7.5.6.4 TrackerDisabled

```
EventHandler?  GazeUtilityLibrary.Tracker.BaseTracker.TrackerDisabled
```

Occurs when [tracker disabled].

7.5.6.5 TrackerEnabled

```
EventHandler?  GazeUtilityLibrary.Tracker.BaseTracker.TrackerEnabled
```

Occurs when [tracker enabled].

7.5.6.6 UserPositionDataReceived

```
UserPositionDataHandler?  GazeUtilityLibrary.Tracker.BaseTracker.UserPositionDataReceived
```

Occurs when [user position data received].

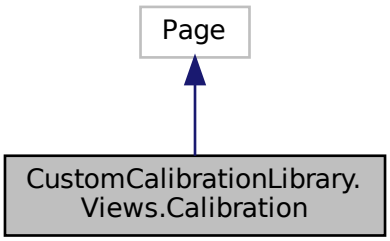
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/Tracker/BaseTracker.cs

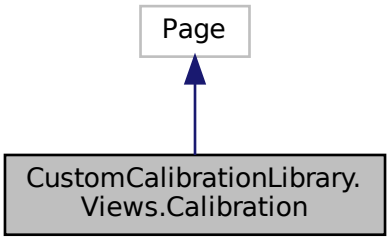
7.6 CustomCalibrationLibrary.Views.Calibration Class Reference

Interaction logic for Calibration.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.Calibration:



Collaboration diagram for CustomCalibrationLibrary.Views.Calibration:



Public Member Functions

- **Calibration** (CalibrationModel model)

7.6.1 Detailed Description

Interaction logic for Calibration.xaml

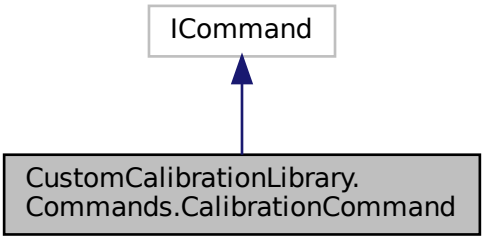
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/Calibration.xaml.cs

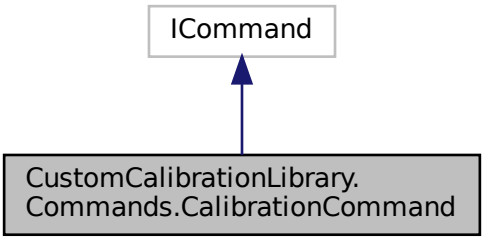
7.7 CustomCalibrationLibrary.Commands.CalibrationCommand Class Reference

Comand class to trigger calibration events.

Inheritance diagram for CustomCalibrationLibrary.Commands.CalibrationCommand:



Collaboration diagram for CustomCalibrationLibrary.Commands.CalibrationCommand:



Public Member Functions

- **CalibrationCommand** (CalibrationModel model, CalibrationEventType eventType)
- bool **CanExecute** (object? parameter)
- void **Execute** (object? parameter)

Events

- EventHandler? **CanExecuteChanged**

7.7.1 Detailed Description

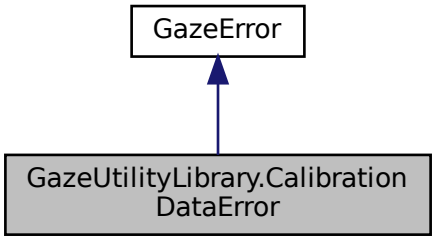
Comand class to trigger calibration events.

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

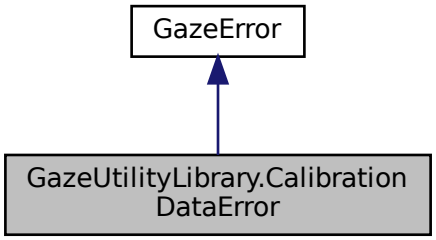
- source/CustomCalibrationLibrary/Commands/CalibrationCommand.cs

7.8 GazeUtilityLibrary.CalibrationDataError Class Reference

Inheritance diagram for GazeUtilityLibrary.CalibrationDataError:



Collaboration diagram for GazeUtilityLibrary.CalibrationDataError:



Public Member Functions

- string GetCalibrationDataErrorString ()

  Gets the gaze error string.

Properties

- ECalibrationDataError **Error** `[set]`

Additional Inherited Members

7.8.1 Member Function Documentation

7.8.1.1 GetCalibrationDataErrorString()

```
string GazeUtilityLibrary.CalibrationDataError.GetCalibrationDataErrorString ( )  [inline]
```

Gets the gaze error string.

Returns

the error string with binary error values if errors ocurred, the empty srting otherwise

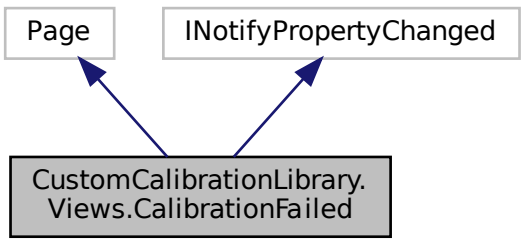
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/GazeError.cs

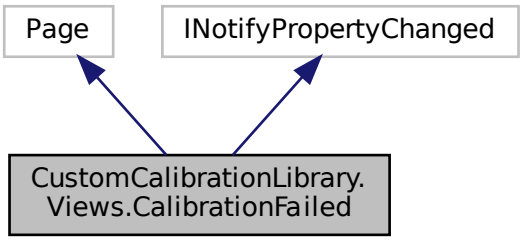
7.9 CustomCalibrationLibrary.Views.CalibrationFailed Class Reference

Interaction logic for CalibrationFailed.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationFailed:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationFailed:



Public Member Functions

- CalibrationFailed (CalibrationModel model)
  Constructor

Properties

- ICommand CalibrationRestartCommand `[get]`
  Command to restart the calibration
- ICommand CalibrationAbortCommand `[get]`
  Command to abort the calibration
- string Error `[get, set]`
  The error message to be updated on the view.

Events

- PropertyChangedEventHandler? PropertyChanged
  The property change event to update the view.

7.9.1 Detailed Description

Interaction logic for CalibrationFailed.xaml

7.9.2 Constructor & Destructor Documentation

7.9.2.1 CalibrationFailed()

```
CustomCalibrationLibrary.Views.CalibrationFailed.CalibrationFailed (
            CalibrationModel model )  [inline]
```

Constructor

Parameters

model	The claibration model

7.9.3 Property Documentation

7.9.3.1 CalibrationAbortCommand

```
ICommand CustomCalibrationLibrary.Views.CalibrationFailed.CalibrationAbortCommand  [get]
```

Command to abort the calibration

7.9.3.2 CalibrationRestartCommand

```
ICommand CustomCalibrationLibrary.Views.CalibrationFailed.CalibrationRestartCommand  [get]
```

Command to restart the calibration

7.9.3.3 Error

```
string CustomCalibrationLibrary.Views.CalibrationFailed.Error  [get], [set]
```

The error message to be updated on the view.

7.9.4 Event Documentation

7.9.4.1 PropertyChanged

```
PropertyChangedEventHandler?  CustomCalibrationLibrary.Views.CalibrationFailed.PropertyChanged
```

The property change event to update the view.

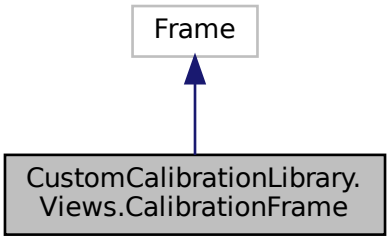
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationFailed.xaml.cs

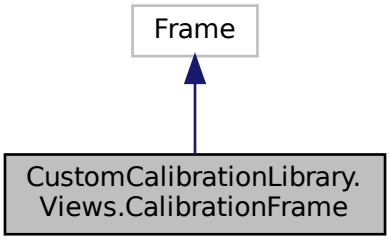
7.10 CustomCalibrationLibrary.Views.CalibrationFrame Class Reference

Interaction logic for CalibrationCollection.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationFrame:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationFrame:



Public Member Functions

- **CalibrationFrame** (CalibrationModel model)

7.10.1 Detailed Description

Interaction logic for CalibrationCollection.xaml

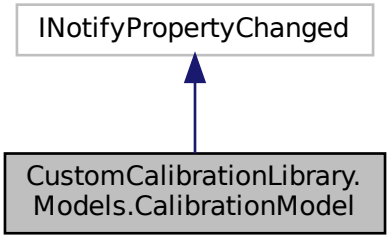
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationFrame.xaml.cs

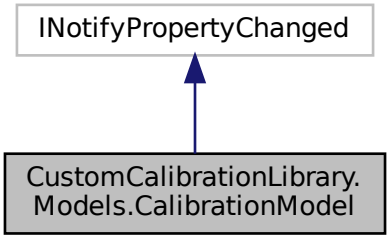
7.11 CustomCalibrationLibrary.Models.CalibrationModel Class Reference

The model for the calibration process.

Inheritance diagram for CustomCalibrationLibrary.Models.CalibrationModel:



Collaboration diagram for CustomCalibrationLibrary.Models.CalibrationModel:



Public Member Functions

- void **OnCalibrationEvent** (CalibrationEventType type)
- **CalibrationModel** (TrackerLogger logger, double[ ][ ] points)
- void UpdateGazePoint (double x, double y)

  Update the normalized gaze point on the screen.
- void InitCalibration ()

  Initialise the calibration.
- void NextCalibrationPoint ()

  Trigger the next calibration point.
- void RedoCalibrationPoint ()

  Remove and re-add the current calibration point
- void GazeDataCollected ()

  Trigger the data collected events.
- void SetCalibrationResult (List< GazeCalibrationData > points)

  Updates the calibration results on the screen.

Properties

- string Error [get, set]

  The error message of the calibration process.
- CalibrationStatus Status [get, set]

  The status of the calibarion process.
- CalibrationStatus LastStatus [get]

  The calibration status before an error occured.
- Point[ ] Points [get]

  All calibration points.
- ObservableCollection< CalibrationPoint > CalibrationPoints [get]

  The calibration points to be added during the calibration process.
- Point GazePoint [get]

  The gaze point position.
- UserPositionData UserPositionGuide [get, set]

  The user position giude values.
- int Index [get]

  The index of the current calibration point

Events

- EventHandler< CalibrationEventType >? CalibrationEvent

  Events to trigger changes in the calibration process.
- PropertyChangedEventHandler? **PropertyChanged**
- EventHandler< Point >? **GazePointChanged**
- EventHandler< UserPositionData >? **UserPositionGuideChanged**

7.11.1 Detailed Description

The model for the calibration process.

7.11.2 Member Function Documentation

7.11.2.1 GazeDataCollected()

```
void CustomCalibrationLibrary.Models.CalibrationModel.GazeDataCollected ( )  [inline]
```

Trigger the data collected events.

7.11.2.2 InitCalibration()

```
void CustomCalibrationLibrary.Models.CalibrationModel.InitCalibration ( )  [inline]
```

Initialise the calibration.

7.11.2.3 NextCalibrationPoint()

```
void CustomCalibrationLibrary.Models.CalibrationModel.NextCalibrationPoint ( )  [inline]
```

Trigger the next calibration point.

7.11.2.4 RedoCalibrationPoint()

```
void CustomCalibrationLibrary.Models.CalibrationModel.RedoCalibrationPoint ( )  [inline]
```

Remove and re-add the current calibration point

7.11.2.5 SetCalibrationResult()

```
void CustomCalibrationLibrary.Models.CalibrationModel.SetCalibrationResult (
            List< GazeCalibrationData > points )  [inline]
```

Updates the calibration results on the screen.

Parameters

points	

7.11.2.6 UpdateGazePoint()

```
void CustomCalibrationLibrary.Models.CalibrationModel.UpdateGazePoint (
            double x,
            double y )  [inline]
```

Update the normalized gaze point on the screen.

Parameters

x	The x coordinate
y	The y coordinate

7.11.3 Property Documentation

7.11.3.1 CalibrationPoints

```
ObservableCollection<CalibrationPoint> CustomCalibrationLibrary.Models.CalibrationModel.↩
CalibrationPoints [get]
```

The calibration points to be added during the calibration process.

7.11.3.2 Error

```
string CustomCalibrationLibrary.Models.CalibrationModel.Error [get], [set]
```

The error message of the calibration process.

7.11.3.3 GazePoint

```
Point CustomCalibrationLibrary.Models.CalibrationModel.GazePoint [get]
```

The gaze point position.

7.11.3.4 Index

```
int CustomCalibrationLibrary.Models.CalibrationModel.Index [get]
```

The index of the current calibration point

7.11.3.5 LastStatus

```
CalibrationStatus CustomCalibrationLibrary.Models.CalibrationModel.LastStatus [get]
```

The calibration status before an error occured.

7.11.3.6 Points

```
Point [] CustomCalibrationLibrary.Models.CalibrationModel.Points [get]
```

All calibration points.

7.11.3.7 Status

`CalibrationStatus CustomCalibrationLibrary.Models.CalibrationModel.Status [get], [set]`

The status of the calibarion process.

7.11.3.8 UserPositionGuide

`UserPositionData CustomCalibrationLibrary.Models.CalibrationModel.UserPositionGuide [get], [set]`

The user position giude values.

7.11.4 Event Documentation

7.11.4.1 CalibrationEvent

`EventHandler<CalibrationEventType>? CustomCalibrationLibrary.Models.CalibrationModel.CalibrationEvent`

Events to trigger changes in the calibration process.

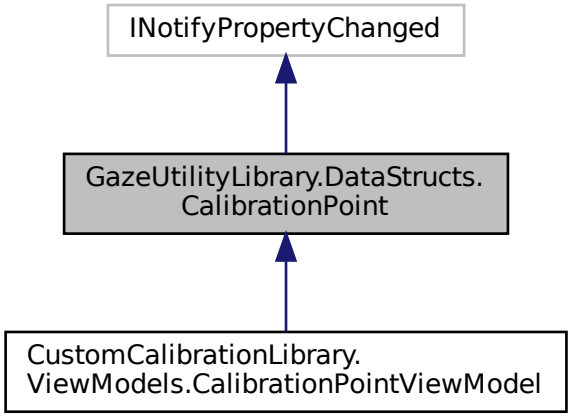
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Models/CalibrationModel.cs

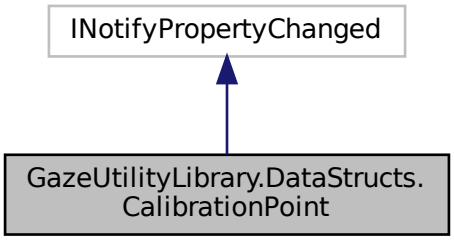
7.12 GazeUtilityLibrary.DataStructs.CalibrationPoint Class Reference

A calibration point class holding several metrics connected to a calibration point.

Inheritance diagram for GazeUtilityLibrary.DataStructs.CalibrationPoint:



Collaboration diagram for GazeUtilityLibrary.DataStructs.CalibrationPoint:



Public Member Functions

- **CalibrationPoint** (Point position, int index)

Properties

- int Index `[get]`

  The index of the calibration point.
- bool HasData `[get, set]`

  Flag to indicate whether data has been collected for this calibration point.
- Point Position `[get, set]`

  The position of the calibration point.
- Point GazePositionAverage `[get, set]`

  The average between the left and the right gaze point.
- Point GazePositionLeft `[get, set]`

  The left gaze point.
- Point GazePositionRight `[get, set]`

  The right gaze point.

Events

- PropertyChangedEventHandler? **PropertyChanged**

7.12.1 Detailed Description

A calibration point class holding several metrics connected to a calibration point.

7.12.2 Property Documentation

7.12.2.1 GazePositionAverage

```
Point GazeUtilityLibrary.DataStructs.CalibrationPoint.GazePositionAverage  [get], [set]
```

The average between the left and the right gaze point.

7.12.2.2 GazePositionLeft

```
Point GazeUtilityLibrary.DataStructs.CalibrationPoint.GazePositionLeft  [get], [set]
```

The left gaze point.

7.12.2.3 GazePositionRight

```
Point GazeUtilityLibrary.DataStructs.CalibrationPoint.GazePositionRight  [get], [set]
```

The right gaze point.

7.12.2.4 HasData

```
bool GazeUtilityLibrary.DataStructs.CalibrationPoint.HasData  [get], [set]
```

Flag to indicate whether data has been collected for this calibration point.

7.12.2.5 Index

```
int GazeUtilityLibrary.DataStructs.CalibrationPoint.Index  [get]
```

The index of the calibration point.

7.12.2.6 Position

```
Point GazeUtilityLibrary.DataStructs.CalibrationPoint.Position  [get], [set]
```

The position of the calibration point.

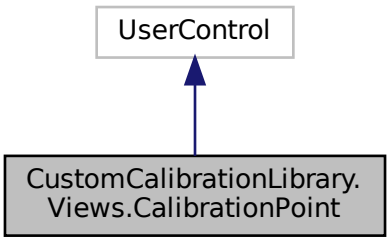
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/DataStructs/CalibrationPoint.cs

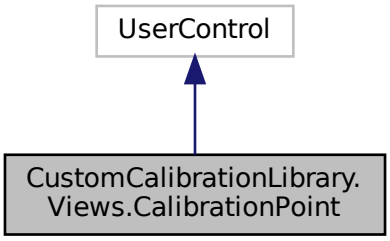
7.13 CustomCalibrationLibrary.Views.CalibrationPoint Class Reference

Interaction logic for CalibrationPoint.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationPoint:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationPoint:



7.13.1 Detailed Description

Interaction logic for CalibrationPoint.xaml

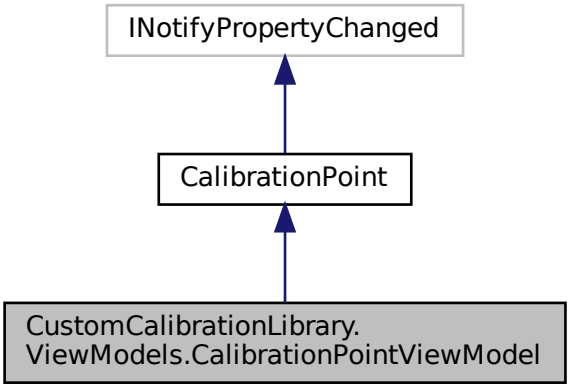
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationPoint.xaml.cs

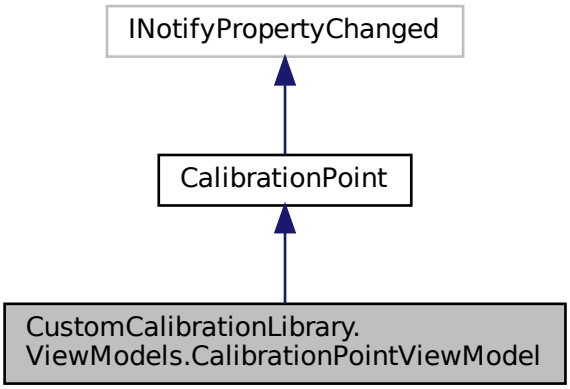
7.14 CustomCalibrationLibrary.ViewModels.CalibrationPointViewModel Class Reference

The view model for a calibration point.

Inheritance diagram for CustomCalibrationLibrary.ViewModels.CalibrationPointViewModel:



Collaboration diagram for CustomCalibrationLibrary.ViewModels.CalibrationPointViewModel:



Public Member Functions

- **CalibrationPointViewModel** (Point point, int index)
- **CalibrationPointViewModel** (CalibrationPoint model)

Additional Inherited Members

7.14.1 Detailed Description

The view model for a calibration point.

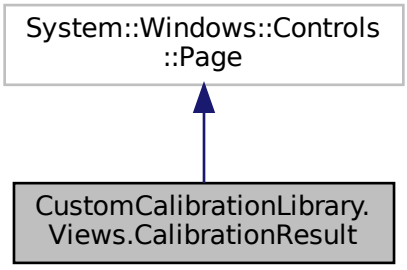
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/ViewModels/CalibrationPointViewModel.cs

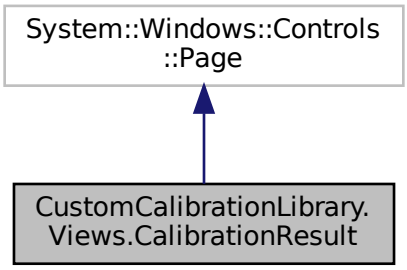
7.15 CustomCalibrationLibrary.Views.CalibrationResult Class Reference

Interaction logic for CalibrationResult.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationResult:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationResult:



Public Member Functions

- **CalibrationResult** (CalibrationModel model)

7.15.1 Detailed Description

Interaction logic for CalibrationResult.xaml

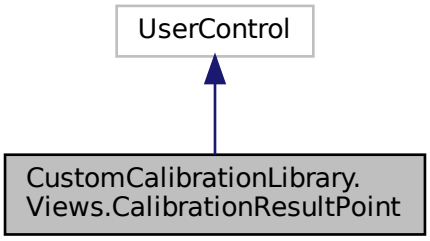
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationResult.xaml.cs

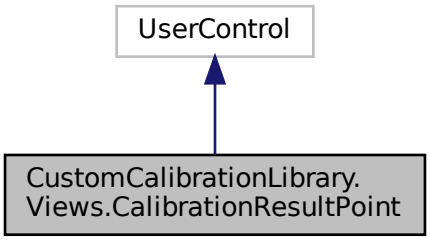
7.16 CustomCalibrationLibrary.Views.CalibrationResultPoint Class Reference

Interaction logic for CalibrationResultPoint.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationResultPoint:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationResultPoint:



7.16.1 Detailed Description

Interaction logic for CalibrationResultPoint.xaml

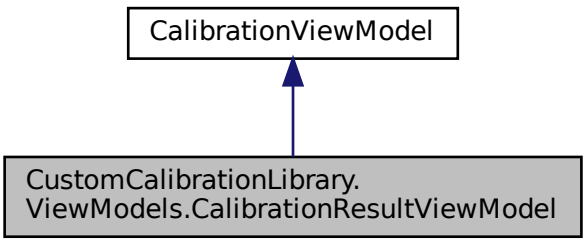
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationResultPoint.xaml.cs

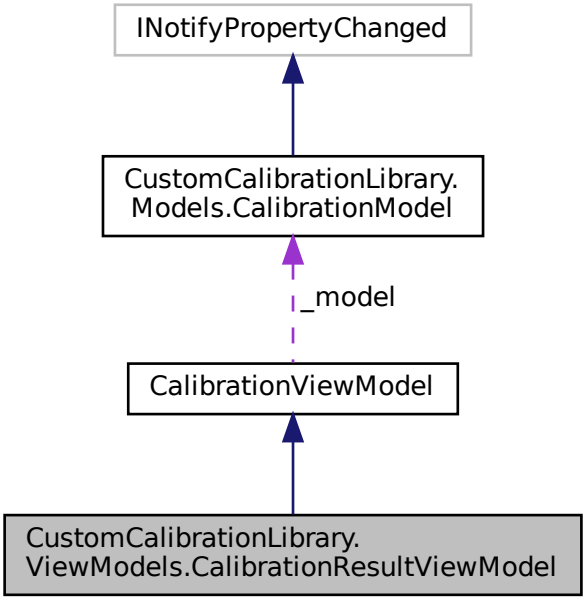
7.17 CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel Class Reference

View model class of the gaze calibration result.

Inheritance diagram for CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel:



Collaboration diagram for CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel:



Public Member Functions

- CalibrationResultViewModel (CalibrationModel model)

  Constructor
- void OnGazeToggle ()

  Toggle the visibility of the live gaze point.

Properties

- ICommand CalibrationRestartCommand `[get]`

  Command to restart the calibration
- ICommand CalibrationAcceptCommand `[get]`

  Command to accept the calibration
- ICommand GazeVisibilityCommand `[get]`

  Command to toggle the visibility of the live gaze point
- LiveGazePoint GazePoint `[get]`

  The position of the live gaze point

Additional Inherited Members

7.17.1 Detailed Description

View model class of the gaze calibration result.

7.17.2 Constructor & Destructor Documentation

7.17.2.1 CalibrationResultViewModel()

```
CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.CalibrationResultViewModel (
            CalibrationModel model )  [inline]
```

Constructor

Parameters

model	The claibration model

7.17.3 Member Function Documentation

7.17.3.1 OnGazeToggle()

```
void CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.OnGazeToggle ( )  [inline]
```

Toggle the visibility of the live gaze point.

7.17.4 Property Documentation

7.17.4.1 CalibrationAcceptCommand

```
ICommand CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.CalibrationAccept↩
Command  [get]
```

Command to accept the calibration

7.17.4.2 CalibrationRestartCommand

```
ICommand CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.CalibrationRestart↩
Command  [get]
```

Command to restart the calibration

7.17.4.3 GazePoint

```
LiveGazePoint CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.GazePoint [get]
```

The position of the live gaze point

7.17.4.4 GazeVisibilityCommand

```
ICommand CustomCalibrationLibrary.ViewModels.CalibrationResultViewModel.GazeVisibilityCommand
[get]
```

Command to toggle the visibility of the live gaze point

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

- source/CustomCalibrationLibrary/ViewModels/CalibrationResultViewModel.cs

7.18 Tobii.Research.Addons.CalibrationValidationPoint Class Reference

Represents a collected point that goes into the calibration validation. It contains calculated values for accuracy and precision as well as the original gaze samples collected for the point.

Public Member Functions

- override string **ToString** ()

Properties

- NormalizedPoint2D Coordinates [get]

  The 2D coordinates of this point (in Active Display Coordinate System).
- float AccuracyLeftEye [get]

  The accuracy in degrees for the left eye.
- float PrecisionLeftEye [get]

  The precision (standard deviation) in degrees for the left eye.
- float PrecisionRMSLeftEye [get]

  The precision (root mean square of sample-to-sample error) in degrees for the left eye.
- float AccuracyRightEye [get]

  The accuracy in degrees for the right eye.
- float PrecisionRightEye [get]

  The precision (standard deviation) in degrees for the right eye.
- float PrecisionRMSRightEye [get]

  The precision (root mean square of sample-to-sample error) in degrees for the right eye.
- bool TimedOut [get]

  A boolean indicating if there was a timeout while collecting data for this point.
- GazeDataEventArgs[ ] GazeData [get]

  The gaze data samples collected for this point. These samples are the base for the calculated accuracy and precision.

7.18.1 Detailed Description

Represents a collected point that goes into the calibration validation. It contains calculated values for accuracy and precision as well as the original gaze samples collected for the point.

7.18.2 Property Documentation

7.18.2.1 AccuracyLeftEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.AccuracyLeftEye [get]
```

The accuracy in degrees for the left eye.

7.18.2.2 AccuracyRightEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.AccuracyRightEye [get]
```

The accuracy in degrees for the right eye.

7.18.2.3 Coordinates

```
NormalizedPoint2D Tobii.Research.Addons.CalibrationValidationPoint.Coordinates [get]
```

The 2D coordinates of this point (in Active Display Coordinate System).

7.18.2.4 GazeData

```
GazeDataEventArgs [] Tobii.Research.Addons.CalibrationValidationPoint.GazeData [get]
```

The gaze data samples collected for this point. These samples are the base for the calculated accuracy and precision.

7.18.2.5 PrecisionLeftEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.PrecisionLeftEye [get]
```

The precision (standard deviation) in degrees for the left eye.

7.18.2.6 PrecisionRightEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.PrecisionRightEye  [get]
```

The precision (standard deviation) in degrees for the right eye.

7.18.2.7 PrecisionRMSLeftEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.PrecisionRMSLeftEye  [get]
```

The precision (root mean square of sample-to-sample error) in degrees for the left eye.

7.18.2.8 PrecisionRMSRightEye

```
float Tobii.Research.Addons.CalibrationValidationPoint.PrecisionRMSRightEye  [get]
```

The precision (root mean square of sample-to-sample error) in degrees for the right eye.

7.18.2.9 TimedOut

```
bool Tobii.Research.Addons.CalibrationValidationPoint.TimedOut  [get]
```

A boolean indicating if there was a timeout while collecting data for this point.

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

- source/TobiiProSdkAddons/ScreenBasedCalibrationValidation.cs

7.19 Tobii.Research.Addons.CalibrationValidationResult Class Reference

Contains the result of the calibration validation.

Public Member Functions

- override string **ToString** ()

Properties

- List< CalibrationValidationPoint > Points [get]

  The results of the calibration validation per point (same points as were collected).
- float AverageAccuracyLeftEye [get]

  The accuracy in degrees averaged over all collected points for the left eye.
- float AveragePrecisionLeftEye [get]

  The precision (standard deviation) in degrees averaged over all collected points for the left eye.
- float AveragePrecisionRMSLeftEye [get]

  The precision (root mean square of sample-to-sample error) in degrees averaged over all collected points for the left eye.
- float AverageAccuracyRightEye [get]

  The accuracy in degrees averaged over all collected points for the right eye.
- float AveragePrecisionRightEye [get]

  The precision (standard deviation) in degrees averaged over all collected points for the right eye.
- float AveragePrecisionRMSRightEye [get]

  The precision (root mean square of sample-to-sample error) in degrees averaged over all collected points for the right eye.

7.19.1 Detailed Description

Contains the result of the calibration validation.

7.19.2 Property Documentation

7.19.2.1 AverageAccuracyLeftEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AverageAccuracyLeftEye [get]
```

The accuracy in degrees averaged over all collected points for the left eye.

7.19.2.2 AverageAccuracyRightEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AverageAccuracyRightEye [get]
```

The accuracy in degrees averaged over all collected points for the right eye.

7.19.2.3 AveragePrecisionLeftEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AveragePrecisionLeftEye [get]
```

The precision (standard deviation) in degrees averaged over all collected points for the left eye.

7.19.2.4 AveragePrecisionRightEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AveragePrecisionRightEye [get]
```

The precision (standard deviation) in degrees averaged over all collected points for the right eye.

7.19.2.5 AveragePrecisionRMSLeftEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AveragePrecisionRMSLeftEye [get]
```

The precision (root mean square of sample-to-sample error) in degrees averaged over all collected points for the left eye.

7.19.2.6 AveragePrecisionRMSRightEye

```
float Tobii.Research.Addons.CalibrationValidationResult.AveragePrecisionRMSRightEye [get]
```

The precision (root mean square of sample-to-sample error) in degrees averaged over all collected points for the right eye.

7.19.2.7 Points

```
List<CalibrationValidationPoint> Tobii.Research.Addons.CalibrationValidationResult.Points
[get]
```

The results of the calibration validation per point (same points as were collected).

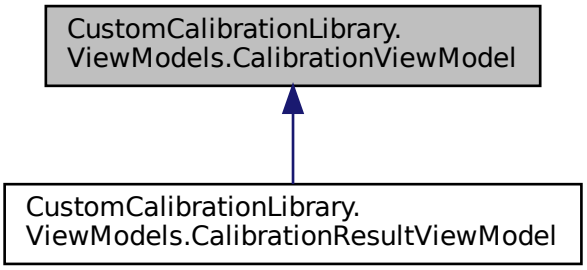
The documentation for this class was generated from the following file:

- source/TobiiProSdkAddons/ScreenBasedCalibrationValidation.cs

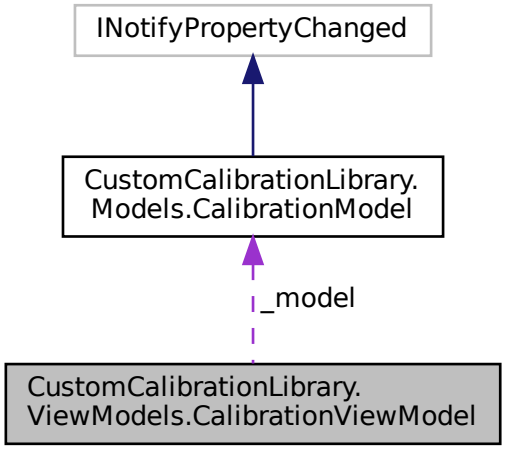
7.20 CustomCalibrationLibrary.ViewModels.CalibrationViewModel Class Reference

The view model class of the calibration view

Inheritance diagram for CustomCalibrationLibrary.ViewModels.CalibrationViewModel:



Collaboration diagram for CustomCalibrationLibrary.ViewModels.CalibrationViewModel:



Public Member Functions

- CalibrationViewModel (CalibrationModel model)

  Constructor

Protected Attributes

- CalibrationModel **_model**

Properties

- ObservableCollection< CalibrationPointViewModel > CalibrationPoints [get]

  The collection of calibration points to be shown on the view

7.20.1 Detailed Description

The view model class of the calibration view

7.20.2 Constructor & Destructor Documentation

7.20.2.1 CalibrationViewModel()

```
CustomCalibrationLibrary.ViewModels.CalibrationViewModel.CalibrationViewModel (
            CalibrationModel model ) [inline]
```

Constructor

Parameters

model	The calibration model

7.20.3 Property Documentation

7.20.3.1 CalibrationPoints

```
ObservableCollection<CalibrationPointViewModel> CustomCalibrationLibrary.ViewModels.Calibration↩
ViewModel.CalibrationPoints [get]
```

The collection of calibration points to be shown on the view

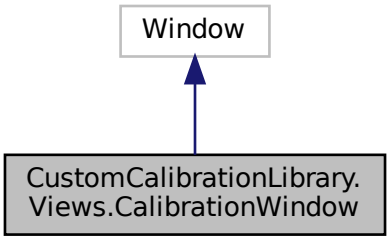
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/ViewModels/CalibrationViewModel.cs

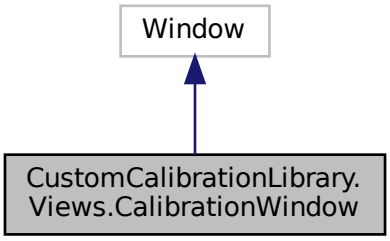
7.21 CustomCalibrationLibrary.Views.CalibrationWindow Class Reference

Interaction logic for MainWindow.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.CalibrationWindow:



Collaboration diagram for CustomCalibrationLibrary.Views.CalibrationWindow:



7.21.1 Detailed Description

Interaction logic for MainWindow.xaml

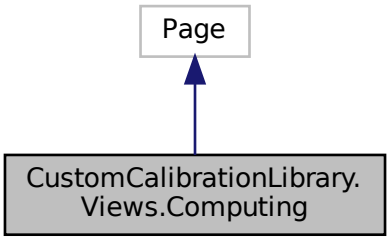
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Views/CalibrationWindow.xaml.cs

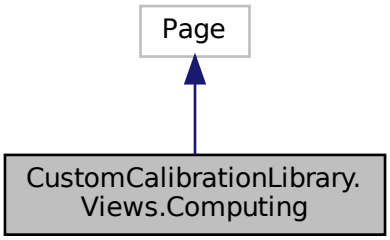
7.22 CustomCalibrationLibrary.Views.Computing Class Reference

Interaction logic for Computing.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.Computing:



Collaboration diagram for CustomCalibrationLibrary.Views.Computing:



7.22.1 Detailed Description

Interaction logic for Computing.xaml

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

- source/CustomCalibrationLibrary/Views/Computing.xaml.cs

7.23 GazeUtilityLibrary.ConfigItem Class Reference

configuration file class

Properties

- string? **ConfigName** [get, set]
- string **DataLogColumnOrder** [get, set]
- string[ ] **DataLogColumnTitle** [get, set]
- string **CalibrationLogColumnOrder** [get, set]
- string[ ] **CalibrationLogColumnTitle** [get, set]
- int **DataLogCount** [get, set]
- string **DataLogFormatDiameter** [get, set]
- string **DataLogFormatOrigin** [get, set]
- string **DataLogFormatNormalizedPoint** [get, set]
- string **DataLogFormatTimeStamp** [get, set]
- string **DataLogPath** [get, set]
- bool **DataLogWriteOutput** [get, set]
- bool **CalibrationLogWriteOutput** [get, set]
- double[ ][ ] **CalibrationPoints** [get, set]
- bool **DataLogDisabledOnStartup** [get, set]
- double **DispersionThreshold** [get, set]
- double **DriftCompensationTimer** [get, set]
- string? **LicensePath** [get, set]
- bool **MouseControl** [get, set]
- bool **MouseControlHide** [get, set]
- bool **MouseCalibrationHide** [get, set]
- string **MouseStandardIconPath** [get, set]
- int **ReadyTimer** [get, set]
- int **TrackerDevice** [get, set]
- string **TobiiApplicationPath** [get, set]
- string **TobiiCalibrate** [get, set]
- string **TobiiCalibrateArguments** [get, set]

7.23.1 Detailed Description

configuration file class

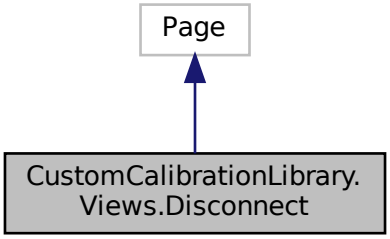
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/GazeConfiguration.cs

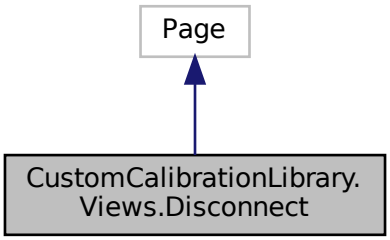
7.24 CustomCalibrationLibrary.Views.Disconnect Class Reference

Interaction logic for Disconnect.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.Disconnect:



Collaboration diagram for CustomCalibrationLibrary.Views.Disconnect:



Public Member Functions

- **Disconnect** (CalibrationModel model)

Properties

- ICommand CalibrationAbortCommand `[get]`

  Command to abort the calibration

7.24.1 Detailed Description

Interaction logic for Disconnect.xaml

7.24.2 Property Documentation

7.24.2.1 CalibrationAbortCommand

```
ICommand CustomCalibrationLibrary.Views.Disconnect.CalibrationAbortCommand [get]
```

Command to abort the calibration

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

- source/CustomCalibrationLibrary/Views/Disconnect.xaml.cs

7.25 GazeUtilityLibrary.DriftCompensation Class Reference

The class to handle drift compensation.

Public Member Functions

- **DriftCompensation** (Vector3 fixationPoint, int fixationFrameCount, double dispersionThreashold)
- void Reset ()

  Reset the drift compensation quaternion to the identity.
- void Start ()

  Start the drift compensation.
- bool Update (GazeData gazeData)

  Collect gaze data samples of a fixation and once enough samples are collected, compute the drift compensation quaternion.

Properties

- Quaternion Q `[get]`

  The drift compensation quatrenion.

7.25.1 Detailed Description

The class to handle drift compensation.

7.25.2 Member Function Documentation

7.25.2.1 Reset()

```
void GazeUtilityLibrary.DriftCompensation.Reset ( ) [inline]
```

Reset the drift compensation quaternion to the identity.

7.25.2.2 Start()

```
void GazeUtilityLibrary.DriftCompensation.Start ( )  [inline]
```

Start the drift compensation.

7.25.2.3 Update()

```
bool GazeUtilityLibrary.DriftCompensation.Update (
            GazeData gazeData )  [inline]
```

Collect gaze data samples of a fixation and once enough samples are collected, compute the drift compensation quaternion.

Parameters

gazeData	The gaze data sample to collect if it belongs to a fixation.

Returns

True if new drift compensation is computed, false if the process is ongoing.

7.25.3 Property Documentation

7.25.3.1 Q

```
Quaternion GazeUtilityLibrary.DriftCompensation.Q  [get]
```

The drift compensation quatrenion.

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

- source/GazeUtilityLibrary/DriftCompensation.cs

7.26 GazeUtilityLibrary.DataStructs.DriftCompensationData Class Reference

The drift compensation data structure

Public Member Functions

- DriftCompensationData (ScreenArea screen, Quaternion driftCompensation, GazeData3d gazeData)
  Constructor

Properties

- Vector2 GazePosition2d [get]

  The drift compensated 2d gaze position
- Vector3 GazePosition3d [get]

  The drift compensated 3d gaze position
- Quaternion Compensation [get]

  The drift compensation quaternion

7.26.1 Detailed Description

The drift compensation data structure

7.26.2 Constructor & Destructor Documentation

7.26.2.1 DriftCompensationData()

```
GazeUtilityLibrary.DataStructs.DriftCompensationData.DriftCompensationData (
            ScreenArea screen,
            Quaternion driftCompensation,
            GazeData3d gazeData )  [inline]
```

Constructor

Parameters

screen	The screen area
driftCompensation	The drift compensation quaternion
gazeData	The 3d gaze data structure

7.26.3 Property Documentation

7.26.3.1 Compensation

```
Quaternion GazeUtilityLibrary.DataStructs.DriftCompensationData.Compensation  [get]
```

The drift compensation quaternion

7.26.3.2 GazePosition2d

```
Vector2 GazeUtilityLibrary.DataStructs.DriftCompensationData.GazePosition2d [get]
```

The drift compensated 2d gaze position

7.26.3.3 GazePosition3d

```
Vector3 GazeUtilityLibrary.DataStructs.DriftCompensationData.GazePosition3d [get]
```

The drift compensated 3d gaze position

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

- source/GazeUtilityLibrary/DataStructs/DriftCompensationData.cs

7.27 CustomCalibrationLibrary.ViewModels.DriftCompensationView↩ Model Class Reference

The view model class of the drift compensation view.

Public Member Functions

- DriftCompensationViewModel ()
  Constructor

Properties

- CalibrationPoint FixationPoint `[get, set]`
  The point on the screen which the participant is supposed to fixate.

7.27.1 Detailed Description

The view model class of the drift compensation view.

7.27.2 Constructor & Destructor Documentation

7.27.2.1 DriftCompensationViewModel()

```
CustomCalibrationLibrary.ViewModels.DriftCompensationViewModel.DriftCompensationViewModel ( )
[inline]
```

Constructor

7.27.3 Property Documentation

7.27.3.1 FixationPoint

```
CalibrationPoint CustomCalibrationLibrary.ViewModels.DriftCompensationViewModel.FixationPoint
[get], [set]
```

The point on the screen which the participant is supposed to fixate.

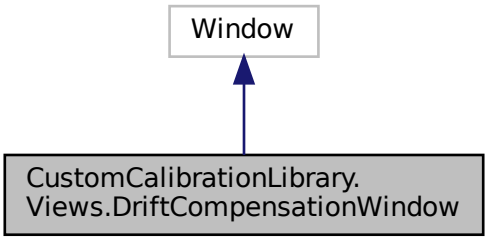
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/ViewModels/DriftCompensationViewModel.cs

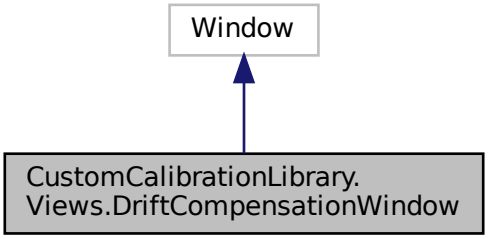
7.28 CustomCalibrationLibrary.Views.DriftCompensationWindow Class Reference

Interaction logic for DriftCompensation.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.DriftCompensationWindow:



Collaboration diagram for CustomCalibrationLibrary.Views.DriftCompensationWindow:



7.28.1 Detailed Description

Interaction logic for DriftCompensation.xaml

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

- source/CustomCalibrationLibrary/Views/DriftCompensationWindow.xaml.cs

7.29 GazeUtilityLibrary.DataStructs.EyeData Class Reference

The eye data set, including pupil information.

Public Member Functions

- EyeData (float pupilDiameter, bool isPupilDiameterValid)

  Initializes a new instance of the EyeData class.

Properties

- float PupilDiameter `[get]`

  The diameter of the pupil
- bool IsPupilDiameterValid `[get]`

  The validity flag of th epupil diameter

7.29.1 Detailed Description

The eye data set, including pupil information.

7.29.2 Constructor & Destructor Documentation

7.29.2.1 EyeData()

```
GazeUtilityLibrary.DataStructs.EyeData.EyeData (
            float pupilDiameter,
            bool isPupilDiameterValid )  [inline]
```

Initializes a new instance of the EyeData class.

Parameters

pupilDiameter	The pupil diameter.
isPupilDiameterValid	The validity of the pupil diameter.

7.29.3 Property Documentation

7.29.3.1 IsPupilDiameterValid

```
bool GazeUtilityLibrary.DataStructs.EyeData.IsPupilDiameterValid  [get]
```

The validity flag of th epupil diameter

7.29.3.2 PupilDiameter

```
float GazeUtilityLibrary.DataStructs.EyeData.PupilDiameter  [get]
```

The diameter of the pupil

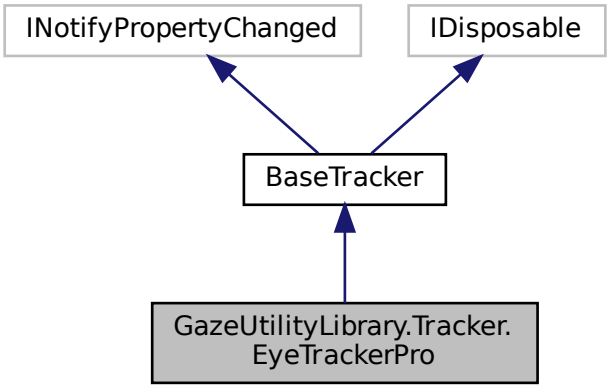
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/DataStructs/EyeData.cs

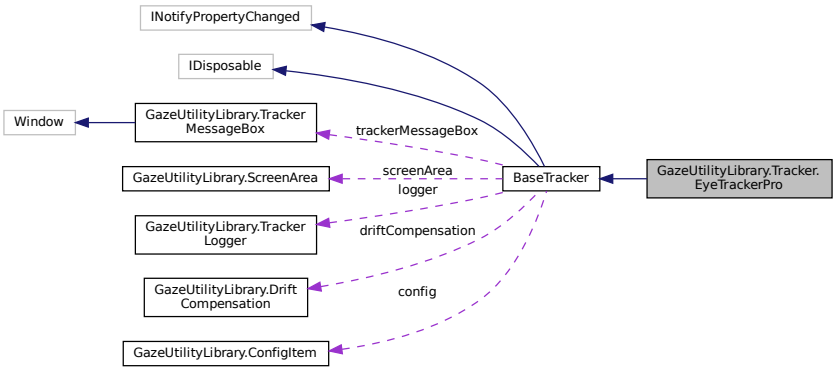
7.30 GazeUtilityLibrary.Tracker.EyeTrackerPro Class Reference

Interface to the Tobii SDK Pro engine

Inheritance diagram for GazeUtilityLibrary.Tracker.EyeTrackerPro:



Collaboration diagram for GazeUtilityLibrary.Tracker.EyeTrackerPro:



Public Member Functions

- EyeTrackerPro (TrackerLogger logger, ConfigItem config)

  Initializes a new instance of the EyeTrackerPro class.
- override async Task InitCalibration ()

  Initialise the screen based calibration.
- override async Task< bool > CollectCalibrationData (Point point)

  Collects gaze data of a calibration point.
- override async Task FinishCalibration ()

Finish the screen based calibration process.

- override async Task< List< GazeCalibrationData > > ApplyCalibration ()

  Compute and apply the calibration data. Transform the Tobi calibration result into the GazeCalibrationData structure.
- bool IsLicenseOk ()

  Determines whether the license is applied to the eyetracker device
- override bool IsInitialised ()

  Checks if the tracker device exists.
- override string PatternReplace (string pattern)

  Replaces a patten string with information from the eye tracker. Supported patterns are S for the serial number and A for the address.

Protected Member Functions

- override void InitDriftCompensation ()

  Initialise the drift compensation.
- override int GetFixationFrameCount ()

  Get the number of required gaze samples to compute a fixation.
- override Vector3 GetUnitDirection ()

  Get the unit vector pointing in the direction of the gaze vector.

Additional Inherited Members

7.30.1 Detailed Description

Interface to the Tobii SDK Pro engine

See also

GazeHelper.TrackerHandler

7.30.2 Constructor & Destructor Documentation

7.30.2.1 EyeTrackerPro()

```
GazeUtilityLibrary.Tracker.EyeTrackerPro.EyeTrackerPro (
            TrackerLogger logger,
            ConfigItem config )  [inline]
```

Initializes a new instance of the EyeTrackerPro class.

Parameters

logger	The logger.
ready_timer	The ready timer.
license_path	The license path.

7.30.3 Member Function Documentation

7.30.3.1 ApplyCalibration()

```
override async Task<List<GazeCalibrationData> > GazeUtilityLibrary.Tracker.EyeTrackerPro.↩
ApplyCalibration ( )  [inline], [virtual]
```

Compute and apply the calibration data. Transform the Tobi calibration result into the GazeCalibrationData structure.

Returns

The calibration data result wrapped by an async handler.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.2 CollectCalibrationData()

```
override async Task<bool> GazeUtilityLibrary.Tracker.EyeTrackerPro.CollectCalibrationData (
            Point point )  [inline], [virtual]
```

Collects gaze data of a calibration point.

Parameters

point	

Returns

True on success, false on failure, wrapped by an async handler.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.3 FinishCalibration()

```
override async Task GazeUtilityLibrary.Tracker.EyeTrackerPro.FinishCalibration ( )  [inline],
[virtual]
```

Finish the screen based calibration process.

Returns

An async handler

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.4 GetFixationFrameCount()

```
override int GazeUtilityLibrary.Tracker.EyeTrackerPro.GetFixationFrameCount ( )  [inline],
[protected], [virtual]
```

Get the number of required gaze samples to compute a fixation.

Returns

60

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.5 GetUnitDirection()

```
override Vector3 GazeUtilityLibrary.Tracker.EyeTrackerPro.GetUnitDirection ( )  [inline],
[protected], [virtual]
```

Get the unit vector pointing in the direction of the gaze vector.

Returns

The unit vector pointing in the negative z direction.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.6 InitCalibration()

```
override async Task GazeUtilityLibrary.Tracker.EyeTrackerPro.InitCalibration ( )  [inline],
[virtual]
```

Initialise the screen based calibration.

Returns

An async handler

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.7 InitDriftCompensation()

```
override void GazeUtilityLibrary.Tracker.EyeTrackerPro.InitDriftCompensation ( )  [inline],
[protected], [virtual]
```

Initialise the drift compensation.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.8 IsInitialised()

```
override bool GazeUtilityLibrary.Tracker.EyeTrackerPro.IsInitialised ( )  [inline], [virtual]
```

Checks if the tracker device exists.

Returns

True if the tracker device exists, false otherwise.

Reimplemented from GazeUtilityLibrary.Tracker.BaseTracker.

7.30.3.9 IsLicenseOk()

```
bool GazeUtilityLibrary.Tracker.EyeTrackerPro.IsLicenseOk ( )  [inline]
```

Determines whether the license is applied to the eyetracker device

Returns

`true` if [is license ok]; otherwise, `false`.

7.30.3.10 PatternReplace()

```
override string GazeUtilityLibrary.Tracker.EyeTrackerPro.PatternReplace (
            string pattern )  [inline], [virtual]
```

Replaces a patten string with information from the eye tracker. Supported patterns are S for the serial number and A for the address.

Returns

The string where patterns were replaced.

Reimplemented from GazeUtilityLibrary.Tracker.BaseTracker.

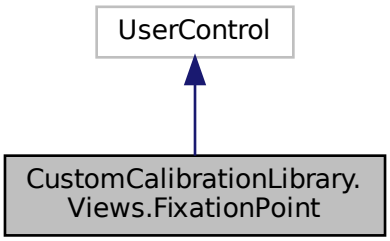
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/Tracker/EyeTrackerPro.cs

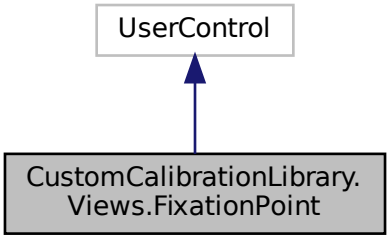
7.31 CustomCalibrationLibrary.Views.FixationPoint Class Reference

Interaction logic for FixationPoint.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.FixationPoint:



Collaboration diagram for CustomCalibrationLibrary.Views.FixationPoint:



7.31.1 Detailed Description

Interaction logic for FixationPoint.xaml

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

- source/CustomCalibrationLibrary/Views/FixationPoint.xaml.cs

7.32 GazeUtilityLibrary.DataStructs.GazeCalibrationData Class Reference

The event argument class for Tobii eyetracker data

Public Member Functions

- GazeCalibrationData (double xCoord, double yCoord, double xCoordLeft, double yCoordLeft, bool validity↩ Left, double xCoordRight, double yCoordRight, bool validityRight)

  Initializes a new instance of the GazeDataArgs class.
- string[ ] Prepare (ConfigItem config)

  Prepare a list of formatted calibration data values

Properties

- double **XCoord** [get]
- double **YCoord** [get]
- double **XCoordLeft** [get]
- double **YCoordLeft** [get]
- bool **ValidityLeft** [get]
- double **XCoordRight** [get]
- double **YCoordRight** [get]
- bool **ValidityRight** [get]

7.32.1 Detailed Description

The event argument class for Tobii eyetracker data

7.32.2 Constructor & Destructor Documentation

7.32.2.1 GazeCalibrationData()

```
GazeUtilityLibrary.DataStructs.GazeCalibrationData.GazeCalibrationData (
            double xCoord,
            double yCoord,
            double xCoordLeft,
            double yCoordLeft,
            bool validityLeft,
            double xCoordRight,
            double yCoordRight,
            bool validityRight )  [inline]
```

Initializes a new instance of the GazeDataArgs class.

Parameters

xCoord	The x coord of the calibration point.
yCoord	The y coord of the calibration point.
xCoordLeft	The x coord of the gaze point of the left eye.
yCoordLeft	The y coord of the gaze point of the left eye.
validityLeft	the validity of gaze point coordinate of the left eye.
xCoordRight	The x coord of the gaze point of the right eye.
yCoordRight	The y coord of the gaze point of the right eye.
validityRight	the validity of gaze point coordinate of the right eye.

7.32.3 Member Function Documentation

7.32.3.1 Prepare()

```
string [] GazeUtilityLibrary.DataStructs.GazeCalibrationData.Prepare (
            ConfigItem config )  [inline]
```

Prepare a list of formatted calibration data values

Parameters

config	The gaze configuration structure

Returns

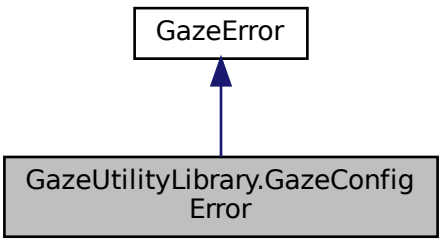
A list of formatted values. Each index corresponds to a specific value. This allows to reorder the list according to a format string.

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

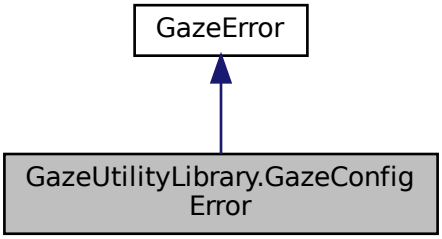
- source/GazeUtilityLibrary/DataStructs/GazeCalibrationData.cs

7.33 GazeUtilityLibrary.GazeConfigError Class Reference

Inheritance diagram for GazeUtilityLibrary.GazeConfigError:



Collaboration diagram for GazeUtilityLibrary.GazeConfigError:



Public Member Functions

- string GetGazeConfigErrorString ()

  Gets the gaze error string.

Properties

- EGazeConfigError **Error** `[set]`

Additional Inherited Members

7.33.1 Member Function Documentation

7.33.1.1 GetGazeConfigErrorString()

```
string GazeUtilityLibrary.GazeConfigError.GetGazeConfigErrorString ( )  [inline]
```

Gets the gaze error string.

Returns

the error string with binary error values if errors ocurred, the empty srting otherwise

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

- source/GazeUtilityLibrary/GazeError.cs

7.34 GazeUtilityLibrary.GazeConfiguration Class Reference

Public Member Functions

- **GazeConfiguration** (TrackerLogger logger)
- bool InitConfig ()

  Initialise the gaze configuration by parsing and checking the configuration file.
- bool CleanupGazeOutputFile (string error)

  Close the gaze outputfile and rename it by appending error codes.
- bool CleanupCalibrationOutputFile (string error)

  Close the calibration outputfile and rename it by appending error codes.
- bool DumpCurrentConfigurationFile ()

  Dump current configuration to the disk.
- bool PrepareGazeOutputFile (string? subjectCode, string? outputPath)

  Prepare the gaze output file based on the configuration.
- bool PrepareCalibrationOutputFile (string? subjectCode)

  Prepare the calibration output file based on the configuration.
- void WriteToGazeOutput (string[ ] formatted_values)

  Write to the gaze output file
- void WriteToCalibrationOutput (string[ ] formatted_values)

  Write to the calibration output file

Properties

- ConfigItem?? **Config** `[get]`

7.34.1 Member Function Documentation

7.34.1.1 CleanupCalibrationOutputFile()

```
bool GazeUtilityLibrary.GazeConfiguration.CleanupCalibrationOutputFile (
            string error ) [inline]
```

Close the calibration outputfile and rename it by appending error codes.

Parameters

error	

Returns

True on success, False on failure.

7.34.1.2 CleanupGazeOutputFile()

```
bool GazeUtilityLibrary.GazeConfiguration.CleanupGazeOutputFile (
            string error ) [inline]
```

Close the gaze outputfile and rename it by appending error codes.

Parameters

error	

Returns

True on success, False on failure.

7.34.1.3 DumpCurrentConfigurationFile()

```
bool GazeUtilityLibrary.GazeConfiguration.DumpCurrentConfigurationFile ( ) [inline]
```

Dump current configuration to the disk.

Returns

True on success, False on failure.

7.34.1.4 InitConfig()

```
bool GazeUtilityLibrary.GazeConfiguration.InitConfig ( ) [inline]
```

Initialise the gaze configuration by parsing and checking the configuration file.

Returns

True on success, False on failure.

7.34.1.5 PrepareCalibrationOutputFile()

```
bool GazeUtilityLibrary.GazeConfiguration.PrepareCalibrationOutputFile (
            string? subjectCode ) [inline]
```

Prepare the calibration output file based on the configuration.

Parameters

subjectCode	An optional subject code to be appended to the file name if set.

Returns

True on success, False on failure.

7.34.1.6 PrepareGazeOutputFile()

```
bool GazeUtilityLibrary.GazeConfiguration.PrepareGazeOutputFile (
            string?  subjectCode,
            string?  outputPath )  [inline]
```

Prepare the gaze output file based on the configuration.

Parameters

subjectCode	An optional subject code to be appended to the file name if set.
outputPath	An optional output path where the file will be stored.

Returns

True on success, False on failure.

7.34.1.7 WriteToCalibrationOutput()

```
void GazeUtilityLibrary.GazeConfiguration.WriteToCalibrationOutput (
            string[] formatted_values )  [inline]
```

Write to the calibration output file

Parameters

formatted_values	The list of formatted values to be written to the file.

7.34.1.8 WriteToGazeOutput()

```
void GazeUtilityLibrary.GazeConfiguration.WriteToGazeOutput (
            string[] formatted_values )  [inline]
```

Write to the gaze output file

Parameters

formatted_values	The list of formatted values to be written to the file.

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

- source/GazeUtilityLibrary/GazeConfiguration.cs

7.35 GazeUtilityLibrary.DataStructs.GazeData Class Reference

The class definition of a gaze data set

Public Member Functions

- GazeData (TimeSpan timestamp, Vector2 gazePoint2d, bool isGazePoint2dValid)

  Initializes a new instance of the GazeDataArgs class.
- GazeData (TimeSpan timestamp, Vector2 gazePoint2dLeft, bool isGazePoint2dValidLeft, Vector2 gaze↩Point2dRight, bool isGazePoint2dValidRight)

  Initializes a new instance of the GazeDataArgs class.
- GazeData (TimeSpan timestamp, Vector2 gazePoint2dLeft, bool isGazePoint2dValidLeft, Vector2 gaze↩Point2dRight, bool isGazePoint2dValidRight, Vector3 gazePoint3dLeft, bool isGazePoint3dValidLeft, Vector3 gazePoint3dRight, bool isGazePoint3dValidRight, Vector3 gazeOrigin3dLeft, bool isGazeOrigin3dValidLeft, Vector3 gazeOrigin3dRight, bool isGazeOrigin3dValidRight, float pupilDiameterLeft, bool isPupilDiameter↩ValidLeft, float pupilDiameterRight, bool isPupilDiameterValidRight)

  Initializes a new instance of the GazeDataArgs class.
- string[ ] Prepare (ConfigItem config, ref TimeSpan? delta)

  Prepare a list of formatted gaze data values

Properties

- TimeSpan **Timestamp** `[get]`
- GazeDataCollection? **Left** `[get]`
- GazeDataCollection? **Right** `[get]`
- GazeDataCollection **Combined** `[get]`
- DriftCompensationData? **DriftCompensation** `[get, set]`

7.35.1 Detailed Description

The class definition of a gaze data set

7.35.2 Constructor & Destructor Documentation

7.35.2.1 GazeData() [1/3]

```
GazeUtilityLibrary.DataStructs.GazeData.GazeData (
            TimeSpan timestamp,
            Vector2 gazePoint2d,
            bool isGazePoint2dValid )  [inline]
```

Initializes a new instance of the GazeDataArgs class.

Parameters

timestamp	The timestamp.
gazePoint2d	The 2d coordinates of the combined gaze point.
isGazePoint2dValid	The validity of the combined 2d gaze point.

7.35.2.2 GazeData() [2/3]

```
GazeUtilityLibrary.DataStructs.GazeData.GazeData (
            TimeSpan timestamp,
            Vector2 gazePoint2dLeft,
            bool isGazePoint2dValidLeft,
            Vector2 gazePoint2dRight,
            bool isGazePoint2dValidRight )  [inline]
```

Initializes a new instance of the GazeDataArgs class.

Parameters

timestamp	The timestamp.
gazePoint2dLeft	The 2d coordinates of the left gaze point.
isGazePoint2dValidLeft	The validity of the left 2d gaze point.
gazePoint2dRight	The 2d coordinates of the right gaze point.
isGazePoint2dValidRight	The validity of the right 2d gaze point.

7.35.2.3 GazeData() [3/3]

```
GazeUtilityLibrary.DataStructs.GazeData.GazeData (
            TimeSpan timestamp,
            Vector2 gazePoint2dLeft,
            bool isGazePoint2dValidLeft,
            Vector2 gazePoint2dRight,
            bool isGazePoint2dValidRight,
            Vector3 gazePoint3dLeft,
            bool isGazePoint3dValidLeft,
            Vector3 gazePoint3dRight,
            bool isGazePoint3dValidRight,
            Vector3 gazeOrigin3dLeft,
            bool isGazeOrigin3dValidLeft,
            Vector3 gazeOrigin3dRight,
            bool isGazeOrigin3dValidRight,
            float pupilDiameterLeft,
            bool isPupilDiameterValidLeft,
            float pupilDiameterRight,
            bool isPupilDiameterValidRight )  [inline]
```

Initializes a new instance of the GazeDataArgs class.

Parameters

timestamp	The timestamp.
gazePoint2dLeft	The 2d coordinates of the left gaze point.
isGazePoint2dValidLeft	The validity of the left 2d gaze point.
gazePoint2dRight	The 2d coordinates of the right gaze point.
isGazePoint2dValidRight	The validity of the right 2d gaze point.
gazePoint3dLeft	The 3d coordinates of the left gaze point.
isGazePoint3dValidLeft	The validity of the left 3d gaze point.
gazePoint3dRight	The 3d coordinates of the right gaze point.
isGazePoint3dValidRight	The validity of the right 3d gaze point.
gazeOrigin3dLeft	The 3d coordinates of the left gaze origin.
isGazeOrigin3dValidLeft	The validity of the left 3d gaze origin.
gazeOrigin3dRight	The 3d coordinates of the right gaze origin.
isGazeOrigin3dValidRight	The validity of the right 3d gaze origin.
pupilDiameterLeft	The pupil diameter the left eye.
isPupilDiameterValidLeft	The validity of the left pupil diameter.
pupilDiameterRight	The pupil diameter the left eye.
isPupilDiameterValidRight	The validity of the left pupil diameter.

7.35.3 Member Function Documentation

7.35.3.1 Prepare()

```
string [] GazeUtilityLibrary.DataStructs.GazeData.Prepare (
            ConfigItem config,
            ref TimeSpan?  delta )  [inline]
```

Prepare a list of formatted gaze data values

Parameters

config	The gaze configuration structure
delta	A reference to a time delta value. This value will be set once the first gaze data set and used from there on. It represents the time difference between the system time and the tracker time.

Returns

A list of formatted values. Each index corresponds to a specific value. This allows to reorder the list according to a format string.

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

- source/GazeUtilityLibrary/DataStructs/GazeData.cs

7.36 GazeUtilityLibrary.DataStructs.GazeData2d Class Reference

The 2d gaze data set.

Public Member Functions

- GazeData2d (Vector2 gazePoint, bool isGazePointValid)

  Initializes a new instance of the GazeData2d class.

Properties

- Vector2 **GazePoint** `[get]`
- bool **IsGazePointValid** `[get]`

7.36.1 Detailed Description

The 2d gaze data set.

7.36.2 Constructor & Destructor Documentation

7.36.2.1 GazeData2d()

```
GazeUtilityLibrary.DataStructs.GazeData2d.GazeData2d (
            Vector2 gazePoint,
            bool isGazePointValid )  [inline]
```

Initializes a new instance of the GazeData2d class.

Parameters

gazePoint	The 2d coordinates of the gaze point.
isGazePointValid	The validity of the 2d gaze point.

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

- source/GazeUtilityLibrary/DataStructs/GazeData2d.cs

7.37 GazeUtilityLibrary.DataStructs.GazeData3d Class Reference

The 3d gaze data set.

Public Member Functions

- GazeData3d (Vector3 gazePoint, bool isGazePointValid, Vector3 gazeOrigin, bool isGazeOriginValid)

  Initializes a new instance of the GazeData3d class.

Properties

- Vector3 **GazePoint** `[get]`
- bool **IsGazePointValid** `[get]`
- Vector3 **GazeOrigin** `[get]`
- Vector3 **GazeDirection** `[get]`
- float **GazeDistance** `[get]`
- bool **IsGazeOriginValid** `[get]`

7.37.1 Detailed Description

The 3d gaze data set.

7.37.2 Constructor & Destructor Documentation

7.37.2.1 GazeData3d()

```
GazeUtilityLibrary.DataStructs.GazeData3d.GazeData3d (
            Vector3 gazePoint,
            bool isGazePointValid,
            Vector3 gazeOrigin,
            bool isGazeOriginValid )  [inline]
```

Initializes a new instance of the GazeData3d class.

Parameters

gazePoint	The 3d coordinates of the gaze point.
isGazePointValid	The validity of the 3d gaze point.
gazeOrigin	The 3d coordinates of the gaze origin.
isGazeOriginValid	The validity of the 3d gaze origin.

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

- source/GazeUtilityLibrary/DataStructs/GazeData3d.cs

7.38 GazeUtilityLibrary.DataStructs.GazeDataCollection Class Reference

The gaze data set, including 2d and (optionally) 3d gaze data as well as optional eye data.

Public Member Functions

- GazeDataCollection (Vector2 gazePoint2d, bool isGazePoint2dValid)

  Initializes a new instance of the GazeDataItem class.
- GazeDataCollection (Vector2 gazePoint2d, bool isGazePoint2dValid, Vector3 gazePoint3d, bool isGaze↩ Point3dValid, Vector3 gazeOrigin3d, bool isGazeOrigin3dValid, float pupilDiameter, bool isPupilDiameter↩ Valid)

  Initializes a new instance of the GazeDataItem class.

Properties

- GazeData2d **GazeData2d** `[get]`
- GazeData3d? **GazeData3d** `[get]`
- EyeData? **EyeData** `[get]`

7.38.1 Detailed Description

The gaze data set, including 2d and (optionally) 3d gaze data as well as optional eye data.

7.38.2 Constructor & Destructor Documentation

7.38.2.1 GazeDataCollection() [1/2]

```
GazeUtilityLibrary.DataStructs.GazeDataCollection.GazeDataCollection (
            Vector2 gazePoint2d,
            bool isGazePoint2dValid )  [inline]
```

Initializes a new instance of the GazeDataItem class.

Parameters

gazePoint2d	The 2d coordinates of the gaze point.
isGazePoint2dValid	The validity of the 2d gaze point.

7.38.2.2 GazeDataCollection() [2/2]

```
GazeUtilityLibrary.DataStructs.GazeDataCollection.GazeDataCollection (
            Vector2 gazePoint2d,
            bool isGazePoint2dValid,
            Vector3 gazePoint3d,
            bool isGazePoint3dValid,
            Vector3 gazeOrigin3d,
```

```
bool isGazeOrigin3dValid,
float pupilDiameter,
bool isPupilDiameterValid )  [inline]
```

Initializes a new instance of the GazeDataItem class.

Parameters

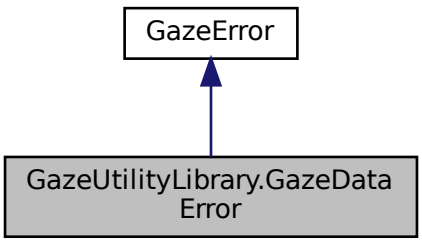
gazePoint2d	The 2d coordinates of the gaze point.
isGazePoint2dValid	The validity of the 2d gaze point.
gazePoint3d	The 3d coordinates of the gaze point.
isGazePoint3dValid	The validity of the 3d gaze point.
gazeOrigin3d	The 3d coordinates of the gaze origin.
isGazeOrigin3dValid	The validity of the 3d gaze origin.
pupilDiameter	The pupil diameter.
isPupilDiameterValid	The validity of the pupil diameter.

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

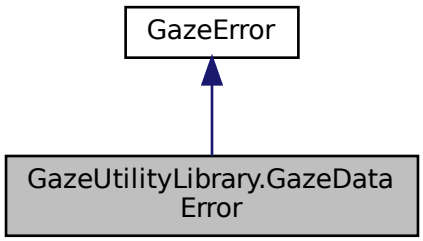
- source/GazeUtilityLibrary/DataStructs/GazeDataCollection.cs

7.39 GazeUtilityLibrary.GazeDataError Class Reference

Inheritance diagram for GazeUtilityLibrary.GazeDataError:



Collaboration diagram for GazeUtilityLibrary.GazeDataError:



Public Member Functions

- string GetGazeDataErrorString ()

  Gets the gaze error string.

Properties

- EGazeDataError **Error** `[set]`

Additional Inherited Members

7.39.1 Member Function Documentation

7.39.1.1 GetGazeDataErrorString()

```
string GazeUtilityLibrary.GazeDataError.GetGazeDataErrorString ( )  [inline]
```

Gets the gaze error string.

Returns

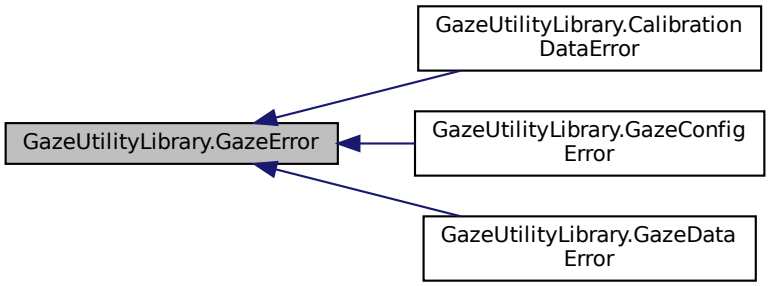
the error string with binary error values if errors ocurred, the empty srting otherwise

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

- source/GazeUtilityLibrary/GazeError.cs

7.40 GazeUtilityLibrary.GazeError Class Reference

Inheritance diagram for GazeUtilityLibrary.GazeError:



Protected Member Functions

- string ConvertToBinString (int val, int len)

  Converts a integer value to a binary string.

7.40.1 Member Function Documentation

7.40.1.1 ConvertToBinString()

```
string GazeUtilityLibrary.GazeError.ConvertToBinString (
            int val,
            int len )  [inline], [protected]
```

Converts a integer value to a binary string.

Parameters

val	The value.
len	The length of the binary string.

Returns

a binary string of specified length, left-padded with '0'

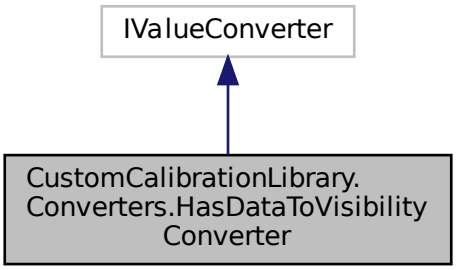
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/GazeError.cs

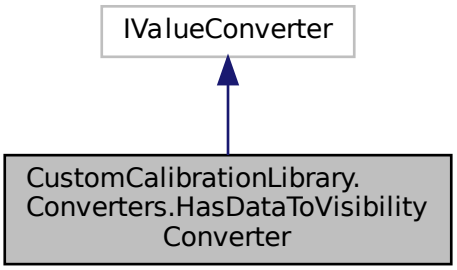
7.41 CustomCalibrationLibrary.Converters.HasDataToVisibilityConverter Class Reference

Converts True to Hidden and False to Visible

Inheritance diagram for CustomCalibrationLibrary.Converters.HasDataToVisibilityConverter:



Collaboration diagram for CustomCalibrationLibrary.Converters.HasDataToVisibilityConverter:



Public Member Functions

- object **Convert** (object value, Type targetType, object parameter, System.Globalization.CultureInfo culture)
- object **ConvertBack** (object value, Type targetType, object parameter, System.Globalization.CultureInfo culture)

7.41.1 Detailed Description

Converts True to Hidden and False to Visible

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

- source/CustomCalibrationLibrary/Converters/HasDataToVisibilityConverter.cs

7.42 GazeUtilityLibrary.JsonConfigParser Class Reference

The config file "config.json" is parsed and its values are attributed to the ConfigItem class.

Public Member Functions

- JsonConfigParser (TrackerLogger logger)

  Initializes a new instance of the JsonConfigParser class.
- ConfigItem? ParseJsonConfig (ref GazeConfigError error)

  Parses the json configuration.
- void SerializeJsonConfig (ConfigItem item, string path)

  Serializes the json configuration object to a string and writes it to a file.
- ConfigItem GetDefaultConfig ()

  Gets the default configuration values.

7.42.1 Detailed Description

The config file "config.json" is parsed and its values are attributed to the ConfigItem class.

7.42.2 Constructor & Destructor Documentation

7.42.2.1 JsonConfigParser()

```
GazeUtilityLibrary.JsonConfigParser.JsonConfigParser (
            TrackerLogger logger )  [inline]
```

Initializes a new instance of the JsonConfigParser class.

Parameters

logger	The logger.

7.42.3 Member Function Documentation

7.42.3.1 GetDefaultConfig()

```
ConfigItem GazeUtilityLibrary.JsonConfigParser.GetDefaultConfig ( )  [inline]
```

Gets the default configuration values.

Returns

the default configuration values.

7.42.3.2 ParseJsonConfig()

```
ConfigItem?  GazeUtilityLibrary.JsonConfigParser.ParseJsonConfig (
             ref GazeConfigError error )  [inline]
```

Parses the json configuration.

Returns

the updated ConfigItem class.

7.42.3.3 SerializeJsonConfig()

```
void GazeUtilityLibrary.JsonConfigParser.SerializeJsonConfig (
             ConfigItem item,
             string path )  [inline]
```

Serializes the json configuration object to a string and writes it to a file.

Parameters

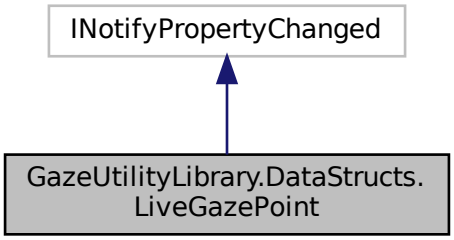
item	The json configuration item.
path	The path where the file will be written.

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

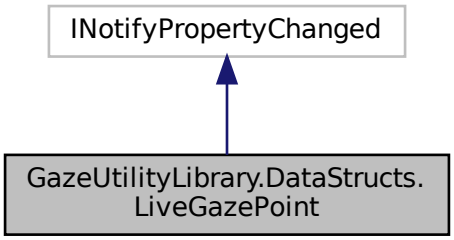
- source/GazeUtilityLibrary/GazeConfiguration.cs

7.43 GazeUtilityLibrary.DataStructs.LiveGazePoint Class Reference

Inheritance diagram for GazeUtilityLibrary.DataStructs.LiveGazePoint:



Collaboration diagram for GazeUtilityLibrary.DataStructs.LiveGazePoint:



Properties

- double **X** `[get, set]`
- double **Y** `[get, set]`
- bool **Visibility** `[get, set]`

Events

- PropertyChangedEventHandler? **PropertyChanged**

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

- source/GazeUtilityLibrary/DataStructs/LiveGazePoint.cs

7.44 GazeUtilityLibrary.MouseHider Class Reference

hide standard mouse pointer and resore it

Public Member Functions

- MouseHider (TrackerLogger logger)

  Initializes a new instance of the MouseHider class.
- void HideCursor ()

  Hides the cursor.
- void ShowCursor (string? pathToCur)

  Shows the cursor.

7.44.1 Detailed Description

hide standard mouse pointer and resore it

7.44.2 Constructor & Destructor Documentation

7.44.2.1 MouseHider()

```
GazeUtilityLibrary.MouseHider.MouseHider (
            TrackerLogger logger )  [inline]
```

Initializes a new instance of the MouseHider class.

Parameters

logger	The logger.

7.44.3 Member Function Documentation

7.44.3.1 HideCursor()

```
void GazeUtilityLibrary.MouseHider.HideCursor ( )  [inline]
```

Hides the cursor.

Hides the standard mouse pointer by replacing the current icon with a transparent icon.

7.44.3.2 ShowCursor()

```
void GazeUtilityLibrary.MouseHider.ShowCursor (
            string?  pathToCur )  [inline]
```

Shows the cursor.

the standard mouse pointer by replacing the current icon with the standard mouse pointer icon

Parameters

pathToCur	The path to the standard mouse pointer icon.

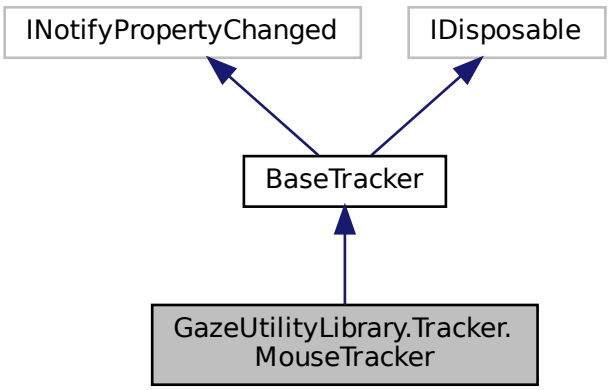
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/MouseHider.cs

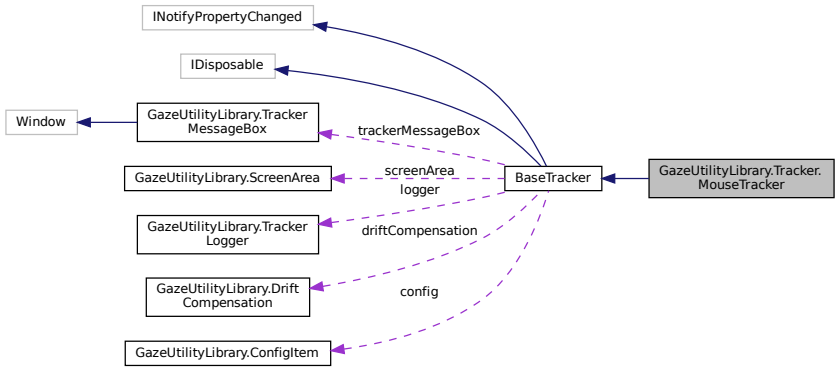
7.45 GazeUtilityLibrary.Tracker.MouseTracker Class Reference

This class is used to hook into the system mouse events and track the position

Inheritance diagram for GazeUtilityLibrary.Tracker.MouseTracker:



Collaboration diagram for GazeUtilityLibrary.Tracker.MouseTracker:



Public Member Functions

- MouseTracker (TrackerLogger logger, ConfigItem config)

  Initializes a new instance of the MouseTracker class.
- override Task< List< GazeCalibrationData > > ApplyCalibration ()

  Apply the calibration data. This is device specific and must be overwritten by the device class.
- override Task< bool > CollectCalibrationData (Point point)

  Collect calibration data on a calibration point. This is device specific and must be overwritten by the device class.
- override Task FinishCalibration ()

  Finish the calibartion process. This is device specific and must be overwritten by the device class.
- override Task InitCalibration ()

  Initialise the calibartion process. This is device specific and must be overwritten by the device class.
- void Start ()

  Hooks the callback function HookCallback(int, IntPtr, IntPtr) to mouse events.
- void Stop ()

  Removes to mouse event hook.

Protected Member Functions

- override void Dispose (bool disposing)

  Releases unmanaged and - optionally - managed resources.
- override int GetFixationFrameCount ()

  Get the number of required gaze samples to compute a fixation. This is device specific and must be overwritten by the device because the duration of fixation point detection depends on the frame rate of the device.
- override Vector3 GetUnitDirection ()

  Get the unit vector pointing in the direction of the gaze vector. This is device specific as the gaze data are represented in a coordinate system as defined by the device.
- override void InitDriftCompensation ()

  Initialise the drift compensation. This is device specific and must be overwritten by the device class.

Additional Inherited Members

7.45.1 Detailed Description

This class is used to hook into the system mouse events and track the position

See also

GazeHelper.TrackerHandler

7.45.2 Constructor & Destructor Documentation

7.45.2.1 MouseTracker()

```
GazeUtilityLibrary.Tracker.MouseTracker.MouseTracker (
            TrackerLogger logger,
            ConfigItem config )  [inline]
```

Initializes a new instance of the MouseTracker class.

Parameters

logger	The logger.
ready_timer	The ready timer.

7.45.3 Member Function Documentation

7.45.3.1 ApplyCalibration()

```
override Task<List<GazeCalibrationData> > GazeUtilityLibrary.Tracker.MouseTracker.Apply↩
Calibration ( )  [inline], [virtual]
```

Apply the calibration data. This is device specific and must be overwritten by the device class.

Returns

The calibration data result wrapped by an async handler.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.2 CollectCalibrationData()

```
override Task<bool> GazeUtilityLibrary.Tracker.MouseTracker.CollectCalibrationData (
            Point point )  [inline], [virtual]
```

Collect calibration data on a calibration point. This is device specific and must be overwritten by the device class.

Parameters

point	The calibration point for which to collect data

Returns

True on success, false on failure, wrapped by an async handler.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.3 Dispose()

```
override void GazeUtilityLibrary.Tracker.MouseTracker.Dispose (
            bool disposing )  [inline], [protected], [virtual]
```

Releases unmanaged and - optionally - managed resources.

Parameters

disposing	`true` to release both managed and unmanaged resources; `false` to release only unmanaged resources.

Reimplemented from GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.4 FinishCalibration()

```
override Task GazeUtilityLibrary.Tracker.MouseTracker.FinishCalibration ( )  [inline], [virtual]
```

Finish the calibartion process. This is device specific and must be overwritten by the device class.

Returns

An async handler

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.5 GetFixationFrameCount()

```
override int GazeUtilityLibrary.Tracker.MouseTracker.GetFixationFrameCount ( )  [inline],
[protected], [virtual]
```

Get the number of required gaze samples to compute a fixation. This is device specific and must be overwritten by the device because the duration of fixation point detection depends on the frame rate of the device.

Returns

The number of gaze samples to require for fixation detection.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.6 GetUnitDirection()

```
override Vector3 GazeUtilityLibrary.Tracker.MouseTracker.GetUnitDirection ( )  [inline], [protected],
[virtual]
```

Get the unit vector pointing in the direction of the gaze vector. This is device specific as the gaze data are represented in a coordinate system as defined by the device.

Returns

The unit vector

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.7 InitCalibration()

```
override Task GazeUtilityLibrary.Tracker.MouseTracker.InitCalibration ( )  [inline], [virtual]
```

Initialise the calibartion process. This is device specific and must be overwritten by the device class.

Returns

An async handler

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.8 InitDriftCompensation()

```
override void GazeUtilityLibrary.Tracker.MouseTracker.InitDriftCompensation ( )  [inline],
[protected], [virtual]
```

Initialise the drift compensation. This is device specific and must be overwritten by the device class.

Implements GazeUtilityLibrary.Tracker.BaseTracker.

7.45.3.9 Start()

```
void GazeUtilityLibrary.Tracker.MouseTracker.Start ( )  [inline]
```

Hooks the callback function HookCallback(int, IntPtr, IntPtr) to mouse events.

7.45.3.10 Stop()

```
void GazeUtilityLibrary.Tracker.MouseTracker.Stop ( )  [inline]
```

Removes to mouse event hook.

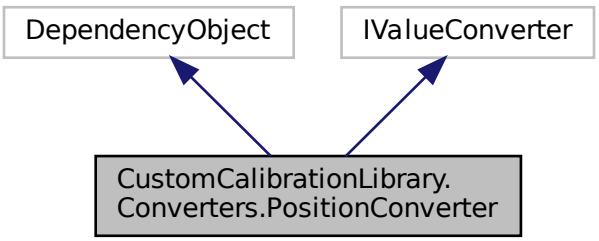
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/Tracker/MouseTracker.cs

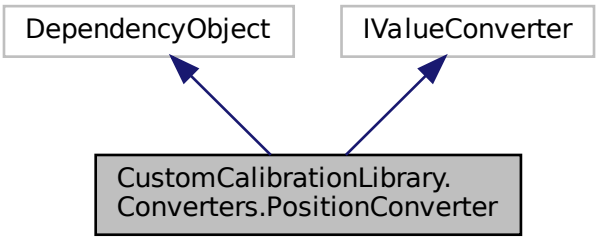
7.46 CustomCalibrationLibrary.Converters.PositionConverter Class Reference

Converter class to convert a normalized coordinate to a pixel coordinate.

Inheritance diagram for CustomCalibrationLibrary.Converters.PositionConverter:



Collaboration diagram for CustomCalibrationLibrary.Converters.PositionConverter:



Public Member Functions

- object **Convert** (object value, Type targetType, object parameter, CultureInfo culture)
- object **ConvertBack** (object value, Type targetType, object parameter, CultureInfo culture)

Static Public Attributes

- static readonly DependencyProperty **OffsetProperty**

Properties

- string?? **Offset** `[get, set]`

7.46.1 Detailed Description

Converter class to convert a normalized coordinate to a pixel coordinate.

7.46.2 Member Data Documentation

7.46.2.1 OffsetProperty

```
readonly DependencyProperty CustomCalibrationLibrary.Converters.PositionConverter.Offset↩
Property  [static]
```

Initial value:

```
=
        DependencyProperty.Register("Offset", typeof(string), typeof(PositionConverter), new
       PropertyMetadata(null))
```

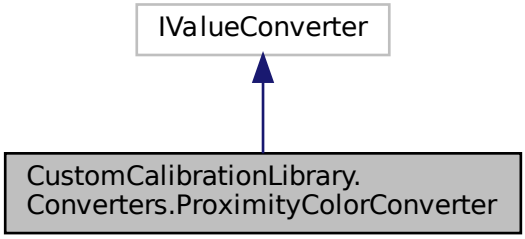
The documentation for this class was generated from the following file:

- source/CustomCalibrationLibrary/Converters/PositionConverter.cs

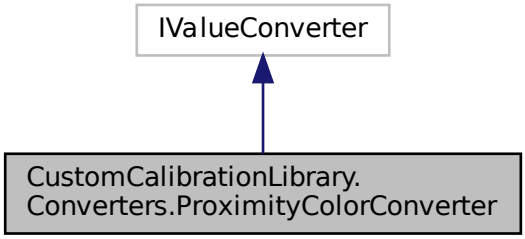
7.47 CustomCalibrationLibrary.Converters.ProximityColorConverter Class Reference

Converter class to convert the proximito of a normailezed coordinate to the center point (0.5) into colors.

Inheritance diagram for CustomCalibrationLibrary.Converters.ProximityColorConverter:



Collaboration diagram for CustomCalibrationLibrary.Converters.ProximityColorConverter:



Public Member Functions

- object **Convert** (object value, Type targetType, object parameter, CultureInfo culture)
- object **ConvertBack** (object value, Type targetType, object parameter, CultureInfo culture)

7.47.1 Detailed Description

Converter class to convert the proximito of a normailezed coordinate to the center point (0.5) into colors.

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

- source/CustomCalibrationLibrary/Converters/ProximityColorConverter.cs

7.48 GazeUtilityLibrary.ScreenArea Class Reference

The class describing the Screen area in 3d and 2d space.

Public Member Functions

- ScreenArea (Vector3 bottomLeft, Vector3 bottomRight, Vector3 topLeft, Vector3 topRight, float width, float height)

  Constructor. Assigns parameters ann computes the transformation matrix to transform a 3d point into a 2d point.
- Vector3? GetIntersectionPoint (Vector3 gazeOrigin, Vector3 gazeDirection)

  Compute the intersection point with the screen plane given a gaze origin and a gaze direction. Note that this does not compute the intersection with the screen area but with the infinite plane which is co-aligned with the screen. Pass the here computed intersection point to the method GetPoint2dNormalized to get the normalized intersection point on the sreen area.
- Vector2 GetPoint2d (Vector3 point)

  Get the 2d point on the sreen given given a 3d point on the screen plane.
- Vector2 GetPoint2dNormalized (Vector3 point3d)

  Get the normalized 2d point on the sreen given given a 3d point on the screen plane. Note that values outside of the interval [0, 1] indicate an intersection point outsate of the screen area.

Properties

- float **Width** `[get]`
- float **Height** `[get]`
- Vector3 **BottomLeft** `[get]`
- Vector3 **BottomRight** `[get]`
- Vector3 **TopLeft** `[get]`
- Vector3 **TopRight** `[get]`
- Vector3 **Center** `[get]`

7.48.1 Detailed Description

The class describing the Screen area in 3d and 2d space.

7.48.2 Constructor & Destructor Documentation

7.48.2.1 ScreenArea()

```
GazeUtilityLibrary.ScreenArea.ScreenArea (
            Vector3 bottomLeft,
            Vector3 bottomRight,
            Vector3 topLeft,
            Vector3 topRight,
            float width,
            float height )  [inline]
```

Constructor. Assigns parameters ann computes the transformation matrix to transform a 3d point into a 2d point.

Parameters

bottomLeft	The bottom left 3d coordinate of the screen.
bottomRight	The bottom right 3d coordinate of the screen.
topLeft	The top left 3d coordinate of the screen.
topRight	The top right 3d coordinate of the screen
width	The width of the screen
height	The heigth of the screen

7.48.3 Member Function Documentation

7.48.3.1 GetIntersectionPoint()

```
Vector3?  GazeUtilityLibrary.ScreenArea.GetIntersectionPoint (
            Vector3 gazeOrigin,
            Vector3 gazeDirection )  [inline]
```

Compute the intersection point with the screen plane given a gaze origin and a gaze direction. Note that this does not compute the intersection with the screen area but with the infinite plane which is co-aligned with the screen. Pass the here computed intersection point to the method GetPoint2dNormalized to get the normalized intersection point on the sreen area.

Parameters

gazeOrigin	The origin of the gaze.
gazeDirection	The direction of the gaze.

Returns

The intersection point with the screen or null if no intersection point exists.

7.48.3.2 GetPoint2d()

```
Vector2 GazeUtilityLibrary.ScreenArea.GetPoint2d (
            Vector3 point )  [inline]
```

Get the 2d point on the sreen given given a 3d point on the screen plane.

Parameters

point	The 3d point on the screen plane to convert.

Returns

The 2d point on the screen plane

7.48.3.3 GetPoint2dNormalized()

```
Vector2 GazeUtilityLibrary.ScreenArea.GetPoint2dNormalized (
            Vector3 point3d )  [inline]
```

Get the normalized 2d point on the sreen given given a 3d point on the screen plane. Note that values outside of the interval [0, 1] indicate an intersection point outsate of the screen area.

Parameters

point	The 3d point on the screen plane to convert.

Returns

The normalized 2d point on the screen plane

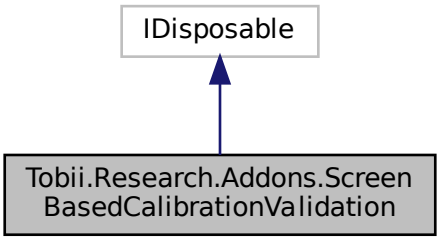
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/ScreenArea.cs

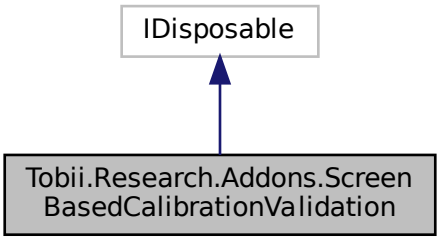
7.49 Tobii.Research.Addons.ScreenBasedCalibrationValidation Class Reference

Provides methods and properties for managing calibration validation for screen based eye trackers.

Inheritance diagram for Tobii.Research.Addons.ScreenBasedCalibrationValidation:



Collaboration diagram for Tobii.Research.Addons.ScreenBasedCalibrationValidation:



Public Types

- enum ValidationState { **NotInValidationMode**, **NotCollectingData**, **CollectingData** }

  ValidationState.NotInValidationMode - EnterValidationMode must be called starting to collect data. ValidationState.NotCollectingData - Ready to start collecting data or computing result. ValidationState.CollectingData - Currently collecting data. Will finish after the sample count is reached or a timeout.

Public Member Functions

- ScreenBasedCalibrationValidation (IEyeTracker eyeTracker, int sampleCount=30, int timeoutMS=1000)

  Create a calibration validation object for screen based eye trackers.
- void StartCollectingData (NormalizedPoint2D calibrationPointCoordinates)

  Starts collecting data for a calibration validation point.The argument used is the point the user is assumed to be looking at and is given in the active display area coordinate system. Please check State property to know when data collection is completed (or timed out).
- void DiscardData (NormalizedPoint2D calibrationPointCoordinates)

  Removes the collected data for a specific calibration validation point.
- void EnterValidationMode ()

  Enter the calibration validation mode and starts subscribing to gaze data from the eye tracker.
- void LeaveValidationMode ()

  Leaves the calibration validation mode, clears all collected data, and unsubscribes from the eye tracker.
- CalibrationValidationResult Compute ()

  Uses the collected data and tries to compute accuracy and precision values for all points. If the calculation is successful, the result is returned, and stored in the Result property of the CalibrationValidation object. If there is insufficient data to compute the results for a certain point that CalibrationValidationPoint will contain invalid data (NaN) for the results. Gaze data will still be untouched. If there is no valid data for any point, the average results of CalibrationValidationResult will be invalid (NaN) as well.
- void Dispose ()

  Dispose will unsubscribe to gaze data and exit validation mode, if the object is not already in ValidationState.NotInValidationMode
- override string **ToString** ()

Properties

- ValidationState State [get]

  Get the current state of the validation object.
- CalibrationValidationResult Result [get]

  Get the current CalibrationValidationResult with the computed accuracy and precision. Compute must have been called for this to contain valid data.

7.49.1 Detailed Description

Provides methods and properties for managing calibration validation for screen based eye trackers.

7.49.2 Member Enumeration Documentation

7.49.2.1 ValidationState

```
enum Tobii.Research.Addons.ScreenBasedCalibrationValidation.ValidationState [strong]
```

ValidationState.NotInValidationMode - EnterValidationMode must be called starting to collect data. ValidationState.NotCollectingData - Ready to start collecting data or computing result. ValidationState.CollectingData - Currently collecting data. Will finish after the sample count is reached or a timeout.

7.49.3 Constructor & Destructor Documentation

7.49.3.1 ScreenBasedCalibrationValidation()

```
Tobii.Research.Addons.ScreenBasedCalibrationValidation.ScreenBasedCalibrationValidation (
            IEyeTracker eyeTracker,
            int sampleCount = 30,
            int timeoutMS = 1000 ) [inline]
```

Create a calibration validation object for screen based eye trackers.

Parameters

eyeTracker	An IEyeTracker instance.
sampleCount	The number of samples to collect. Default 30, minimum 10, maximum 3000.
timeoutMS	Timeout in milliseconds. Default 1000, minimum 100, maximum 3000.

7.49.4 Member Function Documentation

7.49.4.1 Compute()

```
CalibrationValidationResult Tobii.Research.Addons.ScreenBasedCalibrationValidation.Compute ( )
[inline]
```

Uses the collected data and tries to compute accuracy and precision values for all points. If the calculation is successful, the result is returned, and stored in the Result property of the CalibrationValidation object. If there is insufficient data to compute the results for a certain point that CalibrationValidationPoint will contain invalid data (NaN) for the results. Gaze data will still be untouched. If there is no valid data for any point, the average results of CalibrationValidationResult will be invalid (NaN) as well.

Returns

The CalibrationValidationResult

7.49.4.2 DiscardData()

```
void Tobii.Research.Addons.ScreenBasedCalibrationValidation.DiscardData (
            NormalizedPoint2D calibrationPointCoordinates )  [inline]
```

Removes the collected data for a specific calibration validation point.

Parameters

calibrationPointCoordinates	The calibration point to remove.

7.49.4.3 Dispose()

```
void Tobii.Research.Addons.ScreenBasedCalibrationValidation.Dispose ( )  [inline]
```

Dispose will unsubscribe to gaze data and exit validation mode, if the object is not already in ValidationState.Not↩InValidationMode

7.49.4.4 EnterValidationMode()

```
void Tobii.Research.Addons.ScreenBasedCalibrationValidation.EnterValidationMode ( )  [inline]
```

Enter the calibration validation mode and starts subscribing to gaze data from the eye tracker.

7.49.4.5 LeaveValidationMode()

```
void Tobii.Research.Addons.ScreenBasedCalibrationValidation.LeaveValidationMode ( )  [inline]
```

Leaves the calibration validation mode, clears all collected data, and unsubscribes from the eye tracker.

7.49.4.6 StartCollectingData()

```
void Tobii.Research.Addons.ScreenBasedCalibrationValidation.StartCollectingData (
            NormalizedPoint2D calibrationPointCoordinates )  [inline]
```

Starts collecting data for a calibration validation point.The argument used is the point the user is assumed to be looking at and is given in the active display area coordinate system. Please check State property to know when data collection is completed (or timed out).

Parameters

calibrationPointCoordinates	The normalized 2D point on the display area

7.49.5 Property Documentation

7.49.5.1 Result

```
CalibrationValidationResult Tobii.Research.Addons.ScreenBasedCalibrationValidation.Result
[get]
```

Get the current CalibrationValidationResult with the computed accuracy and precision. Compute must have been called for this to contain valid data.

7.49.5.2 State

```
ValidationState Tobii.Research.Addons.ScreenBasedCalibrationValidation.State  [get]
```

Get the current state of the validation object.

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

- source/TobiiProSdkAddons/ScreenBasedCalibrationValidation.cs

7.50 GazeUtilityLibrary.ScreenTriangle Class Reference

A class to describe a triangle. This was supposed to be used to construct the ScreenArea but it turned out that it is simpler to work with the screen plane and use the normalised intersection points to check wheter the gaze point is outside the screen area.

Public Member Functions

- **ScreenTriangle** (Vector3 v1, Vector3 v2, Vector3 v3)
- Vector3? GetIntersectionPoint (Vector3 origin, Vector3 direction)

  Compute the intersection point with the triangle with the Moller-Trumbore algorithm.

Properties

- Vector3 **V1** `[get]`
- Vector3 **V2** `[get]`
- Vector3 **V3** `[get]`
- Vector3 **E1** `[get]`
- Vector3 **E2** `[get]`

7.50.1 Detailed Description

A class to describe a triangle. This was supposed to be used to construct the ScreenArea but it turned out that it is simpler to work with the screen plane and use the normalised intersection points to check wheter the gaze point is outside the screen area.

7.50.2 Member Function Documentation

7.50.2.1 GetIntersectionPoint()

```
Vector3?  GazeUtilityLibrary.ScreenTriangle.GetIntersectionPoint (
            Vector3 origin,
            Vector3 direction )  [inline]
```

Compute the intersection point with the triangle with the Moller-Trumbore algorithm.

Parameters

origin	The origin of the gaze point
direction	The direction of the gaze point

Returns

The intersection point or null if no intersection point could be computed.

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

- source/GazeUtilityLibrary/ScreenTriangle.cs

7.51 GazeUtilityLibrary.TrackerLogger Class Reference

Simple logger class.

Public Member Functions

- TrackerLogger (string? logPath, EOutputType type=EOutputType.gaze)
  Initializes a new instance of the TrackerLogger class.
- void DumpFatal (Exception e)
  Dumps exception to a new file if it is not possible to write to the main log file.
- void Debug (string message)
  wrapper function for debug level logging.
- void Info (string message)
  wrapper function for info level logging
- void Warning (string message)
  wrapper function for warning level logging
- void Error (string message)
  wrapper function for error level logging

7.51.1 Detailed Description

Simple logger class.

7.51.2 Constructor & Destructor Documentation

7.51.2.1 TrackerLogger()

```
GazeUtilityLibrary.TrackerLogger.TrackerLogger (
            string?  logPath,
            EOutputType type = EOutputType.gaze )  [inline]
```

Initializes a new instance of the TrackerLogger class.

7.51.3 Member Function Documentation

7.51.3.1 Debug()

```
void GazeUtilityLibrary.TrackerLogger.Debug (
            string message )  [inline]
```

wrapper function for debug level logging.

Parameters

message	The message.

7.51.3.2 DumpFatal()

```
void GazeUtilityLibrary.TrackerLogger.DumpFatal (
            Exception e )  [inline]
```

Dumps exception to a new file if it is not possible to write to the main log file.

Parameters

e	The exception.

7.51.3.3 Error()

```
void GazeUtilityLibrary.TrackerLogger.Error (
            string message )  [inline]
```

wrapper function for error level logging

Parameters

message	The message.

7.51.3.4 Info()

```
void GazeUtilityLibrary.TrackerLogger.Info (
            string message )  [inline]
```

wrapper function for info level logging

Parameters

message	The message.

7.51.3.5 Warning()

```
void GazeUtilityLibrary.TrackerLogger.Warning (
            string message )  [inline]
```

wrapper function for warning level logging

Parameters

message	The message.

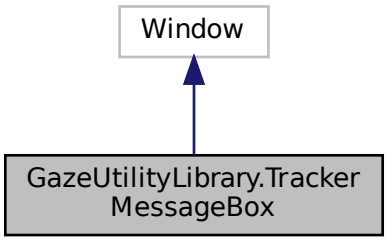
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/Logger.cs

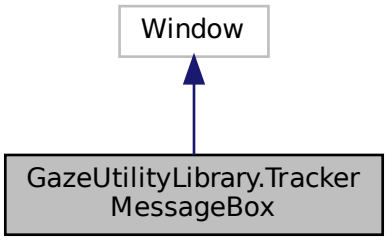
7.52 GazeUtilityLibrary.TrackerMessageBox Class Reference

Interaction logic for TrackerMessageBox.xaml

Inheritance diagram for GazeUtilityLibrary.TrackerMessageBox:



Collaboration diagram for GazeUtilityLibrary.TrackerMessageBox:



7.52.1 Detailed Description

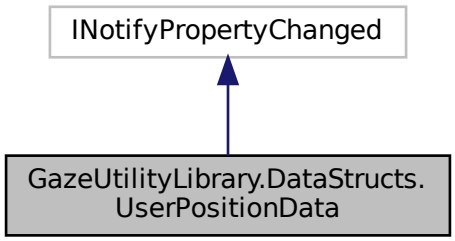
Interaction logic for TrackerMessageBox.xaml

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

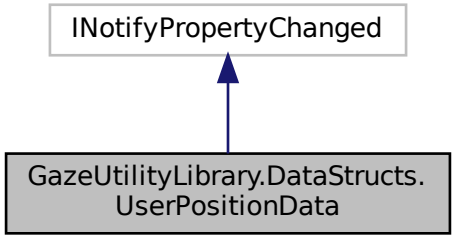
- source/GazeUtilityLibrary/TrackerMessageBox.xaml.cs

7.53 GazeUtilityLibrary.DataStructs.UserPositionData Class Reference

Inheritance diagram for GazeUtilityLibrary.DataStructs.UserPositionData:



Collaboration diagram for GazeUtilityLibrary.DataStructs.UserPositionData:



Public Member Functions

- **UserPositionData** (double xCoordLeft, double yCoordLeft, double zCoordLeft, double xCoordRight, double yCoordRight, double zCoordRight)

Properties

- double **XCoordLeft** `[get, set]`
- double **YCoordLeft** `[get, set]`
- double **ZCoordLeft** `[get, set]`
- double **XCoordRight** `[get, set]`
- double **YCoordRight** `[get, set]`
- double **ZCoordRight** `[get, set]`

Events

- PropertyChangedEventHandler? **PropertyChanged**

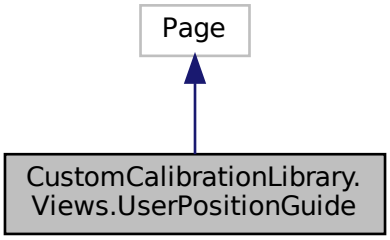
The documentation for this class was generated from the following file:

- source/GazeUtilityLibrary/DataStructs/UserPositionData.cs

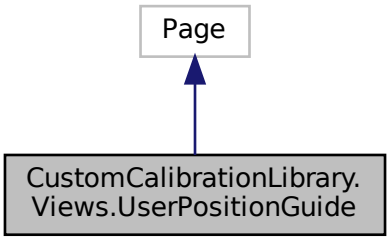
7.54 CustomCalibrationLibrary.Views.UserPositionGuide Class Reference

Interaction logic for UserPositionGuide.xaml

Inheritance diagram for CustomCalibrationLibrary.Views.UserPositionGuide:



Collaboration diagram for CustomCalibrationLibrary.Views.UserPositionGuide:



Public Member Functions

- **UserPositionGuide** (CalibrationModel model)

7.54.1 Detailed Description

Interaction logic for UserPositionGuide.xaml

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

- source/CustomCalibrationLibrary/Views/UserPositionGuide.xaml.cs

7.55 CustomCalibrationLibrary.ViewModels.UserPositionGuideView↩ Model Class Reference

The view model class for the user position guide view.

Public Member Functions

- UserPositionGuideViewModel (CalibrationModel model)
  Constructor

Properties

- UserPositionData UserPosition `[get]`
  The user position to be represented on the view
- ICommand CalibrationStartCommand `[get]`
  Command to start the calibration
- ICommand CalibrationAbortCommand `[get]`
  Command to abort the calibration

7.55.1 Detailed Description

The view model class for the user position guide view.

7.55.2 Constructor & Destructor Documentation

7.55.2.1 UserPositionGuideViewModel()

```
CustomCalibrationLibrary.ViewModels.UserPositionGuideViewModel.UserPositionGuideViewModel (
            CalibrationModel model ) [inline]
```

Constructor

Parameters

model	The calibartion model

7.55.3 Property Documentation

7.55.3.1 CalibrationAbortCommand

```
ICommand CustomCalibrationLibrary.ViewModels.UserPositionGuideViewModel.CalibrationAbort↩
Command  [get]
```

Command to abort the calibration

7.55.3.2 CalibrationStartCommand

```
ICommand CustomCalibrationLibrary.ViewModels.UserPositionGuideViewModel.CalibrationStart↩
Command  [get]
```

Command to start the calibration

7.55.3.3 UserPosition

```
UserPositionData CustomCalibrationLibrary.ViewModels.UserPositionGuideViewModel.UserPosition
[get]
```

The user position to be represented on the view

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

- source/CustomCalibrationLibrary/ViewModels/UserPositionGuideViewModel.cs

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