Web Client

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Document history

Version	Date	Author(s)	Description
1.0	April 14, 2020	Fred Dijkstra (fred@oryxmovementsolutions.nl)	Initial version

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Introduction

This document describes some details of the Web Client.

The Web Client implements the client side scripting required to implement the GUI for the Xsens DOT sensor server.

Page components

Sensor tables and buttons

The page contains a table with 3 columns:

- *Discovered sensors*
  The leftmost column contains the button to control the scanning and lists the discovered sensors. The list is cleared when the scan is restarted.

- *Connected sensors*
  The middle column contains the button to control the connection to sensors and lists the connected sensors. When the button is pressed when its caption is “Connect sensors”, then the selected discovered sensors will be connected. The sensors will be connected one-by-one and connected sensors will appear in the list. During this process the button’s caption will be “Stop connecting”. Pressing the button will stop the connection process. When all selected sensors are connected or the connection process is stopped, the button caption will change to “Disconnect sensors”. Pressing the button in that state will disconnect all connected sensors in the list.

- *Enabled sensors*
  The rightmost column contains the button to control the measurements process on the connected sensors and lists the sensors that are measuring. To have the Xsens DOT sensors state measuring, the “Enable sensors” button must be pressed. This will enable the sensors by having them start measuring.

Recording control

When there are enabled sensors, the “Record” button can be pressed. This will create a new file in which the measured quaternions coming from the sensors will be stored in CSV format.

Recordings

Previous recordings can be downloaded by clicking on their download link. By selecting one or more files and then pressing the “Delete” button, the selected files will be downloaded from the server’s filesystem.

Client side scripting

The client side scripting is implemented in the communication.js script which is loaded by the page.

In the script a number of global variables are defined.

Variable	Type	Description
`socket`	socket.io	The opened web socket to communicate with the sensor server.
`eventHandlerFunction`	{}	The collection of event handler functions whereby the event name is the key.
`scanControlButton`	HTML button	Reference to the button to control scanning.
`connectionButton`	HTML button	Reference to the button to control the connection of selected sensors.
`measurementControlButton`	HTML button	Reference to the button to control the measurements on the sensors.
`selectedDiscoveredSensors`	[]	List of discovered sensors that are selected by the user.
`discoveredSensors`	[]	The listed discovered sensors.
`connectedSensors`	[]	The connected sensors.
`measuringSensors`	[]	The sensors on which measurement is enabled.

The following lists the functions that are implemented.

Function	Arguments	Description
`setEventHandlerFunctions`	-	Set the event handlers for each event.
`guiEventHandler`	`eventName` `parameters`	The main handler for a 'guiEvent' received in the socket.
`processFileList`	`files`	Process the list of recording files received as a response to a request for the recording file list. The function creates the list with download links and the selection boxes.

`addSensorToList`	`sensorList`
	`sensorListName`
	`address`
	`clickHandler`
		A generic function that adds a specific sensor with the given address to the indicated list and places the sensor in the corresponding column.

`removeSensorFromList`	`sensorList`
	`sensorListName`
	`address`
		A generic function to remove a specific sensor with the given address from the indicated list and removes the sensor from the corresponding column.

`sensorListSelecion`	`sensorList` `name`	A generic function to handle the selection of a sensor - i.e. the click of a checkbox with the given name - and add it to the indicated list.
`disableChecboxes`	`disabled`	Enable or disable the checkboxes on the page. This is required when a certain action (scanning, connecting) is ongoing.
`discoveredSensorCheckboxClicked`	-	Handler for the selection or deselection of a discovered sensor.
`scanControlButtonClicked`	-	Handler for clicking the scan control button.
`connectionControlButtonClicked`	-	Handler for clicking the connection control button.
`measurementControlButtonClicked`	-	Handler for clicking the measurement control button.
`recodingControlButtonClicked`	-	Handler for clicking the recording control button.
`deleteFilesButtonClick`	-	Handler for the delete button which will delete the selected files.
`sendGuiEvent`	`eventName` `parameters`	Send the given event with the parameters over the socket to the server.
`getFileList`	-	Send the 'getFileList' event over the socket to the server.
`deleteFiles`	`files`	Send the 'deleteFiles' event with the list of files as the parameter to the server over the socket.
`getUniqueFilename`	-	Creates a unique filename in the format: "yyyy-mm-dd-hh-mm-ss".