Admin Panel

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Chapter 1

index

<!DOCTYPE html> <html lang="en"> <head> <meta charset='utf-8'> <meta name='viewport' content='width=device-width,initial-scale=1'>

<title>Behaviour Tree PiCar-V</title>

<link rel='icon' type='image/png' href='/favicon.png'> <link rel='stylesheet' href='/global.css'> <link rel='stylesheet' href='/build/bundle.css'>

<script defer src='/build/bundle.js'></script> </head>

<body class="bg-white dark:bg-gray-800">

</body> </html>

Chapter 2

Admin Panel

The app to directly control the Sunfounder PiCar.

2.1 Install Packages:

```
pnpm i
```

2.2 Run:

```
pnpm run electron
```

2.3 Build EXE to export:

```
pnpm run preelectron-pack
```
AND
```
pnpm run electron-pack
```

2.4 Template from:

https://github.com/soulehshaikh99/create-svelte-electron-app

Chapter 3

App

<script> import NavigationBar from "./lib/NavigationBar.svelte"; import Router from "svelte-spa-router"; import routes from "./routes"; </script>

<NavigationBar > <main> <Router {routes} /> </main>

<style> main { text-align: center; max-width: 240px; margin: 0 auto; height: 92vh; }

@media (min-width: 640px) { main { max-width: none; } } </style>

Chapter 4

BehaviourTreeHandler

<script> import { Button, Card } from "flowbite-svelte";

import { behaviour_tree_xml_code, behaviour_tree_save_modal_code, show_behaviour_tree_save_modal, behaviour_tree_list, } from "../store/behaviour_tree_store";

</script>

<Button on:click={() => { show_behaviour_tree_save_modal.set(true); behaviour_tree_save_modal_code.↩ set($behaviour_tree_xml_code); }} class="w-full my-3" color="green">Save Behaviour Tree</Button> <↩ Card class="w-full max-w-full h-full max-h-full overflow-scroll my-4 gap-y-2" > {#each $behaviour_tree_list as behaviour_tree} <Card class="w-full max-w-full grid grid-rows-2">

{behaviour_tree.name === "" ? "[Empty Name]" : behaviour_tree.name}

<Button color="red" on:click={()=>>{ api.removeBehaviourTree({uuid: behaviour_tree.uuid}); behaviour_tree_↩ list.set($behaviour_tree_list.filter((item) => item.uuid !== behaviour_tree.uuid)); }}>Remove</Button> <Button color="blue" on:click={()=>>{ $behaviour_tree_xml_code = behaviour_tree.code; }}>Load</Button> </Card> {/each} </Card>

Chapter 5

CodeBox

<script> // If this does not work then try preview import CodeMirror from "svelte-codemirror-editor"; import { xml } from "@codemirror/lang-xml"; import { oneDark } from "@codemirror/theme-one-dark";

import { node_hover, xml_schema } from "../CodeBox_Constants";

import { behaviour_tree_xml_code } from "../../store/behaviour_tree_store"; import CodeMessagingBar from "./↩ CodeMessagingBar.svelte"; </script>

<CodeMessagingBar> <CodeMirror class="text-left h-full flex-auto font-mono text-lg font-bold" bind↩ :value={$behaviour_tree_xml_code} lang={xml(xml_schema)} tabSize={4} theme={oneDark} extensions={[node_↩ hover]} > <style> .cm-editor { height: 90% !important; } .cm-editor * { font-family: ui-monospace, SFMono-Regular, Menlo, Monaco, Consolas, "Liberation Mono", "Courier New" !important; } .cm-scroller { height: 100% !important; } </style>

Chapter 6

CodeMessagingBar

<script> import { selected_raspberry_pi_uuid } from "../../store/raspberry_pi_store"; import xmlFormat from "xml-formatter"; import { behaviour_tree_xml_code } from "../../store/behaviour_tree_store";

/** @type {string} */ let send_behaviour_tree_text = "Send Behaviour Tree";

/** @type {string} */ let send_behaviour_tree_color = "#50AA34";

/** @type {boolean} */ let send_behaviour_tree_debounce = false;

/** @type {string} */ let start_behaviour_tree_text = "Start Behaviour Tree";

/** @type {string} */ let start_behaviour_tree_color = "#89AAFF";

/** @type {boolean} */ let start_behaviour_tree_debounce = false;

async function sendBehaviourTree() { if (send_behaviour_tree_debounce) { return; } send_behaviour_tree_↩ debounce = true; try { await api.sendBehaviourTree({ data: xmlFormat.minify($behaviour_tree_xml_code), }); send_behaviour_tree_text = "Sent Behaviour Tree!"; send_behaviour_tree_color = "#3457AA"; } catch (error) { send_behaviour_tree_text = "Unable to send Behaviour Tree!"; send_behaviour_tree_color = "#AA3434"; } set↩ Timeout(() => { send_behaviour_tree_text = "Send Behaviour Tree"; send_behaviour_tree_color = "#50AA34"; send_behaviour_tree_debounce = false; }, 1000); }

async function startBehaviourTree() { if (start_behaviour_tree_debounce) { return; } start_behaviour_tree_debounce = true; try { await api.startBehaviourTree(); start_behaviour_tree_text = "Started Behaviour Tree!"; start_behaviour↩ _tree_color = "#4277FF"; } catch (error) { start_behaviour_tree_text = "Unable to start Behaviour Tree!"; start_↩ behaviour_tree_color = "#AA3434"; } setTimeout(() => { start_behaviour_tree_text = "Start Behaviour Tree"; start↩ _behaviour_tree_color = "#89AAFF"; start_behaviour_tree_debounce = false; }, 1000); }

async function stopBehaviourTree() { await api.stopBehaviourTree(); } </script>

<button on:mousedown={sendBehaviourTree} class="p-2 rounded-lg shadow-lg relative inset-0" style="background-color: {send_behaviour_tree_color}; color: white; width: 100%; border: none;{$selected_raspberry_pi_uuid === '' ? 'cursor: not-allowed;' : ''}" disabled={$selected_raspberry_pi_uuid === ""} >{send_behaviour_tree_↩ text}</button> <button on:mousedown={startBehaviourTree} class="p-2 rounded-lg shadow-lg relative inset-0" style="background-color: {start_behaviour_tree_color}; color: white; width: 100%; border: none; {$selected_↩ raspberry_pi_uuid === '' ? 'cursor: not-allowed;' : ''}" disabled={$selected_raspberry_pi_uuid === ""} >{start↩ _behaviour_tree_text}</button> <button on:mousedown={stopBehaviourTree} class="p-2 rounded-lg shadow-lg relative inset-0" style="background-color: #FF352F; color: white; width: 100%; border: none; {$selected_↩ raspberry_pi_uuid === '' ? 'cursor: not-allowed;' : ''}" disabled={$selected_raspberry_pi_uuid === ""} >Stop Behaviour Tree</button>

Chapter 7

Stream

<script> import { onMount } from "svelte"; import { main_pane_size_0_store, lidar_toggle, } from "../../store/home↩
_store"; import { camera_stream, lidar_stream } from "../../store/websocket_store";

const lidar_wall_colour = "#0061FF"; const offset_angle = 45; const fps = 30; const fps_interval = 1000 / fps; let lidar_bar_height_size = 20000;

/**

-

Chapter 8

IPList

<script> import { Button, Card, Spinner, Tooltip } from "flowbite-svelte"; import { copy } from "svelte-copy";

import { websocket_server_port } from "../store/websocket_store";

if (api.getLocalIPList === undefined) { api.getLocalIPList = async function () { return new Promise((resolve) => { resolve([ ]); }); }; }

export let getIPList = updateIPList();

function refreshIPList() { getIPList = updateIPList(); }

function updateIPList() { return api.getLocalIPList().then((local_ip_list) => { let ip_list = []; console.log(local_ip_↩ list); for (const [ip_group_name, ip_group] of Object.entries(local_ip_list,)) { for (const ip of ip_group) { if (ip.family === "IPv4") { ip_list.push({ group_name: ip_group_name, address: ip.address, netmask: ip.netmask, mac: ip.mac, internal: ip.internal, cidr: ip.cidr, }); } } } console.log(ip_list); return ip_list; }); } </script>

<Card class="p-6">

Local IP List

<Button class="mb-3" id="refresh_ip_address" on:click={refreshIPList} >Refresh IP List</Button> <Tooltip triggeredBy="#refresh_ip_address" >Remember to determine the appropriate IP Address based on the Raspberry Pi's network connection.</Tooltip>

{#await getIPList}

Loading IP List

<Spinner > {:then ip_list} <Card class="overflow-y-scroll h-screen gap-2 justify-center" style="padding:0px"> {#each ip_list as ip} <Card class="py-6 border-neutral-100 border-b border-t" style="padding:0.5rem">

{ip.group_name}

{ip.address}**:{$websocket_server_port}**

<button use:copy={`${ip.address}:${$websocket_server_port}`} class="mt-4 p-2" > Copy IP </button> </Card> {/each} </Card> {/await} </Card>

Chapter 9

NavigationBar

<script> import { DarkMode, Navbar, NavLi, NavUl, NavHamburger, } from "flowbite-svelte";

let btnClass = "text-gray-500 dark:text-gray-400 hover:bg-gray-100 dark:hover:bg-gray-700 rounded-lg text-xl p-2" </script>

<Navbar style="height:7vh;"> <NavUl> <NavLi> Home </NavLi> <NavLi> Manage Websockets </NavLi> <NavLi> Validate Behaviour Tree </NavLi> </NavUl> <NavHamburger class="lg:hidden" > <DarkMode {btnClass} /> </Navbar>

Chapter 10

RaspberryPiConnectBanner

<script> import { Banner, Button } from "flowbite-svelte"; import { ArrowRightOutline } from "flowbite-svelte-icons"; </script>

<Banner class="border-2 z-20 flex-auto p-1 fixed bottom-3 rounded-lg bg-white dark:bg-gray-700 border-gray-500 dark:border-gray-600" bannerType="info" style="left:50%; transform: translateX(-50%);"

Not Connected!

Connect the Raspberry Pi to the Admin Panel's websocket server by following instructions in the Websocket Tab.

<Button href="#/websocket" class="w-fit ml-3"> View Instructions <ArrowRightOutline > </Button>

</Banner>

Chapter 11

RaspberryPiSelector

<script> import { Button, Card } from "flowbite-svelte";

import { raspberry_pi_uuid_list, selected_raspberry_pi_uuid, } from "../store/raspberry_pi_store";

/** @type {string} */ let selected_uuid = "";

async function connectToRaspberryPi() { if (selected_uuid === "") { return; } console.log(selected_uuid); const selection_result = await api.selectRaspberryPi({ uuid: selected_uuid, }); console.log(selection_result); if (selection_result.success) { selected_raspberry_pi_uuid.set(selected_uuid); } else { console.log(selection_result.↩ message); } } </script>

Raspberry Pi UUID List

{#each $raspberry_pi_uuid_list as uuid} <Card> <Button on:click={() => { selected_uuid = uuid; }} > {uuid} </↩ Button> </Card> {/each} <Card class="col-start-3 w-full ml-2">

Connect to Raspberry Pi UUID

<Button on:click={connectToRaspberryPi}>> {#if selected_uuid === ""} Select a Raspberry Pi UUID {:else} Connect to
[{selected_uuid}] {/if} </Button> </Card>

Chapter 12

SaveBehaviourTreeModal

<script> import { Button, Input, Modal } from "flowbite-svelte";

import CodeMirror from "svelte-codemirror-editor"; import { xml } from "@codemirror/lang-xml"; import { oneDark } from "@codemirror/theme-one-dark";

import { xml_schema } from "./CodeBox_Constants"; import { node_hover } from "./CodeBox_Constants";

import { show_behaviour_tree_save_modal, behaviour_tree_save_modal_code, behaviour_tree_list, } from "../store/behaviour_tree_store";

let behaviour_tree_name = ""; </script>

<Modal title="Save Behaviour Tree" bind:open={$show_behaviour_tree_save_modal} autoclose

Would you like to save this behaviour tree?

<Input let:props> <input type="text" {...props} placeholder="Behaviour Tree Name:" bind:value={behaviour↩ _tree_name} required /> </Input> <CodeMirror class="text-left h-full flex-auto font-mono text-lg font-bold" bind:value={$behaviour_tree_save_modal_code} lang={xml(xml_schema)} tabSize={4} theme={oneDark} extensions={[node_hover]} > <svelte:fragment slot="footer"> <Button on:click={() => { const behaviour_tree↩ _save_state = { name: behaviour_tree_name, code: $behaviour_tree_save_modal_code, }; api.saveBehaviour↩ Tree(behaviour_tree_save_state); behaviour_tree_list.set([...$behaviour_tree_list, behaviour_tree_save_state]); }}>Yes</Button> <Button color="alternative">No</Button> </svelte:fragment> </Modal>

Chapter 13

CodeBox

<script> // If this does not work then try preview import CodeMirror from "svelte-codemirror-editor"; import { xml } from "@codemirror/lang-xml"; import { oneDark } from "@codemirror/theme-one-dark";

import { node_hover, xml_schema } from "../CodeBox_Constants";

import { behaviour_tree_xml_code } from "../../store/behaviour_tree_store"; import CodeButton from "./Code↩ Button.svelte"; </script>

<CodeButton> <CodeMirror class="text-left h-full flex-auto font-mono text-lg font-bold" bind:value={$behaviour↩ _tree_xml_code} lang={xml(xml_schema)} tabSize={4} theme={oneDark} extensions={[node_hover]} > <style> .cm-editor { height: 90% !important; } .cm-editor * { font-family: ui-monospace, SFMono-Regular, Menlo, Monaco, Consolas, "Liberation Mono", "Courier New" !important; } .cm-scroller { height: 100% !important; } </style>

Chapter 14

CodeButton

<script> import xmlFormat from "xml-formatter"; import { behaviour_tree_xml_code } from "../../store/behaviour_↩
tree_store";

/** @type {string} */ let validate_behaviour_tree_text = "Validate Behaviour Tree";

/** @type {string} */ let validate_behaviour_tree_color = "#4C9CFF";

/** @type {boolean} */ let validate_behaviour_tree_debounce = false;

async function validateBehaviourTree() { if (validate_behaviour_tree_debounce) { return; } validate_behaviour↩
_tree_debounce = true; try { validate_behaviour_tree_text = "Validating Behaviour Tree"; validate_behaviour↩
_tree_color = "#4C23FF"; const result = JSON.parse(await api.validateBehaviourTree({ data: xmlFormat.↩
minify($behaviour_tree_xml_code), })); if (result.success) { validate_behaviour_tree_text = "The Behaviour Tree
is valid!"; validate_behaviour_tree_color = "#34A83B"; } else { validate_behaviour_tree_text = result.message;
validate_behaviour_tree_color = "#AA3434"; } } catch (error) { validate_behaviour_tree_text = error; validate_↩
behaviour_tree_color = "#AA3434"; } setTimeout(() => { validate_behaviour_tree_text = "Validate Behaviour Tree";
validate_behaviour_tree_color = "#4C9CFF"; validate_behaviour_tree_debounce = false; }, 1000); } </script>

<button on:mousedown={validateBehaviourTree} class="p-2 rounded-lg shadow-lg relative inset-0" style="background-
color: {validate_behaviour_tree_color}; color: white; width: 100%; border: none;">{validate_behaviour_tree_↩
text}</button

Chapter 15

WebsocketServerConfig

<script> import { Label, Input, Button, Helper } from "flowbite-svelte";

import { websocket_server_connection_state, websocket_server_port, websocket_server_code, } from "../store/websocket_store";

import { raspberry_pi_uuid_list, } from "../store/raspberry_pi_store";

/** @type {number} */ let websocketServerPort = $websocket_server_port;

/** @type {string} */ let toggleWebsocketServerMessage = "Start Websocket Server";

/** @type {string} */ let helperText = "";

/** @type {string} */ let websocketServerPortInputColor = "";

function displayWebsocketServerStatus() { if ($websocket_server_connection_state) { websocketServerPortInput↩ Color = "green"; helperText = "Websocket Server is running"; toggleWebsocketServerMessage = "Stop Websocket Server"; } else { websocketServerPortInputColor = ""; helperText = ""; toggleWebsocketServerMessage = "Start Websocket Server"; } }

websocket_server_connection_state.subscribe(displayWebsocketServerStatus);

async function toggleWebsocketServer() { const websocketServerPortNumber = websocketServerPort * 1; if (typeof websocketServerPortNumber !== "number") { helperText = "Port must be a number"; websocketServerPortInput↩ Color = "red"; return; } if (!$websocket_server_connection_state) { websocket_server_port.set(websocketServer↩ PortNumber); const response = await api.startWebSocketServer({ port: $websocket_server_port, }); if (response.↩ success) { websocket_server_connection_state.set(true); websocket_server_code.set(response.code); } else { // Error: Websocket Server is already running websocketServerPortInputColor = "red"; helperText = response.↩ message; toggleWebsocketServerMessage = "Start Websocket Server"; } } else { await api.closeWebSocket↩ Server(); websocket_server_connection_state.set(false); raspberry_pi_uuid_list.set([ ]); } } </script>

<Label for="websocket-server-port" class="block mb-2" >Input Port for Websocket Server</Label> <Input id="websocket-server-port" size="lg" placeholder="Websocket Server Port" bind:value={websocketServerPort} disabled={$websocket_server_connection_state} color={websocketServerPortInputColor} > <Button class="mt-4" on:click={toggleWebsocketServer} >{toggleWebsocketServerMessage}</Button> <Helper class="mt-2" color={websocketServerPortInputColor} >{helperText}</Helper>

Chapter 16

Home

<script> import BehaviourTreeHandler from "../lib/BehaviourTreeHandler.svelte"; import Stream from "../lib/home/↩
Stream.svelte"; import CodeBox from "../lib/home/CodeBox.svelte"; import RaspberryPiConnectBanner from
"../lib/RaspberryPiConnectBanner.svelte";

import { websocket_server_connection_state } from "../store/websocket_store";

import { main_pane_size_0_store, main_pane_size_1_store, side_pane_size_0_store, side_pane_size_1_store, }
from "../store/home_store";

import { Pane, Splitpanes } from "svelte-splitpanes"; import SaveBehaviourTreeModal from "../lib/SaveBehaviour↩
TreeModal.svelte";

/** @type {number} */ let stream_split_height = 0;

/** @type {number} */ let stream_split_width = 0;

let main_pane_size_0 = $main_pane_size_0_store; let main_pane_size_1 = $main_pane_size_1_store; let side↩
_pane_size_0 = $side_pane_size_0_store; let side_pane_size_1 = $side_pane_size_1_store;

function onMainResize(event) { main_pane_size_0_store.set(event.detail[0].size); main_pane_size_1_store.↩
set(event.detail[1].size); }

function onSideResize(event) { side_pane_size_0_store.set(event.detail[0].size); side_pane_size_1_store.↩
set(event.detail[1].size); } </script>

<main style="height: 92vh"> {#if $websocket_server_connection_state === false} <RaspberryPiConnect↩
Banner > {/if} <SaveBehaviourTreeModal > <Splitpanes style="height:100%;padding:1em;background-color↩
:rgb(20,20,40)" on:resize={onSideResize} > <Pane size={side_pane_size_0}>> <Splitpanes horizontal={true}
on:resize={onMainResize}>> <Pane size={main_pane_size_0} minSize={5}>> <Stream > </Pane> <↩
Pane size={main_pane_size_1} minSize={7.5}>> <CodeBox > </Pane> </Splitpanes> </Pane> <Pane
size={side_pane_size_1} minSize={17} maxSize={80}>> <BehaviourTreeHandler > </Pane> </Splitpanes>
</main>

Chapter 17

NotFound

Not Found

This route doesn't exist.

<style> h1 { color: #ff0040; text-transform: uppercase; font-size: 4em; font-weight: 100; } </style>

Chapter 18

Validate

<script> import BehaviourTreeHandler from "../lib/BehaviourTreeHandler.svelte";

import { side_pane_size_0_store, side_pane_size_1_store, } from "../store/home_store";

import { Pane, Splitpanes } from "svelte-splitpanes"; import SaveBehaviourTreeModal from "../lib/SaveBehaviour↩
TreeModal.svelte"; import CodeBox from "../lib/validate/CodeBox.svelte";

let side_pane_size_0 = $side_pane_size_0_store; let side_pane_size_1 = $side_pane_size_1_store;

function onSideResize(event) { side_pane_size_0_store.set(event.detail[0].size); side_pane_size_1_store.↩
set(event.detail[1].size); }

</script>

<main style="height: 92vh"> <SaveBehaviourTreeModal > <Splitpanes style="height:100%;padding↩
:1em;background-color:rgb(20,20,40)" on:resize={onSideResize} > <Pane size={side_pane_size_0}>> <↩
CodeBox > </Pane> <Pane size={side_pane_size_1} minSize={17} maxSize={80}>> <BehaviourTreeHandler
> </Pane> </Splitpanes> </main>

Chapter 19

Websocket

<script> import IPList from "../lib/IPList.svelte";

import WebsocketServerConfig from "../lib/WebsocketServerConfig.svelte"; import RaspberryPiSelector from "../lib/RaspberryPiSelector.svelte"; </script>

<main> <WebsocketServerConfig >
<RaspberryPiSelector > <IPList > </main>

Chapter 20

Class Index

20.1 Class List

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

Code 43
WebSocketServer 43

Chapter 21

File Index

21.1 File List

Here is a list of all files with brief descriptions:

rollup.config.js . . . 55
js/behaviour_tree.js . . . 47
js/device.js . . . 49
js/main.js . . . 50
js/preload.js . . . 52
js/raspberry_pi.js . . . 52
js/store.js . . . 53
js/websocket.js . . . 53
js/websocket_events.js . . . 54
src/main.js . . . 51
src/routes.js . . . 58
src/lib/CodeBox_Constants.js . . . 56
src/store/behaviour_tree_store.js . . . 59
src/store/home_store.js . . . 60
src/store/raspberry_pi_store.js . . . 60
src/store/websocket_store.js . . . 61

Chapter 22

Class Documentation

22.1 Code Class Reference

Public Member Functions

- constructor ()
- get ()
- generate ()

22.1.1 Member Function Documentation

22.1.1.1 constructor()

```
Code::constructor ( )  [inline]
```

22.1.1.2 generate()

```
Code::generate ( )  [inline]
```

22.1.1.3 get()

```
Code::get ( )  [inline]
```

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

- js/websocket.js

22.2 WebSocketServer Class Reference

Public Member Functions

- constructor ()
- connect (port)
- isConnected ()
- close ()
- generateCode ()
- getCode ()
- getPort ()
- getRaspberryPiMap ()
- getSelectedRaspberryPi ()
- selectRaspberryPi (uuid)

- async startConnections ()
- sendBehaviourTree (behaviour_tree)
- startBehaviourTree ()
- stopBehaviourTree ()

22.2.1 Member Function Documentation

22.2.1.1 close()

`WebSocketServer::close ( ) [inline]`

Call this function to close the WebSocket server.

22.2.1.2 connect()

`WebSocketServer::connect (`
`port ) [inline]`

Call this function to start the WebSocket server.

Parameters

{number}	port

22.2.1.3 constructor()

`WebSocketServer::constructor ( ) [inline]`

@type {WebSocket.Server | undefined}
@type {number | undefined}
@type {Code}
@type {Map<string, WebSocket>}
@type {RaspberryPi | undefined}

22.2.1.4 generateCode()

`WebSocketServer::generateCode ( ) [inline]`

Returns

{number}

22.2.1.5 getCode()

`WebSocketServer::getCode ( ) [inline]`

Returns

{number}

22.2.1.6 getPort()

`WebSocketServer::getPort ( ) [inline]`

Returns

{number}

22.2.1.7 getRaspberryPiMap()

```
WebSocketServer::getRaspberryPiMap ( )  [inline]
```

Returns

{Map<string, WebSocket>}

22.2.1.8 getSelectedRaspberryPi()

```
WebSocketServer::getSelectedRaspberryPi ( )  [inline]
```

Returns

{RaspberryPi | undefined}

22.2.1.9 isConnected()

```
WebSocketServer::isConnected ( )  [inline]
```

22.2.1.10 selectRaspberryPi()

```
WebSocketServer::selectRaspberryPi (
            uuid )  [inline]
```

Select a Raspberry Pi to send / receive messages from.

Parameters

{string}	uuid

Returns

22.2.1.11 sendBehaviourTree()

```
WebSocketServer::sendBehaviourTree (
            behaviour_tree )  [inline]
```

Parameters

{string}	behaviour_tree

22.2.1.12 startBehaviourTree()

```
WebSocketServer::startBehaviourTree ( )  [inline]
```

22.2.1.13 startConnections()

```
async WebSocketServer::startConnections ( )  [inline]
```

22.2.1.14 stopBehaviourTree()

```
WebSocketServer::stopBehaviourTree ( )  [inline]
```

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

- js/websocket.js

Chapter 23

File Documentation

23.1 js/behaviour_tree.js File Reference

Functions

- function isDev ()
- function sendBehaviourTree (_event, args)
- function startBehaviourTree (_event, _args)
- function stopBehaviourTree (_event, _args)
- function getBehaviourTreeList ()
- function updateBehaviourTreeList (behaviour_tree_list)
- function async saveBehaviourTree (_event, args)
- function async removeBehaviourTree (_event, args)
- function async validateBehaviourTree (_event, args)
- ipcMain handle ('sendBehaviourTree', sendBehaviourTree)

Variables

- const { app, ipcMain } = require('electron')
- const exec = util.promisify(require('child_process').exec)
- const Os = require('os')
- const path = require("path")
- const fs = require("fs")
- const base_path = app.getAppPath()
- const resources_dir = isDev() ? path.join(base_path, 'resources') : path.join(base_path, '..', '..', 'resources')

23.1.1 Function Documentation

23.1.1.1 getBehaviourTreeList()

```
function getBehaviourTreeList ( )
```

23.1.1.2 handle()

```
ipcMain handle (
            'sendBehaviourTree' ,
            sendBehaviourTree  )
```

23.1.1.3 isDev()

```
function isDev ( )
```

23.1.1.4 removeBehaviourTree()

```
function async removeBehaviourTree (
              _event,
              args )
```

23.1.1.5 saveBehaviourTree()

```
function async saveBehaviourTree (
              _event,
              args )
```

23.1.1.6 sendBehaviourTree()

```
function sendBehaviourTree (
              _event,
              args )
```

23.1.1.7 startBehaviourTree()

```
function startBehaviourTree (
              _event,
              _args )
```

23.1.1.8 stopBehaviourTree()

```
function stopBehaviourTree (
              _event,
              _args )
```

23.1.1.9 updateBehaviourTreeList()

```
function updateBehaviourTreeList (
              behaviour_tree_list )
```

Parameters

{any[ ]}	behaviour_tree_list

23.1.1.10 validateBehaviourTree()

```
function async validateBehaviourTree (
              _event,
              args )
```

@type {string}

23.1.2 Variable Documentation

23.1.2.1 base_path

```
const base_path = app.getAppPath()
```

23.1.2.2 const

```
const { app, ipcMain } = require('electron')
```

23.1.2.3 exec

```
const exec = util.promisify(require('child_process').exec)
```

23.1.2.4 fs

```
const fs = require("fs")
```

23.1.2.5 Os

```
const Os = require('os')
```

23.1.2.6 path

```
const path = require("path")
```

23.1.2.7 resources_dir

```
const resources_dir = isDev() ?  path.join(base_path, 'resources') :  path.join(base_path,
'..', '..', 'resources')
```

23.2 js/device.js File Reference

Functions

- function getLocalIPList (_event, _args)
- ipcMain handle ('getLocalIPList', getLocalIPList)

Variables

- const os
- module exports

23.2.1 Function Documentation

23.2.1.1 getLocalIPList()

```
function getLocalIPList (
              _event,
              _args )
```

23.2.1.2 handle()

```
ipcMain handle (
             'getLocalIPList' ,
             getLocalIPList  )
```

23.2.2 Variable Documentation

23.2.2.1 exports

```
module exports
```

Initial value:

```
= {
    getLocalIPList: getLocalIPList
}
```

23.2.2.2 os

```
const os
```

Initial value:

```
= require('os')
const { ipcMain } = require('electron')
```

23.3 js/main.js File Reference

Functions

- function isDev ()
- function createWindow ()
- app on ('ready', createWindow)
- function onClose ()

Variables

- const { app, BrowserWindow } = require('electron')
- const path = require('path')
- const serve = require('electron-serve')
- const loadURL = serve({ directory: 'public' })

23.3.1 Function Documentation

23.3.1.1 createWindow()

```
function createWindow ( )
```

23.3.1.2 isDev()

```
function isDev ( )
```

23.3.1.3 on()

```
app on (
            'ready' ,
            createWindow  )
```

23.3.1.4 onClose()

```
function onClose ( )
```

23.3.2 Variable Documentation

23.3.2.1 const

```
const { app, BrowserWindow } = require('electron')
```

23.3.2.2 loadURL

```
const loadURL = serve({ directory:  'public' })
```

23.3.2.3 path

```
const path = require('path')
```

23.3.2.4 serve

```
const serve = require('electron-serve')
```

23.4 src/main.js File Reference

Variables

- import app pcss
- import App from App svelte
- const app

23.4.1 Variable Documentation

23.4.1.1 app

```
export default app
```

Initial value:

```
= new App({
  target: document.body,
  props: {
    name: "world",
  },
})
```

23.4.1.2 pcss

```
import app pcss
```

23.4.1.3 svelte

```
import App from App svelte
```

23.5 js/preload.js File Reference

23.6 js/raspberry_pi.js File Reference

Functions

- function unselectRaspberryPi (_event, _args)
- function selectRaspberryPi (_event, args)
- function getRaspberryPiList (_event, _args)
- function getSelectedRaspberryPi (_event, _args)
- ipcMain handle ('selectRaspberryPi', selectRaspberryPi)

Variables

- const { ipcMain } = require('electron')

23.6.1 Function Documentation

23.6.1.1 getRaspberryPiList()

```
function getRaspberryPiList (
              _event,
              _args )
```

23.6.1.2 getSelectedRaspberryPi()

```
function getSelectedRaspberryPi (
              _event,
              _args )
```

23.6.1.3 handle()

```
ipcMain handle (
             'selectRaspberryPi' ,
             selectRaspberryPi  )
```

23.6.1.4 selectRaspberryPi()

```
function selectRaspberryPi (
              _event,
              args )
```

23.6.1.5 unselectRaspberryPi()

```
function unselectRaspberryPi (
              _event,
              _args )
```

23.6.2 Variable Documentation

23.6.2.1 const

```
const { ipcMain } = require('electron')
```

23.7 js/store.js File Reference

23.8 js/websocket.js File Reference

Classes

- class Code
- class WebSocketServer

Functions

- function getRandomInt (min, max)

Variables

- const WebSocket = require('ws')
- module exports = { websocket_server: new WebSocketServer() }

23.8.1 Function Documentation

23.8.1.1 getRandomInt()

```
function getRandomInt (
              min,
              max )
```

Parameters

{number}	min
{number}	max

Returns

{number}

23.8.2 Variable Documentation

23.8.2.1 exports

```
module exports = { websocket_server:  new WebSocketServer() }
```

23.8.2.2 WebSocket

```
const WebSocket = require('ws')
```

23.9 js/websocket_events.js File Reference

Functions

- function async startWebSocketServer (_event, args)
- function closeWebSocketServer (_event, _args)
- function getWebSocketServer (_event, _args)
- ipcMain handle ('startWebSocketServer', startWebSocketServer)

Variables

- const { ipcMain } = require('electron')
- const tcpPortUsed = require('tcp-port-used')

23.9.1 Function Documentation

23.9.1.1 closeWebSocketServer()

```
function closeWebSocketServer (
              _event,
              _args )
```

23.9.1.2 getWebSocketServer()

```
function getWebSocketServer (
              _event,
              _args )
```

23.9.1.3 handle()

```
ipcMain handle (
             'startWebSocketServer' ,
             startWebSocketServer  )
```

23.9.1.4 startWebSocketServer()

```
function async startWebSocketServer (
              _event,
              args )
```

23.9.2 Variable Documentation

23.9.2.1 const

```
const { ipcMain } = require('electron')
```

23.9.2.2 tcpPortUsed

```
const tcpPortUsed = require('tcp-port-used')
```

23.10 public/index.html File Reference

23.11 README.md File Reference

23.12 rollup.config.js File Reference

Functions

- function serve ()

Variables

- import svelte from rollup plugin svelte
- import commonjs from rollup plugin commonjs
- import resolve from rollup plugin node resolve
- import livereload from rollup plugin livereload
- import { terser } from 'rollup-plugin-terser'
- import css from rollup plugin css only
- import postcss from rollup plugin postcss import tailwindcss from tailwindcss
- import nodePolyfills from rollup plugin node polyfills
- const tailwindConfig = require('./tailwind.config.cjs')
- const production = !process.env.ROLLUP_WATCH
- export default

23.12.1 Function Documentation

23.12.1.1 serve()

```
function serve ( )
```

23.12.2 Variable Documentation

23.12.2.1 commonjs

```
import commonjs from rollup plugin commonjs
```

23.12.2.2 default

```
export default
```

23.12.2.3 import

```
import { terser } from 'rollup-plugin-terser'
```

23.12.2.4 livereload

```
import livereload from rollup plugin livereload
```

23.12.2.5 only

```
import css from rollup plugin css only
```

23.12.2.6 polyfills

```
import nodePolyfills from rollup plugin node polyfills
```

23.12.2.7 production

```
const production = !process.env.ROLLUP_WATCH
```

23.12.2.8 resolve

```
import resolve from rollup plugin node resolve
```

23.12.2.9 svelte

```
import NotFound from routes NotFound svelte
```

23.12.2.10 tailwindConfig

```
const tailwindConfig = require('./tailwind.config.cjs')
```

23.12.2.11 tailwindcss

```
import postcss from rollup plugin postcss import tailwindcss from tailwindcss
```

23.13 src/App.svelte File Reference

23.14 src/lib/BehaviourTreeHandler.svelte File Reference

23.15 src/lib/CodeBox_Constants.js File Reference

Variables

- import { hoverTooltip } from "@codemirror/view"
- export const range_0_180
- export const range_0_360
- export const range_0_100
- export const condition_operator_types
- const node_information_list
- export const node_hover

23.15.1 Variable Documentation

23.15.1.1 condition_operator_types

```
export const condition_operator_types
```

23.15.1.2 import

```
import { hoverTooltip } from "@codemirror/view"
```

23.15.1.3 node_hover

```
export const node_hover
```

Initial value:

```
= hoverTooltip((view, pos, side) => {
    const { from, to, text } = view.state.doc.lineAt(pos);
    let start = pos,
        end = pos;
    while (start > from && /[\w|:]/.test(text[start - from - 1])) start--;
    while (end < to && /[\w|:]/.test(text[end - from])) end++;
    if ((start == pos && side < 0) || (end == pos && side > 0)) return null;
    const highlighted_node = text.slice(start - from, end - from);
    const node_information = node_information_list.get(highlighted_node);
    if (!node_information) return null;
    return {
        pos: start,
        end,
        above: true,
        create(_) {
            const dom = document.createElement("div");
            dom.textContent = node_information;
            return { dom };
        },
    };
})
```

23.15.1.4 node_information_list

```
const node_information_list
```

Initial value:

```
= new Map([
    ["Root", "Start of every node tree"],
    ["Selector", "Runs children until one succeeds"],
    ["Sequence", "Runs children until one fails"],
    ["Random", "Runs a random child"],
    ["UseRoot", "Goes to the given root node id"],
    ["Invert", "Inverts the result of the child"],
    ["Repeat", "Repeats the child given the amount of times"],
    ["Fail", "Always fails"],
    ["Succeed", "Always succeeds"],
    ["Blackboard:ChangeInteger", "Changes the integer value of the blackboard"],
    ["Blackboard:IntegerCondition", "Checks the integer value of the blackboard"],
    ["Action:PauseExecution", "Pauses the execution for the given amount of time"],
    ["Action:Print", "Prints the given message"],
    ["Action:Drive", "Set the speed and direction of the car"],
    ["Action:Turn", "Turns the car by the given angle"],
    ["Action:SetAngle", "Turns the car by the given angle"],
    ["Action:SetSpeed", "Moves the car by the given speed"],
    ["Action:SetWheelDirection", "Sets the direction of the car"],
    ["Condition:SucceedOnAverageNearbyScan", "Checks the average distance between two angles and succeeds if
       the average is below the specified cm"],
    ["Condition:SucceedOnAnyNearbyScan", "Checks the distance of all nearby points and succeeds if any is
       below the specified cm"],
    ["Condition:SucceedOnAverageColour", "Checks the average colour of the camera and succeeds if the colour
       is within the tolerance"],
])
```

@type {Map<string, string>}

23.15.1.5 range_0_100

```
export const range_0_100
```

23.15.1.6 range_0_180

```
export const range_0_180
```

23.15.1.7 range_0_360

```
export const range_0_360
```

23.16 src/lib/home/CodeBox.svelte File Reference

23.17 src/lib/validate/CodeBox.svelte File Reference

23.18 src/lib/home/CodeMessagingBar.svelte File Reference

23.19 src/lib/home/Stream.svelte File Reference

23.20 src/lib/IPList.svelte File Reference

23.21 src/lib/NavigationBar.svelte File Reference

23.22 src/lib/RaspberryPiConnectBanner.svelte File Reference

23.23 src/lib/RaspberryPiSelector.svelte File Reference

23.24 src/lib/SaveBehaviourTreeModal.svelte File Reference

23.25 src/lib/validate/CodeButton.svelte File Reference

23.26 src/lib/WebsocketServerConfig.svelte File Reference

23.27 src/routes.js File Reference

Variables

- import Home from routes Home svelte
- export default

23.27.1 Variable Documentation

23.27.1.1 default

```
export default
```

Initial value:

```
{
    '/': Home,
    '/websocket': Websocket,
    '/validate': Validate,

    '*': NotFound
}
```

23.27.1.2 svelte

```
import NotFound from routes NotFound svelte
```

23.28 src/routes/Home.svelte File Reference

23.29 src/routes/NotFound.svelte File Reference

23.30 src/routes/Validate.svelte File Reference

23.31 src/routes/Websocket.svelte File Reference

23.32 src/store/behaviour_tree_store.js File Reference

Functions

- function async main ()

Variables

- import { writable } from 'svelte/store'
- export const behaviour_tree_xml_code = writable("")
- export const show_behaviour_tree_save_modal = writable(false)
- export const behaviour_tree_save_modal_code = writable("")
- export let behaviour_tree_list = writable([])

23.32.1 Function Documentation

23.32.1.1 main()

```
main ( )
```

23.32.2 Variable Documentation

23.32.2.1 behaviour_tree_list

```
export let behaviour_tree_list = writable([])
```

23.32.2.2 behaviour_tree_save_modal_code

```
export const behaviour_tree_save_modal_code = writable("")
```

23.32.2.3 behaviour_tree_xml_code

```
export const behaviour_tree_xml_code = writable("")
```

23.32.2.4 import

```
import { writable } from 'svelte/store'
```

23.32.2.5 show_behaviour_tree_save_modal

```
export const show_behaviour_tree_save_modal = writable(false)
```

23.33 src/store/home_store.js File Reference

Variables

- import { writable } from 'svelte/store'
- export const main_pane_size_0_store = writable(80)
- export const main_pane_size_1_store = writable(20)
- export const side_pane_size_0_store = writable(83)
- export const side_pane_size_1_store = writable(17)
- export const lidar_toggle = writable(true)

23.33.1 Variable Documentation

23.33.1.1 import

```
import { writable } from 'svelte/store'
```

23.33.1.2 lidar_toggle

```
export const lidar_toggle = writable(true)
```

23.33.1.3 main_pane_size_0_store

```
export const main_pane_size_0_store = writable(80)
```

23.33.1.4 main_pane_size_1_store

```
export const main_pane_size_1_store = writable(20)
```

23.33.1.5 side_pane_size_0_store

```
export const side_pane_size_0_store = writable(83)
```

23.33.1.6 side_pane_size_1_store

```
export const side_pane_size_1_store = writable(17)
```

23.34 src/store/raspberry_pi_store.js File Reference

Functions

- function async main ()
- window api onConnection ((value)=> { value=JSON.parse(value);console.log(value);raspberry_pi_uuid_↩ list.update((list)=> { list.push(value.uuid);return list;});})
- window api onDisconnection ((value)=> { value=JSON.parse(value);console.log(value);raspberry_pi_uuid↩ _list.update((list)=> { list=list.filter((uuid)=> uuid !==value.uuid);return list;});})

Variables

- import { writable } from 'svelte/store'
- export const raspberry_pi_uuid_list = writable([])
- export const selected_raspberry_pi_uuid = writable("")

23.34.1 Function Documentation

23.34.1.1 main()

```
function async main ( )
```

23.34.1.2 onConnection()

```
window api onConnection (
            (value) ,
            { value=JSON.parse(value);console.log(value);raspberry_pi_uuid_list.update((list)=>
{ list.push(value.uuid);return list;});}  )
```

23.34.1.3 onDisconnection()

```
window api onDisconnection (
            (value) ,
            { value=JSON.parse(value);console.log(value);raspberry_pi_uuid_list.update((list)=>
{ list=list.filter((uuid)=> uuid !==value.uuid);return list;});}  )
```

23.34.2 Variable Documentation

23.34.2.1 import

```
import { writable } from 'svelte/store'
```

23.34.2.2 raspberry_pi_uuid_list

```
export const raspberry_pi_uuid_list = writable([])
```

23.34.2.3 selected_raspberry_pi_uuid

```
export const selected_raspberry_pi_uuid = writable("")
```

23.35 src/store/websocket_store.js File Reference

Functions

- function async main ()
- window api onMessage ((value)=> { value=JSON.parse(value);lidar_stream.set(value.lidar);camera_↩ stream.set(value.frame_buffer);})

Variables

- import { writable } from 'svelte/store'
- export const websocket_server_connection_state = writable(false)
- export const websocket_server_port = writable(3000)
- export const websocket_server_code = writable(-1)
- export const lidar_stream = writable([])
- export const camera_stream = writable("")

23.35.1 Function Documentation

23.35.1.1 main()

```
function async main ( )
```

23.35.1.2 onMessage()

```
window api onMessage (
             (value) ,
             { value=JSON.parse(value);lidar_stream.set(value.lidar);camera_stream.set(value.↩
frame_buffer);}  )
```

23.35.2 Variable Documentation

23.35.2.1 camera_stream

```
export const camera_stream = writable("")
```

23.35.2.2 import

```
import { writable } from 'svelte/store'
```

23.35.2.3 lidar_stream

```
export const lidar_stream = writable([])
```

23.35.2.4 websocket_server_code

```
export const websocket_server_code = writable(-1)
```

23.35.2.5 websocket_server_connection_state

```
export const websocket_server_connection_state = writable(false)
```

23.35.2.6 websocket_server_port

```
export const websocket_server_port = writable(3000)
```

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