Admin Panel

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1 Admin Panel 1

1.1 Install Packages: . . . 1

1.2 Run: . . . 1

1.3 Build EXE to export: . . . 1

1.4 Template from: . . . 1

2 App 3

3 BehaviourTreeHandler 5

4 CodeBox 7

5 CodeMessagingBar 9

6 Stream 11

7 IPList 13

8 NavigationBar 15

9 RaspberryPiConnectBanner 17

10 RaspberryPiSelector 19

11 SaveBehaviourTreeModal 21

12 CodeBox 23

13 CodeButton 25

14 WebsocketServerConfig 27

15 Home 29

16 NotFound 31

17 Validate 33

18 Websocket 35

19 Class Index 37

19.1 Class List . . . 37

20 File Index 39

20.1 File List . . . 39

21 Class Documentation 41

21.1 Code Class Reference . . . 41

21.1.1 Member Function Documentation . . . 41

21.1.1.1 constructor() . . . 41

21.1.1.2 generate() . . . 41
21.1.1.3 get() . . . 41
21.2 WebSocketServer Class Reference . . . 41
21.2.1 Member Function Documentation . . . 42
21.2.1.1 close() . . . 42
21.2.1.2 connect() . . . 42
21.2.1.3 constructor() . . . 42
21.2.1.4 generateCode() . . . 42
21.2.1.5 getCode() . . . 42
21.2.1.6 getPort() . . . 42
21.2.1.7 getRaspberryPiMap() . . . 43
21.2.1.8 getSelectedRaspberryPi() . . . 43
21.2.1.9 isConnected() . . . 43
21.2.1.10 selectRaspberryPi() . . . 43
21.2.1.11 sendBehaviourTree() . . . 43
21.2.1.12 startBehaviourTree() . . . 43
21.2.1.13 startConnections() . . . 43
21.2.1.14 stopBehaviourTree() . . . 44

22 File Documentation **45**

22.1 js/behaviour_tree.js File Reference . . . 45
22.1.1 Function Documentation . . . 45
22.1.1.1 getBehaviourTreeList() . . . 45
22.1.1.2 handle() . . . 45
22.1.1.3 isDev() . . . 46
22.1.1.4 removeBehaviourTree() . . . 46
22.1.1.5 saveBehaviourTree() . . . 46
22.1.1.6 sendBehaviourTree() . . . 46
22.1.1.7 startBehaviourTree() . . . 46
22.1.1.8 stopBehaviourTree() . . . 46
22.1.1.9 updateBehaviourTreeList() . . . 46
22.1.1.10 validateBehaviourTree() . . . 46
22.1.2 Variable Documentation . . . 47
22.1.2.1 base_path . . . 47
22.1.2.2 const . . . 47
22.1.2.3 exec . . . 47
22.1.2.4 fs . . . 47
22.1.2.5 Os . . . 47
22.1.2.6 path . . . 47
22.1.2.7 resources_dir . . . 47
22.2 js/device.js File Reference . . . 47
22.2.1 Function Documentation . . . 47

22.2.1.1 getLocalIPList() . . . 48
22.2.1.2 handle() . . . 48
22.2.2 Variable Documentation . . . 48
22.2.2.1 exports . . . 48
22.2.2.2 os . . . 48
22.3 js/main.js File Reference . . . 48
22.3.1 Function Documentation . . . 48
22.3.1.1 createWindow() . . . 48
22.3.1.2 isDev() . . . 49
22.3.1.3 on() . . . 49
22.3.1.4 onClose() . . . 49
22.3.2 Variable Documentation . . . 49
22.3.2.1 const . . . 49
22.3.2.2 loadURL . . . 49
22.3.2.3 path . . . 49
22.3.2.4 serve . . . 49
22.4 src/main.js File Reference . . . 49
22.4.1 Variable Documentation . . . 49
22.4.1.1 app . . . 49
22.4.1.2 pcss . . . 50
22.4.1.3 svelte . . . 50
22.5 js/preload.js File Reference . . . 50
22.6 js/raspberry_pi.js File Reference . . . 50
22.6.1 Function Documentation . . . 50
22.6.1.1 getRaspberryPiList() . . . 50
22.6.1.2 getSelectedRaspberryPi() . . . 50
22.6.1.3 handle() . . . 50
22.6.1.4 selectRaspberryPi() . . . 50
22.6.1.5 unselectRaspberryPi() . . . 51
22.6.2 Variable Documentation . . . 51
22.6.2.1 const . . . 51
22.7 js/store.js File Reference . . . 51
22.8 js/websocket.js File Reference . . . 51
22.8.1 Function Documentation . . . 51
22.8.1.1 getRandomInt() . . . 51
22.8.2 Variable Documentation . . . 51
22.8.2.1 exports . . . 51
22.8.2.2 WebSocket . . . 52
22.9 js/websocket_events.js File Reference . . . 52
22.9.1 Function Documentation . . . 52
22.9.1.1 closeWebSocketServer() . . . 52
22.9.1.2 getWebSocketServer() . . . 52

22.9.1.3 handle() . . . 52
22.9.1.4 startWebSocketServer() . . . 52
22.9.2 Variable Documentation . . . 52
22.9.2.1 const . . . 52
22.9.2.2 tcpPortUsed . . . 53
22.10 README.md File Reference . . . 53
22.11 rollup.config.js File Reference . . . 53
22.11.1 Function Documentation . . . 53
22.11.1.1 serve() . . . 53
22.11.2 Variable Documentation . . . 53
22.11.2.1 commonjs . . . 53
22.11.2.2 default . . . 53
22.11.2.3 import . . . 53
22.11.2.4 livereload . . . 53
22.11.2.5 only . . . 54
22.11.2.6 polyfills . . . 54
22.11.2.7 production . . . 54
22.11.2.8 resolve . . . 54
22.11.2.9 svelte . . . 54
22.11.2.10 tailwindConfig . . . 54
22.11.2.11 tailwindcss . . . 54
22.12 src/App.svelte File Reference . . . 54
22.13 src/lib/BehaviourTreeHandler.svelte File Reference . . . 54
22.14 src/lib/CodeBox_Constants.js File Reference . . . 54
22.14.1 Variable Documentation . . . 54
22.14.1.1 condition_operator_types . . . 54
22.14.1.2 import . . . 55
22.14.1.3 node_hover . . . 55
22.14.1.4 node_information_list . . . 55
22.14.1.5 range_0_100 . . . 55
22.14.1.6 range_0_180 . . . 55
22.14.1.7 range_0_360 . . . 56
22.15 src/lib/home/CodeBox.svelte File Reference . . . 56
22.16 src/lib/validate/CodeBox.svelte File Reference . . . 56
22.17 src/lib/home/CodeMessagingBar.svelte File Reference . . . 56
22.18 src/lib/home/Stream.svelte File Reference . . . 56
22.19 src/lib/IPList.svelte File Reference . . . 56
22.20 src/lib/NavigationBar.svelte File Reference . . . 56
22.21 src/lib/RaspberryPiConnectBanner.svelte File Reference . . . 56
22.22 src/lib/RaspberryPiSelector.svelte File Reference . . . 56
22.23 src/lib/SaveBehaviourTreeModal.svelte File Reference . . . 56
22.24 src/lib/validate/CodeButton.svelte File Reference . . . 56

22.25 src/lib/WebsocketServerConfig.svelte File Reference . . . 56
22.26 src/routes.js File Reference . . . 56
22.26.1 Variable Documentation . . . 56
22.26.1.1 default . . . 56
22.26.1.2 svelte . . . 56
22.27 src/routes/Home.svelte File Reference . . . 57
22.28 src/routes/NotFound.svelte File Reference . . . 57
22.29 src/routes/Validate.svelte File Reference . . . 57
22.30 src/routes/Websocket.svelte File Reference . . . 57
22.31 src/store/behaviour_tree_store.js File Reference . . . 57
22.31.1 Function Documentation . . . 57
22.31.1.1 main() . . . 57
22.31.2 Variable Documentation . . . 57
22.31.2.1 behaviour_tree_list . . . 57
22.31.2.2 behaviour_tree_save_modal_code . . . 57
22.31.2.3 behaviour_tree_xml_code . . . 57
22.31.2.4 import . . . 57
22.31.2.5 show_behaviour_tree_save_modal . . . 57
22.32 src/store/home_store.js File Reference . . . 58
22.32.1 Variable Documentation . . . 58
22.32.1.1 import . . . 58
22.32.1.2 lidar_toggle . . . 58
22.32.1.3 main_pane_size_0_store . . . 58
22.32.1.4 main_pane_size_1_store . . . 58
22.32.1.5 side_pane_size_0_store . . . 58
22.32.1.6 side_pane_size_1_store . . . 58
22.33 src/store/raspberry_pi_store.js File Reference . . . 58
22.33.1 Function Documentation . . . 59
22.33.1.1 main() . . . 59
22.33.1.2 onConnection() . . . 59
22.33.1.3 onDisconnection() . . . 59
22.33.2 Variable Documentation . . . 59
22.33.2.1 import . . . 59
22.33.2.2 raspberry_pi_uuid_list . . . 59
22.33.2.3 selected_raspberry_pi_uuid . . . 59
22.34 src/store/websocket_store.js File Reference . . . 59
22.34.1 Function Documentation . . . 60
22.34.1.1 main() . . . 60
22.34.1.2 onMessage() . . . 60
22.34.2 Variable Documentation . . . 60
22.34.2.1 camera_stream . . . 60
22.34.2.2 import . . . 60

22.34.2.3 lidar_stream 60
22.34.2.4 websocket_server_code 60
22.34.2.5 websocket_server_connection_state 60
22.34.2.6 websocket_server_port 60

Index **61**

Chapter 1

Admin Panel

The app to directly control the Sunfounder PiCar.

1.1 Install Packages:

```
pnpm i
```

1.2 Run:

```
pnpm run electron
```

1.3 Build EXE to export:

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

1.4 Template from:

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

Chapter 2

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 3

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 4

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 5

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_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 6

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 7

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 8

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 9

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 10

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 11

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 12

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 13

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 14

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 15

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 16

NotFound

Not Found

This route doesn't exist.

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

Chapter 17

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 18

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 19

Class Index

19.1 Class List

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

Code 41
WebSocketServer 41

Chapter 20

File Index

20.1 File List

Here is a list of all files with brief descriptions:

rollup.config.js . . . 53
js/behaviour_tree.js . . . 45
js/device.js . . . 47
js/main.js . . . 48
js/preload.js . . . 50
js/raspberry_pi.js . . . 50
js/store.js . . . 51
js/websocket.js . . . 51
js/websocket_events.js . . . 52
src/main.js . . . 49
src/routes.js . . . 56
src/lib/CodeBox_Constants.js . . . 54
src/store/behaviour_tree_store.js . . . 57
src/store/home_store.js . . . 58
src/store/raspberry_pi_store.js . . . 58
src/store/websocket_store.js . . . 59

Chapter 21

Class Documentation

21.1 Code Class Reference

Public Member Functions

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

21.1.1 Member Function Documentation

21.1.1.1 constructor()

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

21.1.1.2 generate()

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

21.1.1.3 get()

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

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

- js/websocket.js

21.2 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 ()

21.2.1 Member Function Documentation

21.2.1.1 close()

`WebSocketServer::close ( ) [inline]`

Call this function to close the WebSocket server.

21.2.1.2 connect()

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

Call this function to start the WebSocket server.

Parameters

{number}	port

21.2.1.3 constructor()

`WebSocketServer::constructor ( ) [inline]`

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

21.2.1.4 generateCode()

`WebSocketServer::generateCode ( ) [inline]`

Returns

{number}

21.2.1.5 getCode()

`WebSocketServer::getCode ( ) [inline]`

Returns

{number}

21.2.1.6 getPort()

`WebSocketServer::getPort ( ) [inline]`

Returns

{number}

21.2.1.7 getRaspberryPiMap()

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

Returns

{Map<string, WebSocket>}

21.2.1.8 getSelectedRaspberryPi()

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

Returns

{RaspberryPi | undefined}

21.2.1.9 isConnected()

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

21.2.1.10 selectRaspberryPi()

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

Select a Raspberry Pi to send / receive messages from.

Parameters

{string}	uuid

Returns

21.2.1.11 sendBehaviourTree()

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

Parameters

{string}	behaviour_tree

21.2.1.12 startBehaviourTree()

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

21.2.1.13 startConnections()

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

21.2.1.14 stopBehaviourTree()

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

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

- js/websocket.js

Chapter 22

File Documentation

22.1 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')

22.1.1 Function Documentation

22.1.1.1 getBehaviourTreeList()

```
function getBehaviourTreeList ( )
```

22.1.1.2 handle()

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

22.1.1.3 isDev()

```
function isDev ( )
```

22.1.1.4 removeBehaviourTree()

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

22.1.1.5 saveBehaviourTree()

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

22.1.1.6 sendBehaviourTree()

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

22.1.1.7 startBehaviourTree()

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

22.1.1.8 stopBehaviourTree()

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

22.1.1.9 updateBehaviourTreeList()

```
function updateBehaviourTreeList (
              behaviour_tree_list )
```

Parameters

{any[ ]}	behaviour_tree_list

22.1.1.10 validateBehaviourTree()

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

@type {string}

22.1.2 Variable Documentation

22.1.2.1 base_path

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

22.1.2.2 const

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

22.1.2.3 exec

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

22.1.2.4 fs

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

22.1.2.5 Os

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

22.1.2.6 path

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

22.1.2.7 resources_dir

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

22.2 js/device.js File Reference

Functions

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

Variables

- const os
- module exports

22.2.1 Function Documentation

22.2.1.1 getLocalIPList()

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

22.2.1.2 handle()

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

22.2.2 Variable Documentation

22.2.2.1 exports

```
module exports
```

Initial value:

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

22.2.2.2 os

```
const os
```

Initial value:

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

22.3 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' })

22.3.1 Function Documentation

22.3.1.1 createWindow()

```
function createWindow ( )
```

22.3.1.2 isDev()

```
function isDev ( )
```

22.3.1.3 on()

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

22.3.1.4 onClose()

```
function onClose ( )
```

22.3.2 Variable Documentation

22.3.2.1 const

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

22.3.2.2 loadURL

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

22.3.2.3 path

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

22.3.2.4 serve

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

22.4 src/main.js File Reference

Variables

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

22.4.1 Variable Documentation

22.4.1.1 app

```
export default app
```

Initial value:

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

22.4.1.2 pcss

```
import app pcss
```

22.4.1.3 svelte

```
import App from App svelte
```

22.5 js/preload.js File Reference

22.6 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')

22.6.1 Function Documentation

22.6.1.1 getRaspberryPiList()

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

22.6.1.2 getSelectedRaspberryPi()

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

22.6.1.3 handle()

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

22.6.1.4 selectRaspberryPi()

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

22.6.1.5 unselectRaspberryPi()

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

22.6.2 Variable Documentation

22.6.2.1 const

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

22.7 js/store.js File Reference

22.8 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() }

22.8.1 Function Documentation

22.8.1.1 getRandomInt()

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

Parameters

{number}	min
{number}	max

Returns

{number}

22.8.2 Variable Documentation

22.8.2.1 exports

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

22.8.2.2 WebSocket

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

22.9 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')

22.9.1 Function Documentation

22.9.1.1 closeWebSocketServer()

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

22.9.1.2 getWebSocketServer()

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

22.9.1.3 handle()

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

22.9.1.4 startWebSocketServer()

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

22.9.2 Variable Documentation

22.9.2.1 const

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

22.9.2.2 tcpPortUsed

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

22.10 README.md File Reference

22.11 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

22.11.1 Function Documentation

22.11.1.1 serve()

```
function serve ( )
```

22.11.2 Variable Documentation

22.11.2.1 commonjs

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

22.11.2.2 default

```
export default
```

22.11.2.3 import

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

22.11.2.4 livereload

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

22.11.2.5 only

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

22.11.2.6 polyfills

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

22.11.2.7 production

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

22.11.2.8 resolve

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

22.11.2.9 svelte

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

22.11.2.10 tailwindConfig

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

22.11.2.11 tailwindcss

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

22.12 src/App.svelte File Reference

22.13 src/lib/BehaviourTreeHandler.svelte File Reference

22.14 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

22.14.1 Variable Documentation

22.14.1.1 condition_operator_types

```
export const condition_operator_types
```

22.14.1.2 import

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

22.14.1.3 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 };
        },
    };
})
```

22.14.1.4 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>}

22.14.1.5 range_0_100

```
export const range_0_100
```

22.14.1.6 range_0_180

```
export const range_0_180
```

22.14.1.7 range_0_360

```
export const range_0_360
```

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

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

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

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

22.19 src/lib/IPList.svelte File Reference

22.20 src/lib/NavigationBar.svelte File Reference

22.21 src/lib/RaspberryPiConnectBanner.svelte File Reference

22.22 src/lib/RaspberryPiSelector.svelte File Reference

22.23 src/lib/SaveBehaviourTreeModal.svelte File Reference

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

22.25 src/lib/WebsocketServerConfig.svelte File Reference

22.26 src/routes.js File Reference

Variables

- import Home from routes Home svelte
- export default

22.26.1 Variable Documentation

22.26.1.1 default

```
export default
```

Initial value:

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

    '*': NotFound
}
```

22.26.1.2 svelte

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

22.27 src/routes/Home.svelte File Reference

22.28 src/routes/NotFound.svelte File Reference

22.29 src/routes/Validate.svelte File Reference

22.30 src/routes/Websocket.svelte File Reference

22.31 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([])

22.31.1 Function Documentation

22.31.1.1 main()

```
main ( )
```

22.31.2 Variable Documentation

22.31.2.1 behaviour_tree_list

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

22.31.2.2 behaviour_tree_save_modal_code

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

22.31.2.3 behaviour_tree_xml_code

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

22.31.2.4 import

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

22.31.2.5 show_behaviour_tree_save_modal

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

22.32 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)

22.32.1 Variable Documentation

22.32.1.1 import

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

22.32.1.2 lidar_toggle

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

22.32.1.3 main_pane_size_0_store

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

22.32.1.4 main_pane_size_1_store

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

22.32.1.5 side_pane_size_0_store

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

22.32.1.6 side_pane_size_1_store

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

22.33 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("")

22.33.1 Function Documentation

22.33.1.1 main()

```
function async main ( )
```

22.33.1.2 onConnection()

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

22.33.1.3 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;});}  )
```

22.33.2 Variable Documentation

22.33.2.1 import

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

22.33.2.2 raspberry_pi_uuid_list

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

22.33.2.3 selected_raspberry_pi_uuid

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

22.34 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("")

22.34.1 Function Documentation

22.34.1.1 main()

```
function async main ( )
```

22.34.1.2 onMessage()

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

22.34.2 Variable Documentation

22.34.2.1 camera_stream

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

22.34.2.2 import

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

22.34.2.3 lidar_stream

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

22.34.2.4 websocket_server_code

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

22.34.2.5 websocket_server_connection_state

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

22.34.2.6 websocket_server_port

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

Index

app
    main.js, 49

base_path
    behaviour_tree.js, 47
behaviour_tree.js
    base_path, 47
    const, 47
    exec, 47
    fs, 47
    getBehaviourTreeList, 45
    handle, 45
    isDev, 45
    Os, 47
    path, 47
    removeBehaviourTree, 46
    resources_dir, 47
    saveBehaviourTree, 46
    sendBehaviourTree, 46
    startBehaviourTree, 46
    stopBehaviourTree, 46
    updateBehaviourTreeList, 46
    validateBehaviourTree, 46
behaviour_tree_list
    behaviour_tree_store.js, 57
behaviour_tree_save_modal_code
    behaviour_tree_store.js, 57
behaviour_tree_store.js
    behaviour_tree_list, 57
    behaviour_tree_save_modal_code, 57
    behaviour_tree_xml_code, 57
    import, 57
    main, 57
    show_behaviour_tree_save_modal, 57
behaviour_tree_xml_code
    behaviour_tree_store.js, 57

camera_stream
    websocket_store.js, 60
close
    WebSocketServer, 42
closeWebSocketServer
    websocket_events.js, 52
Code, 41
    constructor, 41
    generate, 41
    get, 41
CodeBox_Constants.js
    condition_operator_types, 54
    import, 54
    node_hover, 55
    node_information_list, 55
    range_0_100, 55
    range_0_180, 55
    range_0_360, 55
commonjs
    rollup.config.js, 53
condition_operator_types
    CodeBox_Constants.js, 54
connect
    WebSocketServer, 42
const
    behaviour_tree.js, 47
    main.js, 49
    raspberry_pi.js, 51
    websocket_events.js, 52
constructor
    Code, 41
    WebSocketServer, 42
createWindow
    main.js, 48

default
    rollup.config.js, 53
    routes.js, 56
device.js
    exports, 48
    getLocalIPList, 47
    handle, 48
    os, 48

exec
    behaviour_tree.js, 47
exports
    device.js, 48
    websocket.js, 51

fs
    behaviour_tree.js, 47

generate
    Code, 41
generateCode
    WebSocketServer, 42
get
    Code, 41
getBehaviourTreeList
    behaviour_tree.js, 45
getCode
    WebSocketServer, 42

getLocalIPList
device.js, 47
getPort
WebSocketServer, 42
getRandomInt
websocket.js, 51
getRaspberryPiList
raspberry_pi.js, 50
getRaspberryPiMap
WebSocketServer, 42
getSelectedRaspberryPi
raspberry_pi.js, 50
WebSocketServer, 43
getWebSocketServer
websocket_events.js, 52

handle
behaviour_tree.js, 45
device.js, 48
raspberry_pi.js, 50
websocket_events.js, 52
home_store.js
import, 58
lidar_toggle, 58
main_pane_size_0_store, 58
main_pane_size_1_store, 58
side_pane_size_0_store, 58
side_pane_size_1_store, 58

import
behaviour_tree_store.js, 57
CodeBox_Constants.js, 54
home_store.js, 58
raspberry_pi_store.js, 59
rollup.config.js, 53
websocket_store.js, 60
isConnected
WebSocketServer, 43
isDev
behaviour_tree.js, 45
main.js, 48

js/behaviour_tree.js, 45
js/device.js, 47
js/main.js, 48
js/preload.js, 50
js/raspberry_pi.js, 50
js/store.js, 51
js/websocket.js, 51
js/websocket_events.js, 52

lidar_stream
websocket_store.js, 60
lidar_toggle
home_store.js, 58
livereload
rollup.config.js, 53
loadURL
main.js, 49

main
behaviour_tree_store.js, 57
raspberry_pi_store.js, 59
websocket_store.js, 60
main.js
app, 49
const, 49
createWindow, 48
isDev, 48
loadURL, 49
on, 49
onClose, 49
path, 49
pcss, 49
serve, 49
svelte, 50
main_pane_size_0_store
home_store.js, 58
main_pane_size_1_store
home_store.js, 58

node_hover
CodeBox_Constants.js, 55
node_information_list
CodeBox_Constants.js, 55

on
main.js, 49
onClose
main.js, 49
onConnection
raspberry_pi_store.js, 59
onDisconnection
raspberry_pi_store.js, 59
only
rollup.config.js, 53
onMessage
websocket_store.js, 60
Os
behaviour_tree.js, 47
os
device.js, 48

path
behaviour_tree.js, 47
main.js, 49
pcss
main.js, 49
polyfills
rollup.config.js, 54
production
rollup.config.js, 54

range_0_100
CodeBox_Constants.js, 55
range_0_180
CodeBox_Constants.js, 55
range_0_360
CodeBox_Constants.js, 55

raspberry_pi.js
const, 51
getRaspberryPiList, 50
getSelectedRaspberryPi, 50
handle, 50
selectRaspberryPi, 50
unselectRaspberryPi, 50
raspberry_pi_store.js
import, 59
main, 59
onConnection, 59
onDisconnection, 59
raspberry_pi_uuid_list, 59
selected_raspberry_pi_uuid, 59
raspberry_pi_uuid_list
raspberry_pi_store.js, 59
README.md, 53
removeBehaviourTree
behaviour_tree.js, 46
resolve
rollup.config.js, 54
resources_dir
behaviour_tree.js, 47
rollup.config.js, 53
commonjs, 53
default, 53
import, 53
livereload, 53
only, 53
polyfills, 54
production, 54
resolve, 54
serve, 53
svelte, 54
tailwindConfig, 54
tailwindcss, 54
routes.js
default, 56
svelte, 56

saveBehaviourTree
behaviour_tree.js, 46
selected_raspberry_pi_uuid
raspberry_pi_store.js, 59
selectRaspberryPi
raspberry_pi.js, 50
WebSocketServer, 43
sendBehaviourTree
behaviour_tree.js, 46
WebSocketServer, 43
serve
main.js, 49
rollup.config.js, 53
show_behaviour_tree_save_modal
behaviour_tree_store.js, 57
side_pane_size_0_store
home_store.js, 58
side_pane_size_1_store
home_store.js, 58
src/App.svelte, 54
src/lib/BehaviourTreeHandler.svelte, 54
src/lib/CodeBox_Constants.js, 54
src/lib/home/CodeBox.svelte, 56
src/lib/home/CodeMessagingBar.svelte, 56
src/lib/home/Stream.svelte, 56
src/lib/IPList.svelte, 56
src/lib/NavigationBar.svelte, 56
src/lib/RaspberryPiConnectBanner.svelte, 56
src/lib/RaspberryPiSelector.svelte, 56
src/lib/SaveBehaviourTreeModal.svelte, 56
src/lib/validate/CodeBox.svelte, 56
src/lib/validate/CodeButton.svelte, 56
src/lib/WebsocketServerConfig.svelte, 56
src/main.js, 49
src/routes.js, 56
src/routes/Home.svelte, 57
src/routes/NotFound.svelte, 57
src/routes/Validate.svelte, 57
src/routes/Websocket.svelte, 57
src/store/behaviour_tree_store.js, 57
src/store/home_store.js, 58
src/store/raspberry_pi_store.js, 58
src/store/websocket_store.js, 59
startBehaviourTree
behaviour_tree.js, 46
WebSocketServer, 43
startConnections
WebSocketServer, 43
startWebSocketServer
websocket_events.js, 52
stopBehaviourTree
behaviour_tree.js, 46
WebSocketServer, 43
svelte
main.js, 50
rollup.config.js, 54
routes.js, 56

tailwindConfig
rollup.config.js, 54
tailwindcss
rollup.config.js, 54
tcpPortUsed
websocket_events.js, 52

unselectRaspberryPi
raspberry_pi.js, 50
updateBehaviourTreeList
behaviour_tree.js, 46

validateBehaviourTree
behaviour_tree.js, 46

WebSocket
websocket.js, 52
websocket.js
exports, 51
getRandomInt, 51

WebSocket, 52
websocket_events.js
closeWebSocketServer, 52
const, 52
getWebSocketServer, 52
handle, 52
startWebSocketServer, 52
tcpPortUsed, 52
websocket_server_code
websocket_store.js, 60
websocket_server_connection_state
websocket_store.js, 60
websocket_server_port
websocket_store.js, 60
websocket_store.js
camera_stream, 60
import, 60
lidar_stream, 60
main, 60
onMessage, 60
websocket_server_code, 60
websocket_server_connection_state, 60
websocket_server_port, 60
WebSocketServer, 41
close, 42
connect, 42
constructor, 42
generateCode, 42
getCode, 42
getPort, 42
getRaspberryPiMap, 42
getSelectedRaspberryPi, 43
isConnected, 43
selectRaspberryPi, 43
sendBehaviourTree, 43
startBehaviourTree, 43
startConnections, 43
stopBehaviourTree, 43