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Team 12

**Test Plan - Part 2**

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| **Test Author:** Hussein Khodor | | | | |
| | **Test Case Name:** | GUI Display Test | **Test ID #:** | GUI-DIS-01 |
| | **Description:** | *Verify that sensor force data from the ESP32 is transmitted over Wi-Fi, received by the frontend, and displayed correctly on the GUI heatmap, including both foot silhouettes and pressure regions.* | **Type:** | ☐ white box<br>☑ black box<br>☐ _____ |
| **Tester Information** | | | | |
| | **Name of Tester:** | Hussein Khodor | **Date:** | 12-03-2025 |
| | **HW/SW Version:** | ESP32 Firmware v0.1/GUI Frontend v0.1 | **Time:** | 6.42pm |
| | **Setup:** | *The ESP32 is powered on and connected to the designated Wi-Fi network using the firmware that streams sensor force data in JSON format. The laptop running the GUI frontend is connected to the same Wi-Fi network. The GUI web application is opened in the browser, displaying the foot silhouettes and empty heatmap.* | | |

| STEP | Action | Expected Result | PASS | FAIL | N/A | Comments |
|---|---|---|---|---|---|---|
| 1 | Power on ESP32 and connect it to Wi-Fi network | ESP32 successfully connects; GUI shows “Connected” or similar status | ☑ | ☐ | ☐ | |
| 2 | Open GUI in browser | Foot silhouettes and empty heatmap render correctly | ☑ | ☐ | ☐ | |
| 3 | Verify GUI establishes WebSocket/HTTP connection to ESP32 | GUI console shows “Receiving data” | ☑ | ☐ | ☐ | |
| 4 | With no pressure applied, observe baseline sensor | Heatmap shows no intensity (neutral state) | ☑ | ☐ | ☐ | |

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|---|---|---|---|---|---|---|
| | values | | | | | |
| 5 | Apply light pressure to one sensor by stepping on the corresponding sensor on the mat | Corresponding region on heatmap increases intensity | ☑ | ☐ | ☐ | |
| 6 | Increase pressure gradually | Heatmap color or intensity smoothly increases with no jumps or freezes | ☑ | ☐ | ☐ | |
| 7 | Release pressure entirely | Heatmap returns to no intensity (neutral state) | ☑ | ☐ | ☐ | |
| 8 | Apply pressure to multiple sensors simultaneously by stepping on the corresponding sensors | Heatmap shows multiple colored regions updating in real time | ☑ | ☐ | ☐ | |
| 9 | Observe update rate for 10 seconds | Heatmap updates in real-time without freezing or lag | ☑ | ☐ | ☐ | |
| | **Overall test result:** | | ☑ | ☐ | ☐ | |

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| **Test Author:** Hussein Khodor | | | | |
| | **Test Case Name:** | GUI Pressure-to-Intensity Mapping | **Test ID #:** | GUI-PIM-01 |
| | **Description:** | *Verify that the GUI correctly maps incoming pressure values to heatmap intensity/color by varying sensor force inputs across a broad range. The system should display low force with faint color and high force with stronger color saturation.* | **Type:** | ☐ white box<br>☑ black box<br>☐ _____ |
| **Tester Information** | | | | |
| | **Name of Tester:** | Hussein Khodor | **Date:** | 12-03-2025 |
| | **HW/SW Version:** | ESP32 Firmware v0.1/GUI Frontend v0.1 | **Time:** | 7:23pm |
| | **Setup:** | *The ESP32 is powered on and connected to the designated Wi-Fi network using the firmware that streams sensor force data in JSON format. The laptop running the GUI frontend is connected to the same Wi-Fi network. The GUI web application is opened in the browser, displaying the foot silhouettes and empty heatmap.* | | |

| TEST | INPUTS | EXPECTED OUTPUTS | PASS | FAIL | N/A | Comments |
|---|---|---|---|---|---|---|
| 1 | 0 N (no pressure applied) | Region shows no color intensity; invisible. | ☑ | ☐ | ☐ | |
| 2 | 4 N (very light pressure applied) | Region shows very faint color intensity; barely visible. | ☑ | ☐ | ☐ | |
| 3 | 8 N (light pressure applied) | Region shows light color intensity; slightly visible. | ☑ | ☐ | ☐ | |
| 4 | 12 N (medium pressure applied) | Region shows moderate color intensity; more visible. | ☑ | ☐ | ☐ | |

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|---|---|---|---|---|---|---|
| 5 | 16 N (medium-high pressure applied) | Region shows near-maximum color intensity; very visible | ☑ | ☐ | ☐ | |
| 6 | 20 N (high pressure applied) | Region shows maximum color intensity; fully visible | ☑ | ☐ | ☐ | |
| | **Overall test result:** | | ☑ | ☐ | ☐ | |