Manual Test Routine Guide

Pedometer with 16x2 LCD – KL25Z

NOTE: The test routine should be operated in the "Debug" build to check the debug logs on the serial terminal. It would display all the required debug/test messages needed for manual testing.

1. Test Case 1 – Calibration

The board should be placed on a flat surface for calibration. The Calibration results should be printed as displayed below on the serial terminal. If the debug messages match with the below mentioned snapshot, it means the device is accurately calibrated (the avg values may differ a little than the screenshot, but it would handle while calculating the calibrated average value.

If all these lines are not printed on the terminal it would mean the test has failed and the device is not calibrated properly.

```
WELCOME TO PEDOMETER MANUAL TESTING
Initialization in progress...

Initialization completed

*********************************************************************
calibrating....

avg X: -32
avg Y: 57
avg Z: 4145
Calibration completed

Calibrated avg values X: -32, Y: 57, Z: 4145
*********************************************************************
```

Figure 1 Calibration testing screen capture

2. Test Case 2 – Check if non-step movements are not detected as steps

- Move the board in the vertical motion. It should not increment the number of steps on the terminal or the LCD Display.

```
SLIDER VALUE: 117
SLIDER DETECT: false
Movement val: 1064
STEPS: 0
SLIDER VALUE: 117
SLIDER DETECT: false
Movement val: 1040
STEPS: 0
SLIDER VALUE: 117
SLIDER DETECT: false
Movement val: 989
STEPS: 0
SLIDER VALUE: 116
SLIDER DETECT: false
Movement val: 1024
STEPS: 0
```

Figure 2 Vertical movement test

- Move the board in the horizontal motion. It should not increment the number of steps on the terminal or the LCD Display.

```
SLIDER VALUE: 116
SLIDER DETECT: false
Movement val: 1066
STEPS: 0
SLIDER VALUE: 117
SLIDER DETECT: false
Movement val: 1101
STEPS: 0
SLIDER VALUE: 116
SLIDER DETECT: false
Movement val: 1052
STEPS: 0
```

Figure 3 Horizontal movement test

3. LCD Test

Boot the KL25Z board and visually check the display message on the LCD. The message sequence should go as follows:

- Screen 1
    - Line 1: PEDOMETER
    - Line 2: Version 1.0

<Insert LCD display SS>

- Screen 2
    - Line 1: PEDOMETER
    - Line 2: Counting Steps…

<Insert LCD display SS>

- Screen 3
    - Line 1: STEPS: <Step Count>
    - Line 2: Counting Steps…

<Insert LCD display SS>

If all these 3 screens are accurately displayed without any garbage value, it would pass this test case.

4. Pedometer Test

The device should be tilted on either side (i.e. left or right) and should be swayed slowly to emulate a step taken. On each sway the LCD and the terminal should display the corresponding number of steps.

Figure 4 Pedometer terminal display test

Check if the accurate number of steps are detected by the pedometer device.

<Insert board SS>

<Insert LCD display SS>

5. Pedometer Reset Test – TSI Sensor

After capturing some step counts on the device **touch the TSI sensor** to reset the device.

Test if it resets the pedometer algorithm and the step count.

- The terminal should display "Pedometer Reseted by TSI Touch" and the step count should be printed as "STEPS: 0" on the very next print.

Figure 5 TSI reset test

- The LCD should print 2 screens:
  - Screen 1
    - Line 1: STEPS: 0
    - Line 2: RESET

    <Insert the LCD SS>

  - Screen 2 (After Reset)
    - Line 1: STEPS: <Step Count>
    - Line 2: Counting Steps...

    <Insert the LCD SS>

6. Pedometer Reset Test – External Button

After capturing some step counts on the device **press the push button** to reset the device.

Test if it resets the pedometer algorithm and the step count.

- The terminal should display "Pedometer Reseted by Push Button" and the step count should be printed as "STEPS: 0" on the very next print.

<Insert the terminal SS for reset>

- The LCD should print 2 screens:
  - Screen 1
    - Line 1: STEPS: 0
    - Line 2: RESET
      <Insert the LCD SS>
  - Screen 2 (After Reset)
    - Line 1: STEPS: <Step Count>
    - Line 2: Counting Steps...

    <Insert the LCD SS>