PhysBell Calibration Manual

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PhysBell is an extremely convenient and easy-to-use PhyInstrument manufactured by Qosain Scientific, that detects sound pulses and displays them on the PhysLogger Desktop App. This manual is intended to serve as a quick guide to efficiently calibrate this instrument.

Procedure to calibrate PhysBell

To calibrate a PhysBell, perform the following steps:

1. Connect PhysBell to one of the analog channels of a PhysLogger that is further attached to the PC. The red LED of PhysBell should turn on. (PhysLogger is just used to supply power to PhysBell; no need for software launch yet).
   Note: Ensure that the Rigol Multimeter is set to the DC voltage mode.
2. Position the probes of the Rigol DM3068 Digital Multimeter at the pins specified in Figure 1. The voltage reading at these points should be equal to 1.35 V. If there is any difference, it needs to be adjusted, as described below.
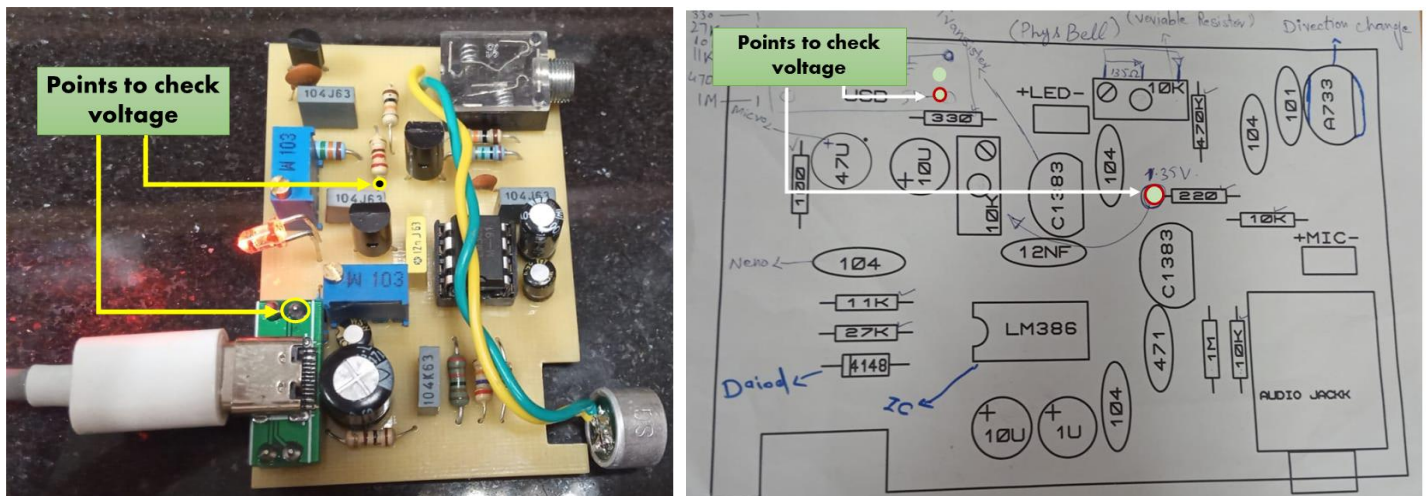

Figure 1: Points on PhysBell where the DMM probes are positioned when checking voltage, as labeled (a) on the frontside of the PCB and (b) on the schematic of the PCB of PhysBell.

3. To tune the voltage value at these points (Figure 1), adjust the resistance of the variable resistor located on the PCB of PhysBell (see Figure 2). Keep adjusting the variable resistance until the voltage value on the Multimeter (measured at the points labeled in Figure 1) is in the range of 1.35 ± 0.1 V.
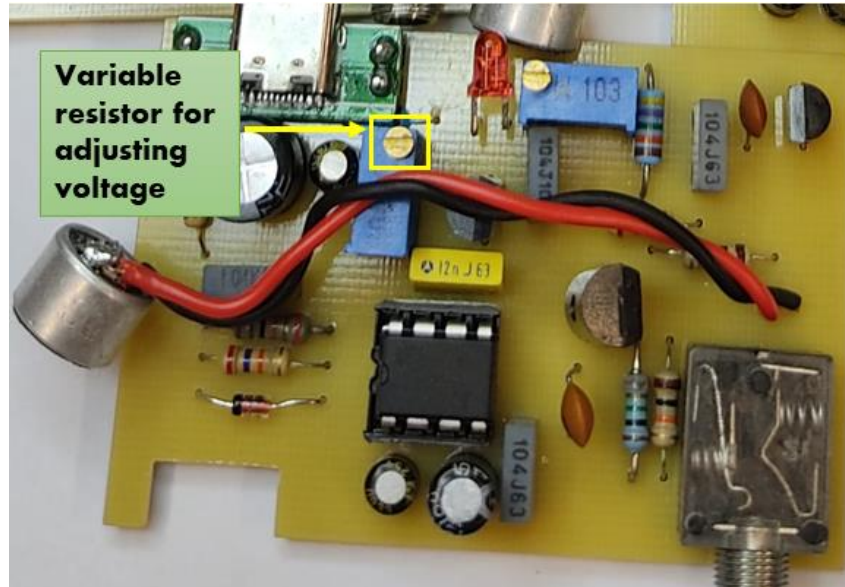
Figure 2: The variable resistor that is rotated to adjust the voltage between the specified points mentioned in Step 2.

4. To increase the voltage value, rotate the screwdriver in an anticlockwise direction and vice versa.
5. Unplug PhysBell from PhysLogger. Using the Rigol Multimeter again, check the resistance value at the pins indicated in Figure 3. These are located at the back of the PCB of PhysBell. This value should be 135 Ω. If there is any difference, it needs to be adjusted, as described below.
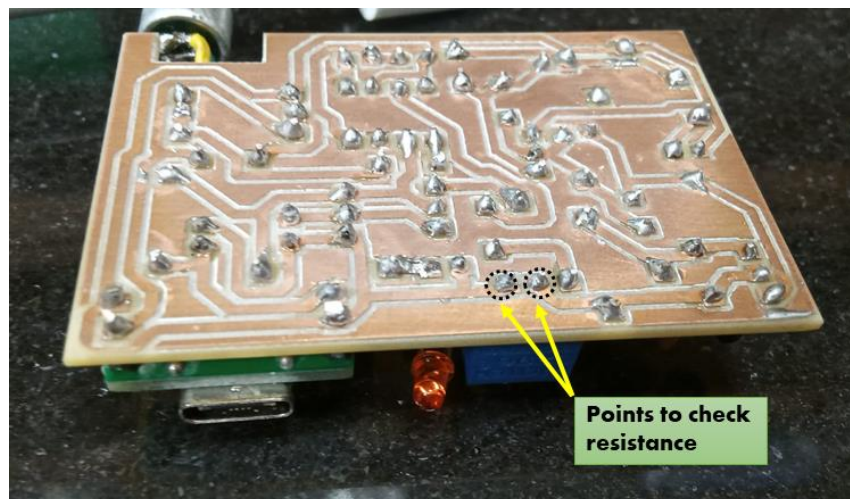

Figure 3: Points to position DMM Probes at the backside of PCB for checking resistance for calibration.

6. For adjusting the resistance value, rotate the variable resistor shown in Figure 4 using a screwdriver. Keep adjusting the variable resistance until the resistance value on the Multimeter is in the range of 135 ± 0.1 Ω.
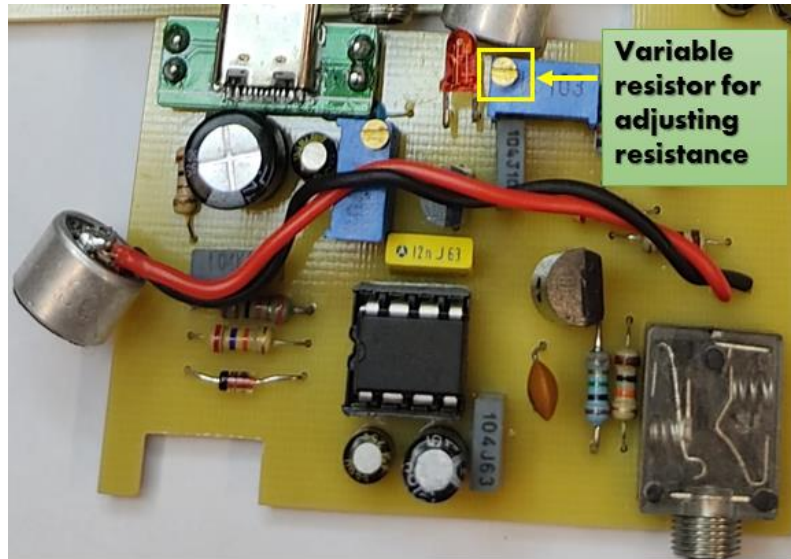
Figure 4: The variable resistor used to adjust the resistance at the points mentioned in Step 5.