(1) LED resistors

Note the two locations marked “RLED1” and “RLED2”. Place 330-ohm resistors in those locations. Orientation does not matter. The 330-ohm resistors are marked with bands in this order: Orange-Orange-Brown-Gold. If you have issues recognizing these color bands, then you can use an ohmmeter to check. Trim the leads, then solder.

(2) 10k resistors

Insert two 10Kohm resistors in the spots marked “10k”. Orientation does not matter. These resistors have color bands Brown-Black-Orange-Gold. Again, check with an ohmmeter if you’re unsure. Trim the leads, then solder.

(3) 4.7 kohm resistor

Insert a 4.7kohm resistor in the position marked “Rosc”. This resistor has color bands Yellow-Purple-Red-Gold. Orientation does not matter. Again, check with an ohmmeter if you’re unsure. Trim the leads, then solder.

(4) 22pf capacitor

Insert a 22pf capacitor in the position marked “Cosc”. This small 2-pin radial part with the numbers “22J” printed on one side. Orientation does not matter. Trim the leads, then solder.

(5) 0.1uf capacitor

Insert a 0.1uf capacitor in the position marked “0.1uf” on the left side of the PC board. This is a small yellow 2-pin radial component with “104” marked on one side. Orientation does not matter. Insert it into the board, trim the leads, then solder.
(6) Diode

The diode is a small 2-pin axial part with a band on one end. **Orientation is important.** The arrow on the board points to the banded end (so the band is on the right sided on the PC board). Insert, trim the leads, then solder.

(7) PIC microcontroller.

**Orientation is important.** Note the indent on one side of the chip, which should go on the left of the board. You may need to press the side of the chip against the desk and gently bend the pins inwards. Once installed on the board, trim the pins and then solder them. Note, if the chip starts feeling hot to the touch while soldering, let it rest/cool after soldering every few pins.

(8) Switch

Insert the small 4-pin tactile switch to the right of the microcontroller. Note that the pins will be on the left and right side when installed. Trim the leads and solder.

(9) LEDs

The LEDs are polarized, meaning that **orientation matters.** The shorter lead is the negative/cathode and goes towards the outer edge of the PC board. Also, the negative side has a small flat edge on the body. Insert 6 LEDs in the PC board at the locations shown, orienting color as shown. Trim the leads and solder.

(10) Battery holders

These are actually surface-mount components, but are large, so easy to solder. The holders have open sides which should be placed towards the center of the board. Solder a blob of solder on one PCB pad for each battery holder. Place a battery holder in position over the solder blob, heat the blob with the soldering iron, and let the holder sink into the solder blob. During this, make sure it’s aligned so the other pad is correctly positioned. Don’t worry if the blob is not pretty. Solder the other pad on each holder. Finally, you can quickly go back over the first pad on each holder. Insert the batteries with the positive side up.