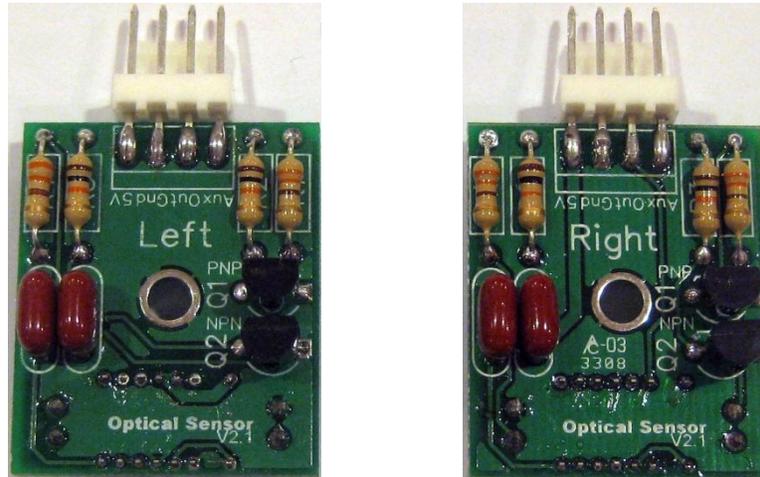


# Sensor Board

There are two sensor boards. They are identical except that the positions of the red and green LEDs are interchanged. One is marked "LEFT" and the other "RIGHT".

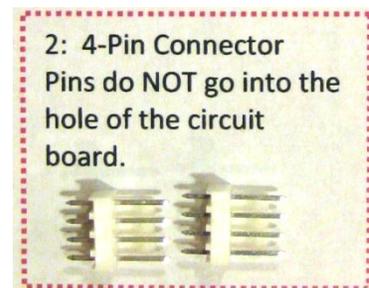


## Front Side of Sensor Boards

The sensor board has components mounted on both sides. **Make sure you place components on the correct side.** Use the photos to verify parts placement. The above photos show the side that will be populated first.

Open the bag of parts for the Sensor board and sort them onto the Parts Map. Do this before you solder any components to minimize the chance of misreading a component's id and soldering it into the wrong location. Solder the components in the order shown on the parts map. The order is basically that the lowest profile items are soldered first. The dashed outlines on the parts map indicate components that must be oriented a specific way.

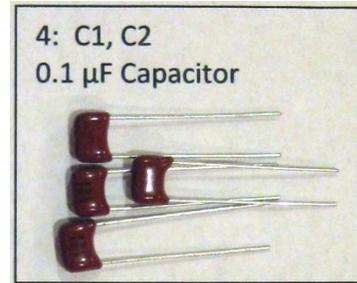
1. Start by soldering the connector. The Connector **DOES NOT** go into the holes on the circuit board. The leads are placed over the solder area. Melt a drop of solder on one of the pads. Position the connector and heat the lead over the drop of solder to attach the connector. When alignment is correct, solder the remaining leads. Watch the video on how to solder this component.
2. The resistors R1 and R4 are placed next. The orientation of resistors does not matter.



3. The resistors R2 and R3 are placed next.



4. The capacitors C1 and C2 are placed next. The orientation of these capacitors does not matter.



5. Transistor Q1 is next. Make sure it is the MPSA-A65. Position it according to the silk screen outline on the printed circuit board.

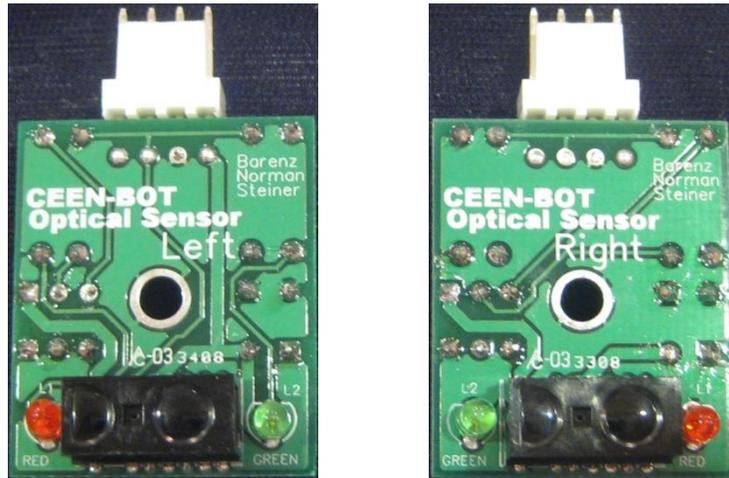


6. Transistor Q2 is next. Make sure it is the C5019. Position it according to the silk screen outline on the printed circuit board.

7.

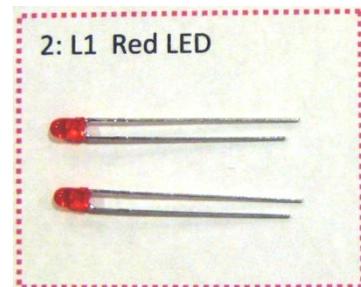


## Back side of Sensor Board



### The remaining components are placed on the back side of the circuit board

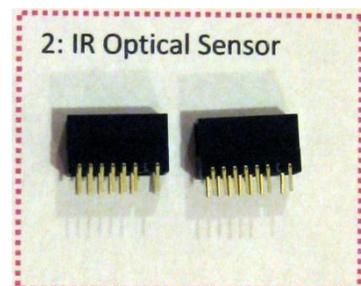
8. Solder the L1 Red LEDs on both boards. **Note that the LED is located in different positions on each board.** The longer lead is the anode (positive) and the shorter is the cathode (negative). The short lead of the LED is placed in the hole adjacent to the flat side of the silk screen symbol.



9. Solder the L2 Green LEDs on both boards. **Note that the LED is located in different positions on each board.** The longer lead is the anode (positive) and the shorter is the cathode (negative). The short lead of the LED is placed in the hole adjacent to the flat side of the silk screen symbol.



10. The Optical Sensor is the final component. Its leads will allow it to be placed in only the correct orientation.



11. Place the screw with two fiber washers through the center hole and screw on the nylon locking nut just tight enough so that it does not come apart. This will prevent the components from being lost prior to attaching them to the CEENBoT