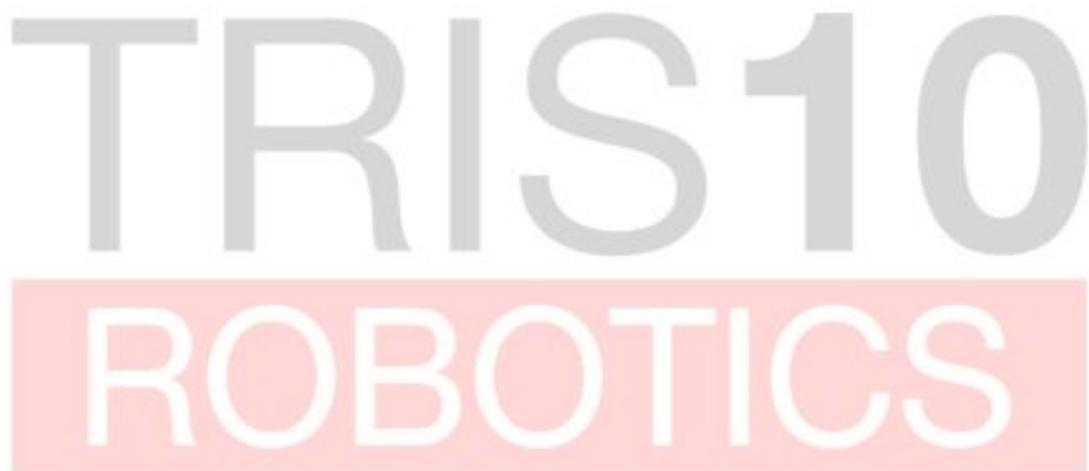


TRIS10 KickBall Controller: ROBOTICS Assembly Guide

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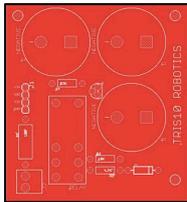
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1.0 Required Equipment

- Soldering Iron
- Solder
- Paper Masking Tape (not plastic)

2.0 Components



PCB PCB (image shows the top side)



R1 100Ω Resistor (5% tolerance, 2W) (large)



R2 10kΩ Resistor (1% tolerance)



R3 4.7kΩ Resistor (1% tolerance)



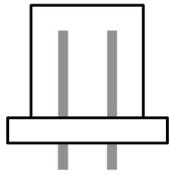
R4 82kΩ Resistor (1% tolerance)



C1, C2, C3 10000μF Aluminium Capacitor
Warning: Polarised



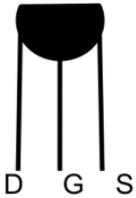
J1 4 pin, 2.54mm (0.1") pitch header



J2, 2 pin, 3.96mm pitch JST-VH male connector



D1 1N4001 Diode
Warning: Polarised



Q1 2N7000 MOSFET

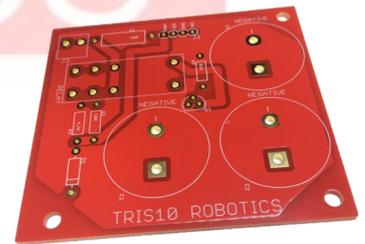


RELAY 2PDT Switching Relay

3.0 Instructions

The KickBall Controller is relatively simple to solder, with the most difficult components being the three capacitors. To make it as easy as possible, solder parts in groups, beginning with the shortest and finishing with the tallest (the capacitors).

1. Start with the bare PCB with the top side (the side with the part outlines) facing up, as shown to the right.
2. Form the leads of the four resistors and the diode by bending them until they are at right angles with the body of the component. Place the resistors in their respective boxes labelled "R1", "R2", "R3" and "R4". Place the diode in the box labelled "D1" but **check the polarity of the diode. The stripe on the diode must be above the stripe on the PCB.**
3. Place the MOSFET in the box labelled "Q1". The shape of the transistor should match the outline on the PCB, with the middle pin angled out in front.
4. Use masking tape to hold the six components in but only place it on the topside of the PCB.
5. Flip the board over and solder the six components in. After flipping the board back over (to the topside), it should now look like the board on the right.
6. With the top of the board facing up, remove the masking tape and place the four-pin header into the J1 header bay. The short side of the pins should be in the board. Use



masking tape to hold the header in the place and make sure it is in fully and straight.

7. Place the two-pin JST connector into the J2 header bay with the plastic side facing out. Use masking tape to hold the connector in place and keep it aligned.
8. Place the relay into the box labelled "RELAY".
9. Flip the board over and solder one pin of the six-pin header and one-pin of the JST connector. Check that both connectors are still in correctly and straight, and then solder the remaining pins on the connectors and relay. The board should now look like the picture on the right.
10. Remove the masking tape and place the three capacitors on the PCB in the circles labelled "C1", "C2" and "C3". **Very carefully check that the negative side (indicated by vertical dashes) of the capacitor matches the negative side on the PCB indicated by the "-" and "NEGATIVE".**
11. Flip the board over and solder all six pins of the capacitor. Each pin may require a long time to heat up and a lot of solder to make a good connection.
12. The KickBall Controller is now fully assembled and should look similar to the photo on the right. **Verify the polarities of the diodes and capacitors** and if you had problems, just use solder wick to remove the solder and try again.



Total Solder Joints: 33

ROBOTICS