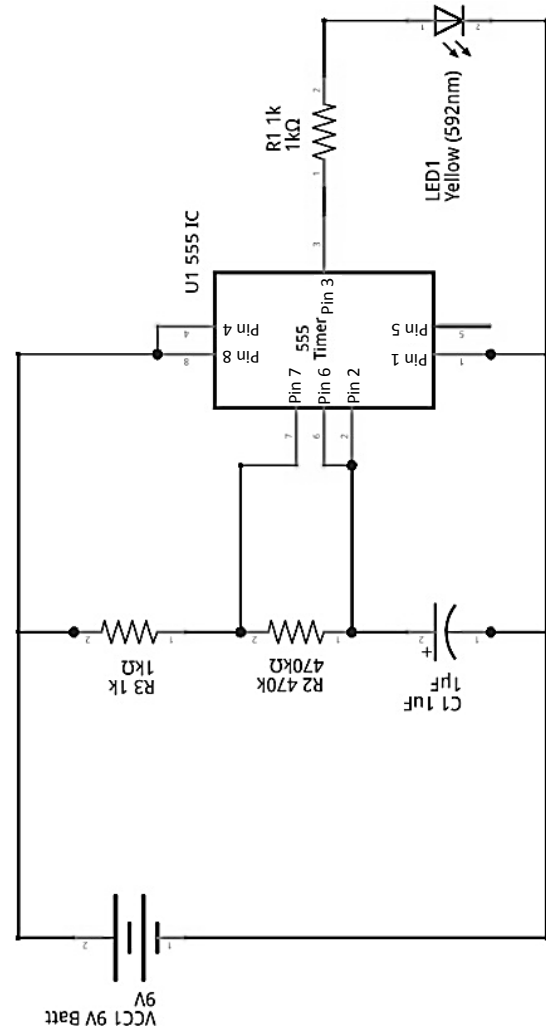# Soldering Challenge

The Soldering Challenge is an individual timed event. Contestants will need to solder together a working Blinking LED 555 Timer IC circuit from a schematic and parts provided while being timed. The fastest three times will win prizes.

<u>RULES</u> - These rules must be followed to avoid disqualification

1. Each contestant may only attempt the soldering challenge one time. Once all the available contest kits are taken the contest will be closed to new contestants.
2. No coaching or other assistance may be given. However, mocking, trash talking, and other distractions are welcome (within reason).
3. Each contestant will be given a schematic of the circuit they must build. Layout of the circuit with physical components is up to the contestant. But the end product must electrically match the schematic without major deviations (e.g. using different pins on the IC; swapping resistor values; etc.)
4. The contest kit contains the following items that are required to use:
    - 1x Prototype PCB Solderable Copper Circuit Board
    - 1x Texas Instruments NE555P Timer IC
    - 2x 1k ohm resistor
    - 1x 470k ohm resistor
    - 1x 1uF capacitor
    - 1x 5mm LED
    - 1x 9v Battery Clip with red and black wire leads
    - 1x 9v Battery
5. The contest kit contains the following items that are optional to use:
    - 1x NE555 Socket
    - 6x 2 inch lengths of 22 awg wire
    - 1x 1 inch strip of velcro (for battery attachment to PCB)
6. All of the required components (except the battery) must have all leads make contact with and be soldered to the Prototype PCB.
7. The optional components if used must have all leads make contact with and be soldered to the Prototype PCB.
8. No other adhesives or connection methods for components other than solder to the PCB may be used. The one exception to this is the optional velcro strip which may only be used on the 9v battery.
9. Since this contest is about speed and not longevity we will not be judging the quality of the solder joints. However they must be solidly attached to the PCB to where a light tug on a component will not dislodge or break the solder joint.
10. No other components beyond the required and optional components provided may be used.
11. The contestant must work at the designated soldering area in the HHV under the supervision of a judge with a stop watch. Attempts to avoid judge oversight will result in disqualification.
12. The contestant will be provided with tools that include at minimum a soldering iron, helping hands, and wire cutters. They are free to use their own tools at their assigned station (within reason, subject to judge review... no pick and place machines allowed!)
13. The contestant will be provided their contest kit at their assigned work station and will be allowed up to 5 minutes for component and schematic review prior to starting. However, components must not be preassembled to the PCB or modified in any way during this time. No trimming wires or connecting up components etc.
14. The contestant will notify the judge when they are ready to start within 5 minutes of receiving the kit at which point the judge will start timing.
15. When the contestant has a working circuit with battery attached and blinking LED (following all the rules above) they will notify the judge to stop the timer and record their time. Contestants will be able to keep their work after review by the judge.
16. Contestants will need to provide their name or handle for recording of their time which will be ranked and publicly visible in the HHV. The winners will be announced at the contest awards ceremony.
17. Contestants must be present at the awards ceremony to take possession of any prize they may have won or it will be awarded to the next best recorded time holder who is available (unless arraignments have been made with the HHV prior to the ceremony).
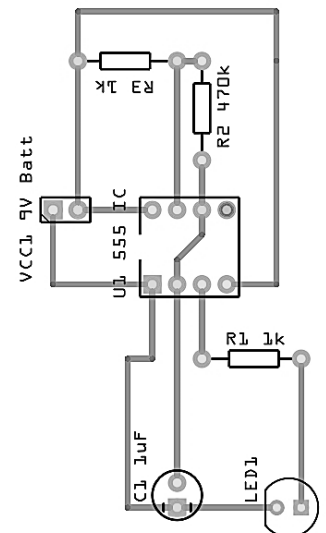
Soldering Challenge PRIZES
Over $300 in Prizes to be distributed to the top three finishing times

The 1st Place Winner will get a Trophy and choice of one of prize kits below
The 2nd Place Winner will get choice of one of remaining prize kits below
The 3rd Place Winner will get the remaining prize kit below

1st Place Trophy

Prize Kit A - Development Prize Kit – Total Value $100+
- Book - Make: Electronics ($21 value)
- Resistor Kit Assortment ($11 value)
- LED Kit Assortment ($10 value)
- Soldering Iron Kit w/ 60W Adjustable Iron ($19 value)
- Raspberry Pi Zero W Starter Kit w/ Power Supply & Case ($27 value)
- Arduino UNO Starter Kit w/UNO R3 ($17 value)

Prize Kit B - Hardware Hacking Prize Kit – Total Value $100+
- Book - Hacking Electronics ($24 value)
- SparkFun Bus Pirate - v3.6a with cable ($35 value)
- USB to TTL Serial Cable ($10 value)
- Test Hook Clip Kit ($11 value)
- Embedded Pi - Combined Pi and Arduino board ($15 value)
- USB Powered 8W Soldering Iron ($10 value)
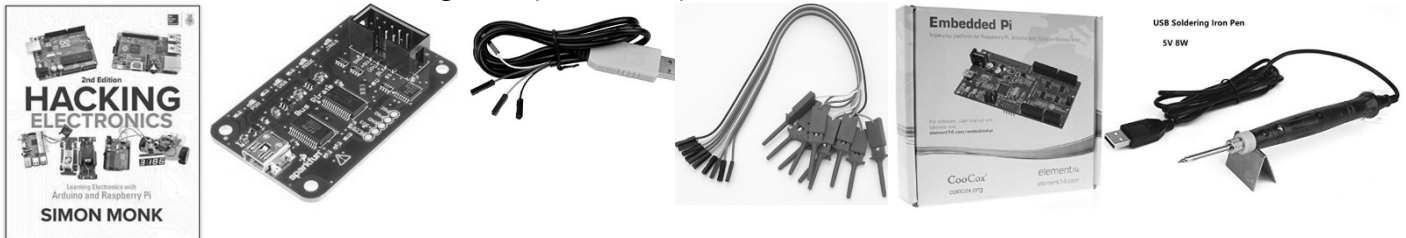
Prize Kit C - OScope & RFID Prize Kit – Total Value $100+
- Book - Electronic Projects for Oscilloscopes ($20 value)
- Oscilloscope DIY Kit Handheld w/ Case & 2.4" TFT ($27 value)
- Signal Generator DIY Kit ($15 value)
- Soldering Iron Kit w/ 60W Adjustable Iron ($17 value)
- RFID Starter Kit w/UNO R3 ($25 value)