

# Drop Counter

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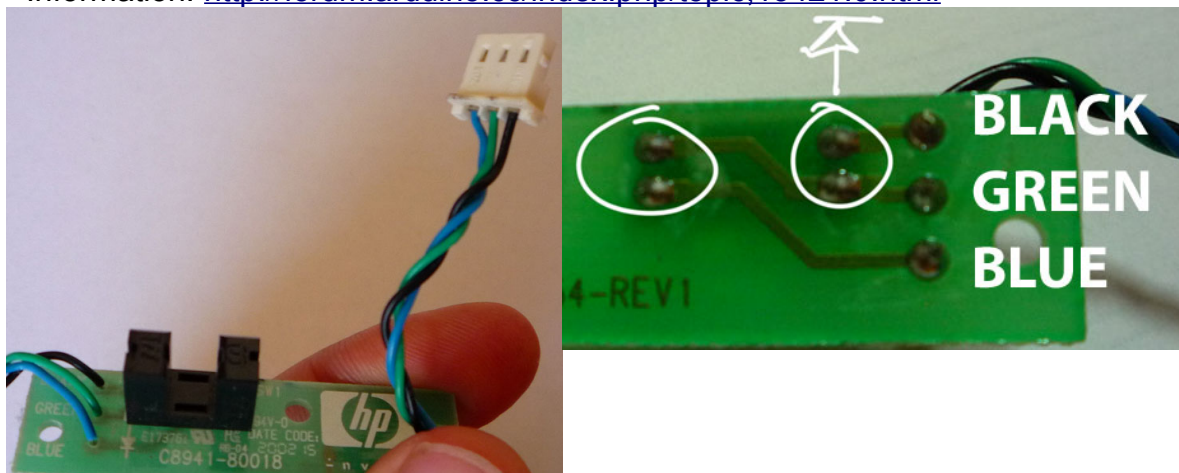
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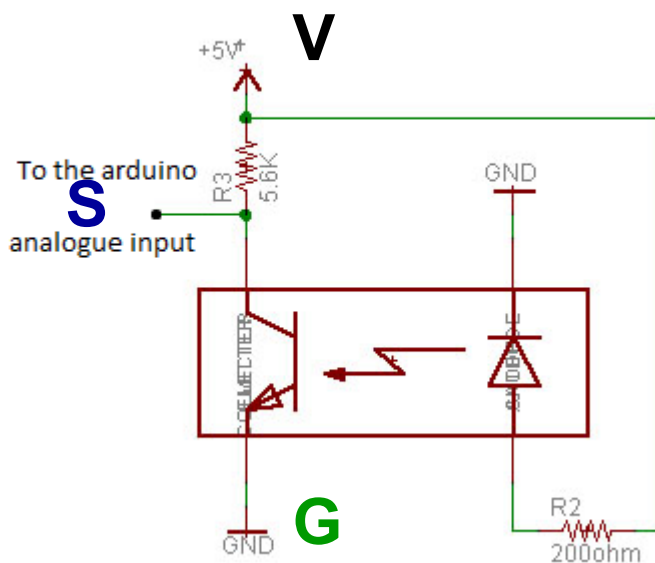
## HARDWARE

- A HP C8941-80018 was used to detect drops. It was recycled from an old HP Printer. Examples will be based on that, but other "sheet detectors" should work.

- Information: <http://forum.arduino.cc/index.php/topic,13421.0.html>



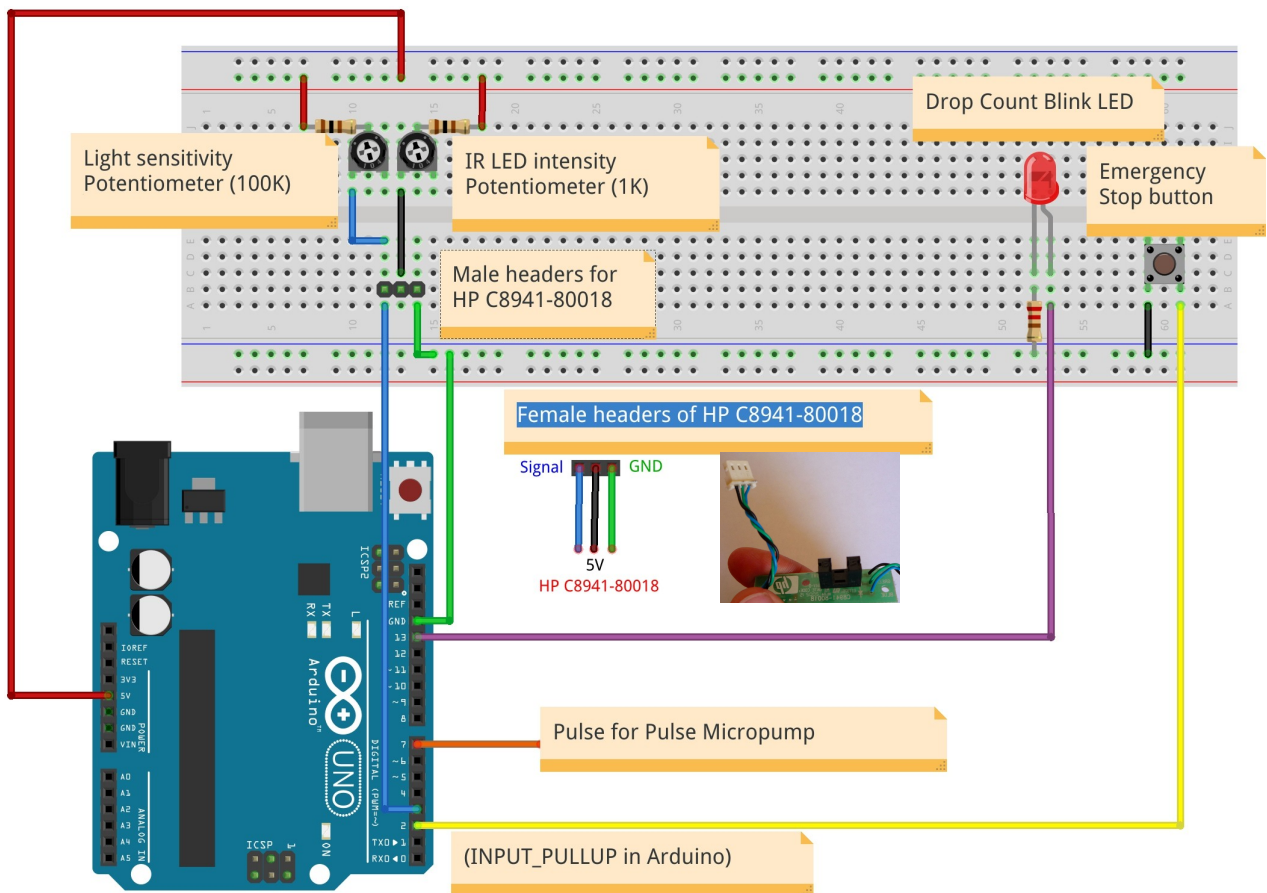
**BLACK:** IR LED, **GREEN:** GND, **BLUE:** IR Photo Transistor ([Signal](#))



- R3 (5,6K) was changed by a 100K trimmer potentiometer in series with a 100 ohm resistor. This allows adjustment of sensitivity to light. R2 (200 ohm) was replaced by a 1K trimmer potentiometer in series with a 100 ohm resistor. This allows adjustment of the

intensity of the IR LED. Varying those potentiometers together is useful to detect drops from different liquids.

- Drop counting is performed through Digital Interruption (so “analogue input” should be replaced by “digital interrupt”)



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## NOTES

- Pin 7: this is the Pulse for a Pulse Micropump
- The Drop Counter can be used without any Pulse Pump. It can indicate passing drops from flows that are not controlled through pulses. In the GUI, send EDR to Enable Drop Reading and DDR to Disable Drop Reading.

## CODE

Arduino Code: DropCounterPulsePump.ino

Python 2.7 Code (GUI): DropCounterPulsePump.py

Dependencies:

+ pyserial==3.0.1

+ wxPython==3.0.2.0

GNU/Linux: python-wxgtk3.0

Windows 32 bits: <http://downloads.sourceforge.net/wxpython/wxPython3.0-win32-3.0.2.0-py27.exe>

For 64 bits Windows, 32 bits installer should work. On the other hand, 64 bits installer may not work properly.

64 bits: <http://downloads.sourceforge.net/wxpython/wxPython3.0-win64-3.0.2.0-py27.exe>

Commands that can be sent from the GUI:

SNPXX:SetNumberPulsesXX:(example)SNP33

SPTOOXX:SetPulseTimeOnOffXX:(example)SPTOO100

SPTOOXX sets pulse time in ms

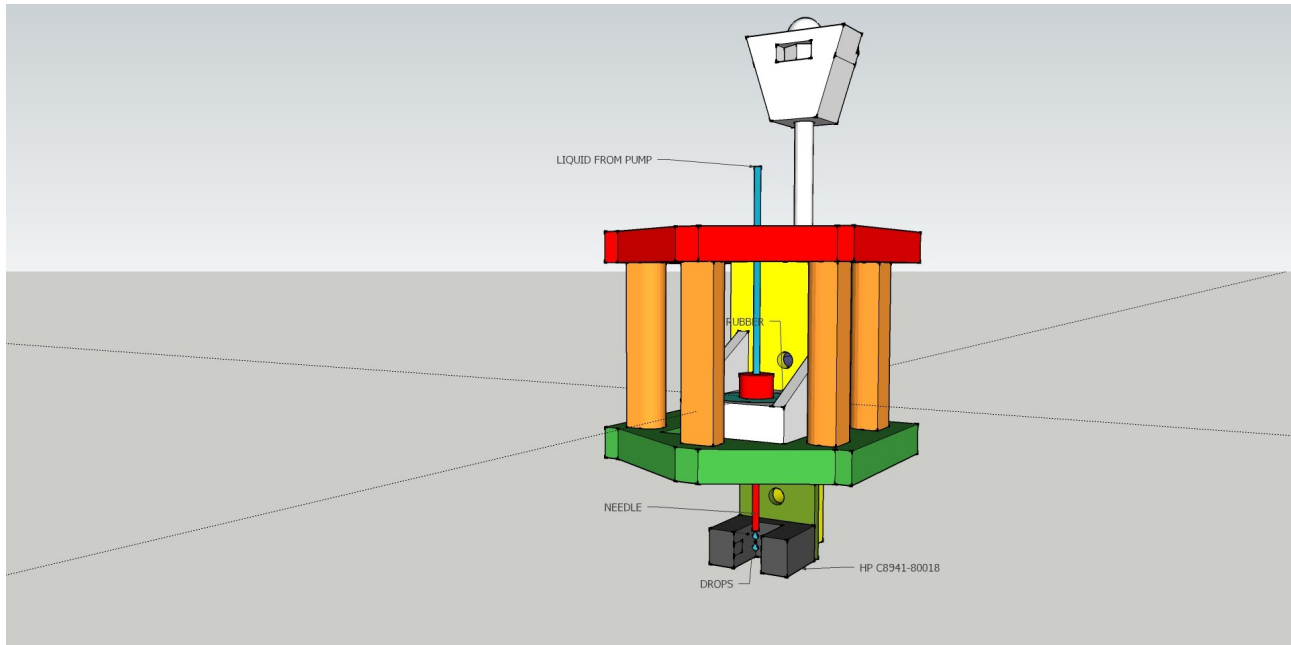
EDR:EnableDropReading:EDR

DDR:DisableDropReading:DDR

DnDXX:DispenseNDropsXX:(example)DnD3

LPH:LastPulseHigh:LPH

LPL:LastPulseLow:LPL



See DropCounter.skp