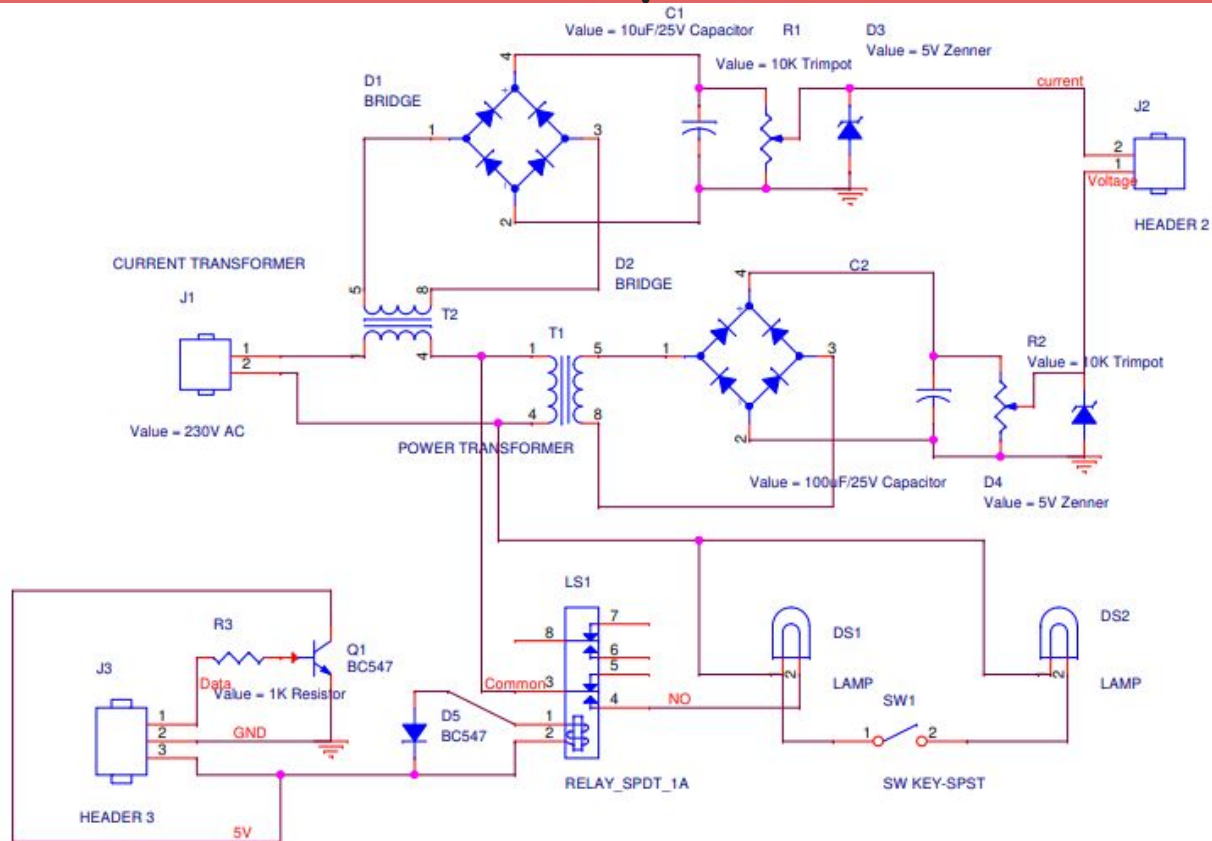# Circuit Design…

Calculations...

Voltmeter measured voltage across diode = 2.26
Voltmeter measured Voltage on line = 238

ADC: 5V = 1023
$\quad$ 1V = 1023/5
$\quad$ 1V=204
$\quad$ Calc.ADC Voltage = 2.26*204
$\quad$ Calc. ADC Voltage = 462

Scaling:
$\quad$ ACVoltage = Calc.Voltage/X;
$\quad$ X=calc.adcvoltage/Acvoltage
$\quad$ X=462/238=1.94

Ammeter measured voltage across diode = 0.23
Ammeter measured Voltage on line = 0.23

ADC: 5V = 1023
$\quad$ 1V = 1023/5
$\quad$ 1V=204
$\quad$ Calc.ADCVoltage = 0.23*204
$\quad$ Calc.ADCVoltage= 46

Scaling:
$\quad$ ACVoltage = Calc.ADCVoltage/X;
$\quad$ X=Calc.ADCVoltage/Acvoltage
$\quad$ X=46/0.23=200

Calculation...

$$\frac{Resolution\ of\ the\ ADC}{System\ Voltage} = \frac{ADC\ Reading}{Analog\ Voltage\ Measured}$$

$$\frac{1023}{5} = \frac{ADC\ Reading}{Analog\ Voltage\ Measured}$$

$$\frac{1023}{5.00V} = \frac{x}{2.12V}$$

$$\frac{1023}{5.00V} * 2.12V = x$$