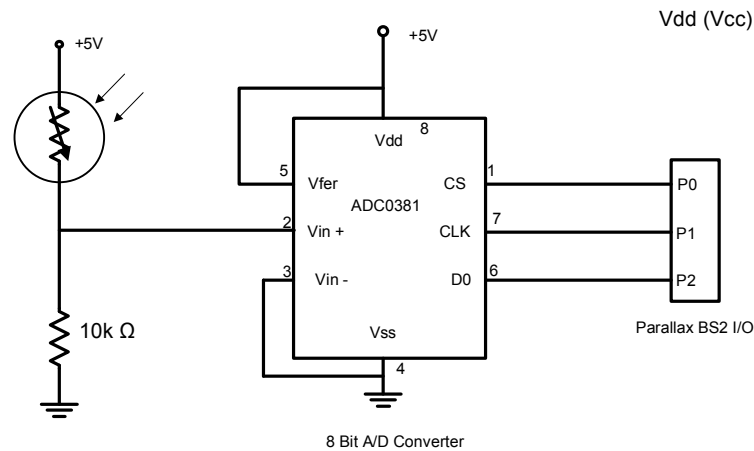


```

' -----[ Title ]-----
' Basic Analog and Digital -
' PL7_1r1.BS2
' {$STAMP BS2}
' {$PBASIC 2.5}
' -----[ Declarations ]-----
adcBits VAR Byte
v VAR Byte
r VAR Byte
v2 VAR Byte
v3 VAR Byte
n VAR Word
' -----[ Initialization ]-----
CS PIN 0
CLK PIN 1
DataOutput PIN 2
DEBUG CLS 'Start display.
' -----[ Main Routine ]-----
DO
FOR n = 82 TO 199 STEP 9
GOSUB DAC
GOSUB ADC_Data
GOSUB Calc_Volts
GOSUB Display
PAUSE 4000
NEXT
LOOP
' -----[ Subroutines ]-----
DAC:
PWM 8, n, 40
RETURN
ADC_Data:
HIGH CS
LOW CS
LOW CLK
PULSOUT CLK, 210
SHIFTIN DataOutput,CLK,MSBPOST,[adcBits\8]
RETURN
Calc_Volts:
v = 5 * adcBits / 255
r = 5 * adcBits // 255
v2 = 100 * r / 255
v3 = 100 * r // 255
v3 = 10 * v3 / 255
IF (v3 >= 5) THEN v2 = v2 + 1
IF (v2 >= 100) THEN
v = v + 1
v2 = 0
ENDIF
RETURN
Display:
DEBUG HOME, "Decimal value to DAC: ", DEC3 n
DEBUG CR, CR, "DVM Reading: ", DEC1 v
DEBUG ".", DEC2 v2, "-Volts", CR, CR
RETURN

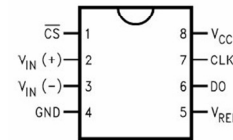
```



Vdd (Vcc) = 5V

Quantity	Part
1	ADC0831 A to D converter -one channel
1	BS2 Microprocessor system
1	CdS Photo Cell
1	10k ohm resistor

ADC0831 Single Differential Input Dual-In-Line Package (N)



Top View

REVISIONS		

The CdS Photo cell and resistor works as a voltage divider. It delivers 0 to 5 volts (Vcc) to Vin+ on the ADC. This results in binary values (0 to 255) sent from DO that represents the Vin+ value. The BS2 converts the binary to decimal and scales it to in input voltage.

Program name: Light Meter with ADC.bs2

Calibration of the CdS Cell and conversion for the desired light units are needed to complete this as a functional light meter.

TITLE		
Light meter using an ADC For the Parallax BS2		
DATE 3-18-2010	SCALE none	Parallax BS2 program provided.
DRAWN BY Paul Ashley	PAGES 1 of 1	www.robo-works.net