

## Errata for *What's a Microcontroller? v2.2* (#28123)

Page 151: Paragraph 1 should read:

The example program in Activity #2 measured the RC decay time by checking whether `IN7 = 0` every 100 ms, and it kept track of how many times it had to check. When `IN7` changed from 1 to 0, it indicated that the capacitor's voltage decayed below 1.4 V. The result when the program was done polling was that `IN7` equaled the number of tenths of a second it took for the capacitor's voltage to decay below 1.4 V.

This next example program uses a PBASIC command called `RCTIME` that makes the BASIC Stamp measure RC decay in terms of 2  $\mu$ s units. So, instead of tenths of a second, the result `RCTIME 7, 1, time` stores in the `time` variable is the number of two-millionths of a second that it takes for the capacitor's voltage to decay below 1.4 V. Since the `RCTIME` command has such fine measurement units, you can reduce the capacitor size from 3300  $\mu$ F to 0.1 or even 0.01  $\mu$ F, and still get time measurements that indicate to the resistor's value. Since the resistance between the potentiometer's A and W terminals changes as you turn the knob, the `RCTIME` measurement will give you a time measurement, which is a number that indicates the position of the potentiometer's knob.

Page 217: For Solution 2, also add:

Index = 5

...to the Initialization section of your program.

Page 277: The program below was printed with several lines omitted. The complete correct listing is included below, with the added lines in **bold**.

```

' -----[ Title ]-----
' What's a Microcontroller - Ch9Prj01_PhotoControlledDigitalPot.bs2
' Corrected version of program on page 277 of v2.2 text.
' Update digital pot's tap based on photoresistor reading.
' Based on TerminalControlledDigitalPot.bs2

' {$STAMP BS2}
' {$PBASIC 2.5}
DEBUG "Program Running!"

' -----[ Declarations and Initialization ]-----
PhotoPin      CON      2           ' Photoresistor on pin P2
UdPin         CON      5           ' Set values of I/O pins
ClkPin        CON      6           ' connected to CLK and U/D.
DelayPulses   CON      10          ' Delay to observe LED fade.
DelayReader   CON      2000

counter       VAR      Byte        ' Counter for FOR...NEXT.
oldTapSetting VAR      Byte        ' Previous tap setting.
    
```

```

newTapSetting  VAR      Byte      ' New tap setting.
lightReading   VAR      Word      ' reading from photoresistor

oldTapSetting = 0              ' Initialize new and old
newTapSetting = 0              ' tap settings to zero.

LOW UdPin                    ' Set U/D pin for Down.
FOR counter = 0 TO 128        ' Set tap to lowest position.
  PULSOUT 6,5
  PAUSE 1
NEXT

' -----[ Main Routine ]-----
DO:
  GOSUB Read_Photoresistor
  lightReading = lightReading MAX 127      ' Constrain to max of 127
  newTapSetting = lightReading
  GOSUB Set_Ud_Pin                    ' Set U/D pin for up/down.
  IF newTapSetting <> oldTapSetting THEN  ' No change if light level steady
    GOSUB Pulse_Clk_pin                ' Deliver pulses.
  ENDIF
LOOP

' -----[ Subroutines ]-----

Set_Ud_Pin:                    ' Examine new and old tap values
                                ' to decide value of U/D pin.

  IF newTapSetting > oldTapSetting THEN
    HIGH UdPin
    oldTapSetting = oldTapSetting + 1
  ELSEIF newTapSetting < oldTapSetting THEN
    LOW UdPin
    oldTapSetting = oldTapSetting - 1
  ENDIF
  RETURN

Pulse_Clk_pin:                  ' Deliver pulses from old to
                                ' new values.
  FOR counter = oldTapSetting TO newTapSetting
    PULSOUT ClkPin, 1
    PAUSE DelayPulses
  NEXT
  oldTapSetting = newTapSetting    ' Keep track of new and old
  RETURN                            ' tapSetting values.

Read_Photoresistor:
  HIGH PhotoPin
  PAUSE 100
  RCTIME PhotoPin, 1, lightReading
  RETURN

```