

'-----Title-----'

' File.....serin2\_led\_on\_off.pbp  
 ' Started....12/17/08  
 ' Microcontroller used: Microchip Technology PIC16F88  
 ' microchip.com  
 ' PicBasic Pro Code: micro-Engineering Labs, Inc.  
 ' melabs.com

'-----Program Description-----'

' PC controls PIC16F88 to turn on and off an LED.  
 ' Program uses SERIN2 command to receive command from  
 ' the PC and SEROUT2 command to send LED status back  
 ' to the PC terminal program.

'----Terminal Program Options-----'

' HyperTerminal - 9600 baud 8N1, Flow control = None  
 '  
 ' To download TeraTerm Pro 3.1.3, see:  
 ' <http://www.ayera.com/teraterm/download.cfm>  
 ' and download TeraTerm Pro Web 3.1.3.

'-----New PicBasic Pro Command-----'

' SERIN2  
 ' SERIN2 DataPin{\FlowPin},Mode,{ParityLabel},  
 ' {Timeout,Label,}[Item...]  
 '  
 ' The PicBasic Pro Compiler Manual is on line at:  
 ' <http://www.melabs.com/support/index.htm> then under the  
 ' Compiler Documentation: click on PICBASIC PRO Compiler  
 ' Manual and then look at about page 134 in the manual.

'-----Connections-----'

16F88 Pin	Function	Name Given In Program	Wiring
RB0		LED1	LED1
RB1		LED2	LED2
RB2	Receiver Pin	PICSI	MAX232 Pin 9
RB5	Transmit Pin	PICSO	MAX232 Pin 10

' See the schematic for the PIC power and MCLR connections

MAX232 Pin	Datasheet Designation	Function and Wiring
Pin 7	T2OUT	Receive Data to Male RS232 DB9 Pin 2
Pin 8	R2IN	Transmit Data from Male RS232 DB9 Pin 3

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' Pin 9      R2OUT      Receive Data to PIC RB2
' Pin 10     T2IN       Transmit Data from PIC RB5
'
' See schematic at: http://cornerstonerobotics.org/schematics/pic\_programming\_serin2\_led\_on\_off.pdf

'-----Revisions-----

' 9/21/10 Initiatize RB5 to HIGH

'-----Constants/Defines-----

DEFINE OSC          8      ' Defines oscillator setting at 8 MHz.
                          ' For SEROUT2, an oscillator speed faster
                          ' than 4MHZ may be required for reliable
                          ' operation at 9600 baud and above.

'-----Variables-----

MODE          VAR WORD      ' WORD for MODE value
Command       VAR BYTE     ' BYTE for Command value
LED1          VAR PORTB.0    ' Defines PORTB.0 name as LED1
LED2          VAR PORTB.1    ' Defines PORTB.1 name as LED2
PICS1         VAR PORTB.2    ' Defines PORTB.2 name as PICS1
PICS0         VAR PORTB.5    ' Defines PORTB.5 name as PICS0

'-----Initialization-----

ANSEL = 0          ' Changes analog bits to digital.

OSCCON = $70      ' Sets the internal oscillator in the
                  ' 16F88 OSCCON register to 8 MHz

PORTB = %00100000 ' Sets PIC transmit pin RB5 to HIGH

'-----Main Code-----

MODE = 84          ' Sets RX/TX speed to 84 (9600 baud)
                  ' MODE = 188 (4800 baud)
                  ' MODE = 396 (2400 baud)
                  ' See appendix in PicBasic Pro manual
                  ' for other MODE examples.

' Instructions sent to terminal program

SEROUT2 PICS0, MODE, ["Type in letter a, b, c, or d",10,13]
SEROUT2 PICS0, MODE, [" a turns on LED1",10,13]
SEROUT2 PICS0, MODE, [" b turns off LED1",10,13]
SEROUT2 PICS0, MODE, [" c turns on LED2",10,13]
SEROUT2 PICS0, MODE, [" d turns off LED2",10,13]

loop:

SERIN2 PICS1, MODE, [Command]
                          ' PIC receives Command input
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' ("a","b","c", or "d") typed in on
' PC keyboard.
' Format: SERIN2 Pin, Mode, [Item1]
' Pin = PICS1, Declared in variables
' Mode = 84 (9600 baud rate)
' [Item1] = [Command]

SELECT CASE Command

CASE "a"
HIGH LED1
SEROUT2 PICS0, MODE, ["LED1 ON",10,13]
' If "a" is entered, LED to RB0 goes HIGH
' HIGH 0 turns on LED to RB0
' Sends back "LED1 ON" to computer

CASE "b"
LOW LED1
SEROUT2 PICS0, MODE, ["LED1 OFF",10,13]
' If "b" is entered, LED to RB0 goes LOW
' LOW 0 turns off LED to RB0
' Sends back "LED1 OFF" to computer

CASE "c"
HIGH LED2
SEROUT2 PICS0, MODE, ["LED2 ON",10,13]
' If "c" is entered, LED to RB1 goes HIGH
' HIGH 1 turns on LED to RB1
' Sends back "LED2 ON" to computer

CASE "d"
LOW LED2
SEROUT2 PICS0, MODE, ["LED2 OFF",10,13]
' If "d" is entered, LED to RB1 goes LOW
' LOW 1 turns off LED to RB1
' Sends back "LED2 OFF" to computer

END SELECT

GOTO loop
END
' Do it forever
```