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'-----Title-----
' File.....hpwm1.pbp
' Started....1/17/08
' Microcontroller used:  Microchip Technology 16F88
'                          microchip.com
' PicBasic Pro Code:  micro-Engineering Labs, Inc.
'                          melabs.com

'-----Program Description-----
' Uses HPWM command to set the motor speed
' of a motor.  The HPWM command works in the
' background while two LEDs blink.

'-----Related Lesson-----
' hpwm1.pbp is used in the lesson MOTOR CONTROL WITH PWM at:
' http://www.cornerstonerobotics.
org/curriculum/lessons_year2/erii21_motor_control_pwm.pdf

'-----New PicBasic Pro Commands-----
' The PicBasic Pro Compiler Manual is on line at:
' http://www.microengineeringlabs.com/resources/index.htm#Manuals
'
' HPWM Channel,Dutycycle,Frequency
'
' Outputs a PWM signal using the PICs hardware which
' is available on some PICs including the PIC16F88.
' The default HPWM Channel 1 (CCP1) for the PIC16F88 is RB0.
' The CCP module's input/output pin (CCP1) can be
' configured as RB0 or RB3. To configure the CCP1 as RB3,
' compile the same program but before you physically program
' the 16F88 from meProg, click on the C (Configuration), then
' change the CCP Multiplexed With from RB0 to RB3.
' The Dutycycle ranges from 0 (0%) to 255 (100%).
' For the PIC16F88, the frequency ranges from 245Hz
' to 32,767 Hz.
' Look around page 75 in the PicBasic Pro Compiler Manual
' The frequency of 245 Hz seems to work best for the
' Jameco #155855 gearhead motor.

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

    c0 VAR  BYTE          ' BYTE to store counter variable

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

    TRISB = %00000000    ' Sets all pins of PORTB as outputs

    ANSEL = 0            ' Configure all pins to digital
                        ' operation since not using ADC
                        ' (Analog to Digital Converter)
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OSCCON = $60          ' Sets the internal oscillator in
                      ' the 16F88 to 4 MHz

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

HPWM 1,127,245        ' Format: HPWM Channel,Dutycycle,Frequency
                      ' Motor is driver by Channel 1, (RB0 by default)
                      ' on the PIC16F88. The Dutycycle is set at
                      ' 127, sending a 50% duty cycle pulse.
                      ' The frequency is set for 245 Hz.
                      ' This command will continue to run
                      ' in the background while the program is
                      ' executing the rest of the program
                      ' instructions.

start:                ' This part of the program makes the LEDs blink.

FOR c0 = 1 TO 5
HIGH 1
LOW 2
PAUSE 100
LOW 1
HIGH 2
PAUSE 100
NEXT c0

FOR c0 = 1 TO 2
HIGH 1
LOW 2
PAUSE 500
LOW 1
HIGH 2
PAUSE 500
NEXT c0

GOTO start

END
```