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

' File......hpwm2.pbp
' Started....1/17/08
' Microcontroller used:  Microchip Technology 16F88
'                        microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
'                    melabs.com

'--------Program Desciption--------

' Uses HPWM command to change the motor speeds
' for a Jameco #155855 gearhead motor.

'----------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

'--------------Comments------------

' 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.

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

    p0  VAR BYTE          ' Byte to store Dutycycle 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)

    OSCCON = $60          ' Sets the internal oscillator in
                          ' the 16F88 to 4 MHz

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

start:

    p0 = 90               ' Sets Dutycycle variable to 90
    GOSUB motorhpwm       ' Jumps to subroutine motorhpwm
    p0 = 255              ' Sets Dutycycle variable to 255
    GOSUB motorhpwm       ' Jumps to subroutine motorhpwm
    p0 = 0                ' Sets Dutycycle variable to 0
    GOSUB motorhpwm       ' Jumps to subroutine motorhpwm
    GOTO start             ' Jump to loop label and start all over
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    END

motorhpwm:              ' Subroutine motorhpwm

    HPWM 1,p0,245       ' Format: HPWM Channel,Dutycycle,Frequency
                        ' Motor is driver by Channel 1, (RB0 by default)
                        ' on the PIC16F88.  The Dutycycle is set at
                        ' the value of p0.
                        ' The frequency is set for 245 Hz.

    PAUSE 2000          ' Pauses 2000 mS or 2 sec.

    RETURN              ' Returns to next program statement after
                        ' the GOSUB command.
    END
```