

```
'-----Title-----

' File.....pwm_hpwm1.pbp
' Started....1/30/08
' Microcontroller used:  Microchip Technology 16F88
'                          microchip.com
' PBPro Code, micro-Engineering Labs, Inc.
'                          melabs.com

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

' pwm_hpwm1.pbp drives two dc motors at different
' speeds and in directions using a TI754410 driver.

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

'-----Revision History-----

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

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

pwm_motor2  VAR PORTB.0    'Labels PORTB.0 as pwm_motor1
dx_motor2   VAR PORTB.1    'Labels PORTB.1 as dx_motor1
pwm_motor1  VAR PORTB.2    'Labels PORTB.2 as pwm_motor2
dx_motor1   VAR PORTB.3    'Labels PORTB.3 as dx_motor2
red_led     VAR PORTB.4    'Labels PORTB.4 as red_led
green_led   VAR PORTB.5    'Labels PORTB.5 as green_led
p0          VAR BYTE      'Byte to store PWM Duty value
p1          VAR BYTE      'Byte to store HPWM Duty value

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

ANSEL = %00000000    '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

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

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

loop:

'Forward Motion:

HIGH dx_motor2      'Sets Motor2 forward direction
HPWM 0,255,245     'Pulse sent to PORTB.0 at a duty
                    'value of 255(100% on time) at a frequency
                    'of 245 Hz. This command will continue
                    'running while the PWM command that
                    'follows is executing.
HIGH dx_motor1     'Sets Motor1 forward direction
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PWM 2,255,200      'Pulse sent to PORTB.2 at a duty
                    'value of 255(100% on time) for 200 cycles.
                    'For 4 MHz oscillator, each cycle is
                    'about 5 ms long. The total time traveling
                    'forward is about:
                    '    200 x 5ms = 1000 ms or 1 sec.
```

'Reverse Motion at Slower Speed:

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LOW dx_motor2      'Sets Motor2 in reverse direction
HPWM 0,80,245      'Set Dutycycle at 80
LOW dx_motor1      'Sets Motor1 in reverse direction
PWM 2,190,200      'Pulse sent to PORTb.0 at a duty
                    'value of 190(75% on time) for 200 cycles.
                    'Notice the Dutycycle values for Motro 1
                    'and Motor 2 are very different. These
                    'values were established by calibration
                    'so the car will travel in a straight line.
```

'Decelerataion Going Forward:

```
FOR p0 = 255 TO 160 STEP -1
p1 = p0-110
HIGH 1
HPWM 0,p1,245
HIGH 3              'Sets direction
PWM 2,p0,10        'Pulse sent to PORTb.0 at a duty
                    'value of 140(55% on time) for
                    '30 cycles. Motor rotational speed
                    'approximately 20-24% of maximum rpm.

NEXT p0

GOTO loop          'Jump to loop label and start all over

END
```