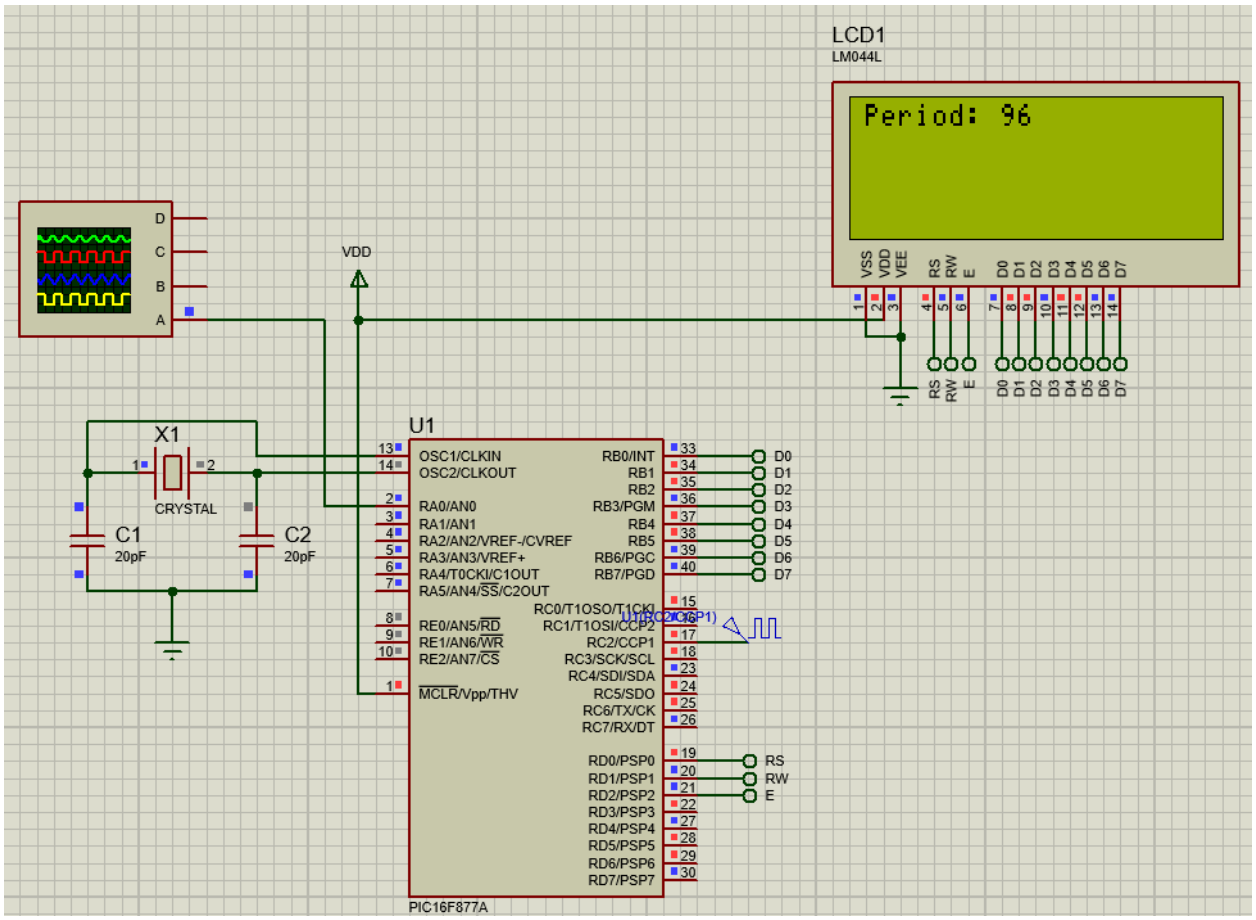
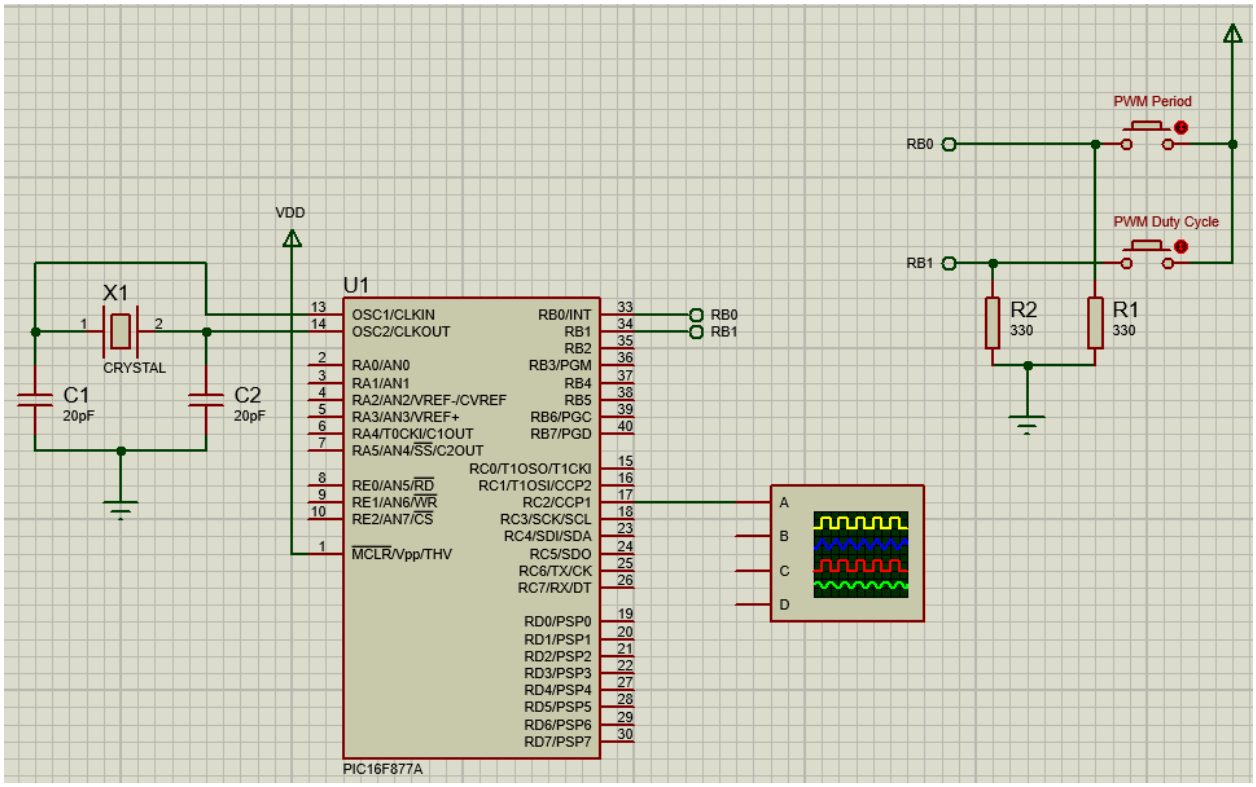
Piolo Pascual E. Besinga

Part I



Frequency (Hz)	Period
1	472
10	96
50	16
100	8

Part II


PWM Period
RB0
PWM Duty Cycle
RB1
VDD
X1
CRYSTAL
C1
20pF
C2
20pF
U1
R2
330
R1
330
OSC1/CLKIN
OSC2/CLKOUT
RA0/AN0
RA1/AN1
RA2/AN2/VREF-/CVREF
RA3/AN3/VREF+
RA4/T0CKI/C1OUT
RA5/AN4/SS/C2OUT
RE0/AN5/RD
RE1/AN6/WR
RE2/AN7/CS
MCLR/Vpp/THV
RB0/INT
RB1
RB2
RB3/PGM
RB4
RB5
RB6/PGC
RB7/PGD
RC0/T1OSO/T1CKI
RC1/T1OSI/CCP2
RC2/CCP1
RC3/SCK/SCL
RC4/SDI/SDA
RC5/SDO
RC6/TX/CK
RC7/RX/DT
RD0/PSP0
RD1/PSP1
RD2/PSP2
RD3/PSP3
RD4/PSP4
RD5/PSP5
RD6/PSP6
RD7/PSP7
PIC16F877A
A
B
C
D

Frequency	Duty Cycle	PR2	CCPR1L:CCP1CON<5:4> in Decimal	CCPR1L:CCP1CON<5:4> in BInary	CCPR1L	CCP1CON
1000 Hz	10%	0x3E	25	0000 0110 01	0x06	0x1C
	25%		63	0000 1111 11	0x0F	0x3C
	50%		125	0001 1111 01	0x1F	0x1C
	75%		188	0010 1111 00	0x2F	0x0C
	95%		238	0011 1011 10	0x3B	0x2C
1500 Hz	10%	0x29	17	0000 0100 01	0x04	0x1C
	25%		42	0000 1010 10	0x0A	0x2C
	50%		83	0001 0100 11	0x14	0x3C
	75%		125	0001 1111 01	0x1F	0x1C
	95%		158	0010 0111 10	0x27	0x2C
10000 Hz	10%	0x05	3	0000 0000 11	0x00	0x3C
	25%		6	0000 0001 10	0x01	0x2C
	50%		13	0000 0011 01	0x03	0x1C
	75%		19	0000 0100 11	0x04	0x3C
	95%		24	0000 0110 00	0x06	0x0C

Calculations:

1k Hz:

PR2 = $\frac{(1/1000\ Hz)}{4 * 16 * (2.5x10^{-7})} - 1 = 61.5 =$ **62**

10% Duty Cycle:

Duty Cycle = $\frac{(0.1 * (\frac{1}{1000})) * 4x10^{6}}{16} =$ **25**

25% Duty Cycle:

Duty Cycle = $\frac{(0.25 * (\frac{1}{1000})) * 4x10^{6}}{16} = 62.5 =$ **63**

50% Duty Cycle:

Duty Cycle = $\frac{(0.50\ 9 * (\frac{1}{1000})) * 4x10^{6}}{16}$ = **125**

75% Duty Cycle:

Duty Cycle = $\frac{(0.75 * (\frac{1}{1000})) * 4x10^{6}}{16}$ = 187.5 = **188**

95% Duty Cycle:

Duty Cycle = $\frac{(0.95 * (\frac{1}{1000})) * 4x10^{6}}{16}$ = 237.5 = **238**

1.5k Hz:

PR2 = $\frac{(1/1500\ Hz)}{4 * 16 * (2.5x10^{-7})} - 1$ = 40.67 = **41**

10% Duty Cycle:

Duty Cycle = $\frac{(0.1 * (\frac{1}{1500})) * 4x10^{6}}{16}$ = 16.7 = **17**

25% Duty Cycle:

Duty Cycle = $\frac{(0.25 * (\frac{1}{1500})) * 4x10^{6}}{16}$ = 41.7 = **42**

50% Duty Cycle:

Duty Cycle = $\frac{(0.50\ 9 * (\frac{1}{1500})) * 4x10^{6}}{16}$ = 83.3 = **83**

75% Duty Cycle:

Duty Cycle = $\frac{(0.75 * (\frac{1}{1500})) * 4x10^{6}}{16}$ = **125**

95% Duty Cycle:

Duty Cycle = $\frac{(0.95 * (\frac{1}{1500})) * 4x10^{6}}{16}$ = 158.33 = **158**

10k Hz:

PR2 = $\frac{(1/10000\ Hz)}{4 * 16 * (2.5x10^{-7})} - 1$ = 5.25 = **5**

10% Duty Cycle:

Duty Cycle = $\frac{(0.1 * (\frac{1}{10000})) * 4x10^{6}}{16}$ = 2.5 = **3**

25% Duty Cycle:

Duty Cycle = $\frac{(0.25 * (\frac{1}{10000})) * 4x10^{6}}{16}$ = 6.25 = **6**

50% Duty Cycle:

Duty Cycle = $\frac{(0.50\ 9 * (\frac{1}{10000})) * 4x10^{6}}{16}$ = 12.5 = **13**

75% Duty Cycle:

Duty Cycle = $\frac{(0.75 * (\frac{1}{10000})) * 4x10^{6}}{16}$ = 18.75 = **19**

95% Duty Cycle:

Duty Cycle = $\frac{(0.95 * (\frac{1}{10000})) * 4x10^{6}}{16}$ = 23.75 = **24**