**FULL CODE**

void delay(int k)

{

int i,j;

for (i=0;i<k;i++)

{

for (j=0;j<1000;j++);

}

}

void main()

{short duty1 = 180; //Initial value for duty

ADCON1 = 0x86; // PORTA Digital

TRISD = 0xFF; //PORTD as input

TRISC = 0x00; //PORTC as output

TRISB = 0x00; //PORTB as output

TRISA = 0xFF; //PORTA as input

PWM1\_Init(1000); //Initialize PWM1

PWM1\_Start(); //start PWM1

PWM1\_Set\_Duty(duty1); //Set current duty for PWM1

while (1) //Endless loop

{

if (PORTA.F0==0 && PORTA.F1==1 ) // No Priority

{

if (PORTD.F0==1 && PORTD.F4==1 ) // Train arrives

{ PORTC.F4=1; //Run motor in clockwise

PORTC.F5=0; //Run motor in clockwise

PORTC.F6=1; //Run motor in clockwise

PORTC.F7=0; //Run motor in clockwise

PORTB.F0=0; // Signal 1 is GREEN

PORTB.F1=0;// Signal 1 is GREEN

PORTB.F2=1;// Signal 1 is GREEN

PORTB.F3=0; // Signal 2 is GREEN

PORTB.F4=0;// Signal 2 is GREEN

PORTB.F5=1;// Signal 2 is GREEN

PORTB.F6=0; // Signal 3 is OFF

PORTB.F7=0;// Signal 3 is OFF

PORTC.F0=0;// Signal 3 is OFF

delay(5);

}

if (PORTD.F3==1 && PORTD.F1==1 ) // Train departs

{ PORTC.F4=0; //Run motor in anticlockwise

PORTC.F5=1; //Run motor in anticlockwise

PORTC.F6=0; //Run motor in anticlockwise

PORTC.F7=1; //Run motor in anticlockwise

PORTB.F0=1; // Signal 1 is RED

PORTB.F1=0;// Signal 1 is RED

PORTB.F2=0;// Signal 1 is RED

PORTB.F3=1; // Signal 2 is RED

PORTB.F4=0;// Signal 2 is RED

PORTB.F5=0;// Signal 2 is RED

PORTB.F6=0; // Signal 3 is OFF

PORTB.F7=0;// Signal 3 is OFF

PORTC.F0=0;// Signal 3 is OFF

delay(5);

}

if (PORTD.F6==1 ) // Car arrives

{

PORTB.F0=0; // Signal 1 is OFF

PORTB.F1=0;// Signal 1 is OFF

PORTB.F2=0;// Signal 1 is OFF

PORTB.F3=1; // Signal 2 is RED

PORTB.F4=0;// Signal 2 is RED

PORTB.F5=0;// Signal 2 is RED

PORTB.F6=1; // Signal 3 is RED

PORTB.F7=0;// Signal 3 is RED

PORTC.F0=0;// Signal 3 is RED

delay(5);

PORTC.F4=0; //Stop the Motor

PORTC.F5=0; //Stop the Motor

PORTC.F6=0; //Stop the Motor

PORTC.F7=0; //Stop the Motor

}

if (PORTD.F7==1 ) // Car departs

{

PORTB.F0=0; // Signal 1 is OFF

PORTB.F1=0;// Signal 1 is OFF

PORTB.F2=0;// Signal 1 is OFF

PORTB.F3=0; // Signal 2 is GREEN

PORTB.F4=0;// Signal 2 is GREEN

PORTB.F5=1;// Signal 2 is GREEN

PORTB.F6=0; // Signal 3 is GREEN

PORTB.F7=0;// Signal 3 is GREEN

PORTC.F0=1;// Signal 3 is GREEN

delay(5);

PORTC.F4=0; //Stop the Motor

PORTC.F5=0; //Stop the Motor

PORTC.F6=0; //Stop the Motor

PORTC.F7=0; //Stop the Motor

}

}

if (PORTA.F0==0 && PORTA.F1==0 ) // Train Priority

{

if (PORTD.F0==1 )

{

PORTC.F4=1; //Run motor in clockwise

PORTC.F5=0; //Run motor in clockwise

PORTC.F6=1; //Run motor in clockwise

PORTC.F7=0; //Run motor in clockwise

PORTB.F0=0; // Signal 1 is GREEN

PORTB.F1=0;// Signal 1 is GREEN

PORTB.F2=1;// Signal 1 is GREEN

PORTB.F3=0; // Signal 2 is OFF

PORTB.F4=0;// Signal 2 is OFF

PORTB.F5=0;// Signal 2 is OFF

PORTB.F6=0; // Signal 3 is OFF

PORTB.F7=0;// Signal 3 is OFF

PORTC.F0=0;// Signal 3 is OFF

delay(5);

}

}

if (PORTA.F0==1 && PORTA.F1==1 ) // Car Priority

{

if (PORTD.F6==1 )

{

PORTB.F0=1; // Signal 1 is RED

PORTB.F1=0;// Signal 1 is RED

PORTB.F2=0;// Signal 1 is RED

PORTB.F3=1; // Signal 2 is RED

PORTB.F4=0;// Signal 2 is RED

PORTB.F5=0;// Signal 2 is RED

PORTB.F6=1; // Signal 3 is RED

PORTB.F7=0;// Signal 3 is RED

PORTC.F0=0;// Signal 3 is RED

delay(5);

PORTC.F4=0; //Run motor in anticlockwise

PORTC.F5=1; //Run motor in anticlockwise

PORTC.F6=0; //Run motor in anticlockwise

PORTC.F7=1; //Run motor in anticlockwise

}

}

}

}