```
#include <p18f4550.h>  // Include Controller specific .h

void myMsDelay (unsigned int time)  // Definition of delay subroutine
{
    unsigned int i, j;
    for (i = 0; i < time; i++)      // Loop for itime
        for (j = 0; j < 710; j++);  // Calibrated for a 1 ms delay in MPLAB
}

void main()
{
    TRISCbits.TRISC2 = 0;  // CCP1 pin (PWM output) as output
    TRISD = 0;             // Configure PORTD (RD5 and RD6 for direction control)
as output
    PR2 = 0xBA;            // Set PR2 value for 4 kHz PWM frequency (calculated
based on the system clock)

    CCP1CON = 0x0C;        // Configure CCP1 for PWM mode
    T2CON = 0x07;          // Configure Timer2 (prescaler 1:16, internal clock)

    // Initial motor direction (clockwise)
    PORTDbits.RD5 = 1;     // RD5 high for clockwise direction
    PORTDbits.RD6 = 0;     // RD6 low for clockwise direction

    while(1)  // Endless Loop
    {
        // Set Duty Cycle to 50% (for 4 kHz frequency, 50% duty cycle corresponds
to CCPR1L = 0x80)
        CCPR1L = 0x80;     // Set 50% duty cycle (0x80 is 50% of 0xFF)

        // Enable PWM
        T2CONbits.TMR2ON = 1;  // Start Timer2 for PWM generation

        myMsDelay(2000);   // Wait for 2 seconds (adjust delay as needed)

        // Change direction to anticlockwise (RD5 low, RD6 high)
        PORTDbits.RD5 = 0;   // RD5 low for anticlockwise direction
        PORTDbits.RD6 = 1;   // RD6 high for anticlockwise direction

        myMsDelay(2000);   // Wait for 2 seconds

        // Change direction to clockwise (RD5 high, RD6 low)
        PORTDbits.RD5 = 1;   // RD5 high for clockwise direction
        PORTDbits.RD6 = 0;   // RD6 low for clockwise direction

        myMsDelay(2000);   // Wait for 2 seconds

        // You can modify the duty cycle and test different speeds here
        // Example: Set Duty Cycle to 80% (0xC0 for 80% duty cycle)
        CCPR1L = 0xC0;     // Set 80% duty cycle

        myMsDelay(2000);   // Wait for 2 seconds
    }
}
```