```
//ADC 0 and ch 6 with clkdiv =06 and pdn=1 = adc active, burstud 11 clks,11clks/10bits start=no start

//p0.0 pwm o/p=EN0, p0.4 adc ch 6 i/pfrom pot, p0.11 and 12 in0and in1 = o/p for dc motor, p1.16 switch as i/p

#include<lpc214x.h>

#include<stdint.h>

#include"intpt.h"

#include"delay_ms.h"

#include"pwm.h"

#include"adc.h"

#include"dc_motor.h"

#define sw (IO1PIN & (1<<16))

#define delay for(k=0;k<=100000;k++);

unsigned int k;

unsigned int val,a,b,c,d,result,adc_val;


int main()

{

        PINSEL0=0x0302;//adc 0.6and pwm1

        IO0DIR=(1<<0) | (0<<4)|(1<<11)|(1<<12);

        IO1DIR=(0<<16);

        VPBDIV=0x02;

        intpt_init();

        pwm_init();

        while(1)

        {

                adc_val=get_adc_val();

                if(sw==0)

                {
```

```
if(adc_val>0 && adc_val<64)
{
        PWMMR1=250;
        PWMLER=0x02;
        forward();
        delay
        reverse();
        delay
}
if(adc_val>=64 && adc_val<128)
{
        PWMMR1=500;
        PWMLER=0x02;
        forward();
        delay
        reverse();
        delay
}
if(adc_val>=128 && adc_val<192)
{
        PWMMR1=750;
        PWMLER=0x02;
        forward();
        delay
        reverse();
        delay
}
```

```
                        if(adc_val>=192 && adc_val<900)
                        {
                                PWMMR1=900;
                                PWMLER=0x02;
                                forward();
                                delay
                                reverse();
                                delay
                        }

                }
                else
                {
                        motor_off();
                }
        }
        return 0;
}
```

MultiFile Approach:

All header files are as follows:

1.Adc header

```
unsigned int adc(int,int);
unsigned int get_adc_val();
unsigned int val;
unsigned int get_adc_val()
{
        unsigned int a,b,c,d,result,adc_val;
```

```
	val=adc(0,6);
	a=val/1000;
	b=(val/100)%10;
	c=(val/10)%10;
	d=val%10;
	result=a*1000+b*100+c*10+d;
	adc_val=result/4;
	return adc_val;
}

unsigned int adc(int no,int ch)
{
	switch(no)
	{
		case 0:AD0CR=0x00200600 |(1<<ch);
					AD0CR|=(1<<24);
		    while((AD0GDR & (1<<31))==0);
		    val=AD0GDR;
		break;
		case 1:AD1CR=0x00200600 |(1<<ch);
		    AD1CR|=(1<<24);
		    while((AD1GDR & (1<<31))==0);
		    val=AD1GDR;
		break;
	}
	val=(val>>6)&0x03ff;
	return val;
```

```
}
```

2.interrupt header

```
void intpt(void);
__irq void pwm_isr(void)
{
	if(PWMIR & 0x0001)
	{
		PWMIR=0x0001;
	}
		if(PWMIR & 0x0002)
	{
		PWMIR=0x0002;
	}
		if(PWMIR & 0x0004)
	{
		PWMIR=0x0004;
	}
		if(PWMIR & 0x0008)
	{
		PWMIR=0x0008;
	}
	VICVectAddr = 0x00000000;
}
void intpt_init(void)
{
	VICVectAddr0=(unsigned)pwm_isr;//pwm ISR address
	VICVectCntl0=(0x00000020 |8);//enable irq slot
```

```
	VICIntEnable=VICIntEnable|0x00000100;
	VICIntSelect=VICIntSelect|0x00000000;
}
```

3.PWM header

```
void pwm_init();
void pwm_init(void)
{
	PWMTCR=0x02;
	PWMPR=0x1d;
	PWMMR0=1000;
	PWMMR1=500;
	PWMMCR=0x0000000b;
	PWMLER=0x03;
	PWMPCR=0x0200;
	PWMTCR=0x09;
}
```

4.delay header file

```
void delay_ms(uint16_t);
void delay_ms(uint16_t j)
{
	uint16_t x,i;
	for(i=0;i<j;i++)
	{
		for(x=0;x<6000;x++);
	}
}
```

5.DC Motor HeaderFile

```
void forward(void);
void reverse(void);
void motor_off();
#define in1 (1<<11)
#define in2 (1<<12)

void forward()
{
        IO0SET=in1;
        IO0CLR=in2;

}
void reverse()
{
        IO0SET=in2;
        IO0CLR=in1;



}
void motor_off()
{
        IO0CLR=in1|in2;
}
```