**// C programming of LPC1768 ADC to convert analog to digital value and send the converted value on**

**UART1 for display**

#include <lpc17xx.h>

#include <stdio.h>

#include <string.h>

int result;

char value[5];

void uart1\_init(void);

void delay(uint32\_t);

void adc\_init(void);

**// Function to initialize UART1**

void uart1\_init(void)

{

LPC\_SC->PCONP |= (1 << 4);//enable power to UART1

LPC\_PINCON->PINSEL4 |=(2 << 0)|(2<<2);//Pin P2.0 used as TXD1 and Pin P2.1 used as RXD1

LPC\_UART1->FCR= 0x07;//enable different FIFO

LPC\_UART1->LCR = 0x83;// 8 bits, no Parity, 1 Stop bit

LPC\_UART1->DLL = 0x12;//115200 Baud Rate @ 25.0 MHZ PCLK

LPC\_UART1->FDR = 0x21;//FR 1,507, DIVADDVAL=1, MULVAL=2

LPC\_UART1->DLM = 0x0;//High divisor latch = 0

LPC\_UART1->LCR = 0x03;// DLAB = 0

}

**// Delay Function**

void delay(uint32\_t i)

{

uint32\_t x;

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

}

**// Function to initialize ADC**

void adc\_init(void)

{

LPC\_PINCON->PINSEL1 |=(1<<14);//P0.23 as AD0.0

LPC\_SC->PCONP |=(1<<12);// power for ADC peripheral

LPC\_ADC->ADCR |= (1<<21);//To make ADC operational

LPC\_ADC->ADCR |= (1<<0);//select AD0.0 channel

LPC\_ADC->ADCR |= (1<<8);//set the ADC Clock Divider as 1.

}

**//Function to write character to Serial Port**

int uart1\_txdchar (int c)

{

while (!(LPC\_UART1->LSR & 0x20));// Wait till charcter send

LPC\_UART1->THR = c;

return (c);

}

**//Function to send string on Uart1**

void uart1\_sendstring( char \*ch)

{

while(\*(ch) != '\0')

{

uart1\_txdchar(\*ch);//send each characetr at a time

ch++;

}

}

int main()

{

uart1\_init();//Initilization of UART1 at 115200 buad rate

adc\_init();//Initialization of ADC

while(1)

{

LPC\_ADC->ADCR |= (1<<24);//Start the conversion

while((LPC\_ADC->ADDR0 & (1<<31)) == 0);//wait till conversion will complete

result=((LPC\_ADC->ADGDR>>4) & 0xfff);//12 bit result

uart1\_sendstring("result= ");//disply the result on uart1

sprintf(value," %d\n\r",result);

uart1\_sendstring(value);

}

}