**Write and execute C program for accessing an internal ADC and display the binary output in LEDS in LPC2148 kit**

**Date:**

**Aim:** To write and execute C program for accessing an internal ADC and display the binary output in LEDS in LPC2148 kit.

**Apparatus Required:**

Keil uVision5 Software

Philips Flah Programmer

LPC 2148 kit

**Program:**

#include <LPC214X.H>

#define LEDS 0xFF<<8 //LED => P0.8 to P0.15

/////////////////////////////////////////

/\*--- ADC Signal Declaration \*/

/////////////////////////////////////////

#define AD0\_1 1<< 24

#define CLK\_DIV 1<<8

#define PDN 1<<21

#define SOC 1<<24

#define BURST 1<<16

#define DONE 1<<31

/\*-----------------------------------------------------------\*/

//Delay Program

//Input - delay value in milli seconds

void delay(unsigned int k)

{

unsigned int i,j;

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

for(i = 0; i<=800; i++);

}

/\*-----------------------------------------------------------\*/

void adc\_init()

{

unsigned long int ADC\_CH;

ADC\_CH = 0 | 1 << 1; //Channel AD0.1

AD0CR = SOC | PDN | CLK\_DIV | ADC\_CH | BURST ;

}

/\*-----------------------------------------------------------\*/

unsigned int adc\_read( unsigned char channel)

{

unsigned int aval;

unsigned long int val;

if (channel == 1) val = AD0DR1;

else if (channel == 2) val = AD0DR2;

else if (channel == 3) val = AD0DR3;

val = val >> 6;

val = val & 0x3FF;

aval = val;

return (aval);

}

/\*-----------------------------------------------------------\*/

//////////////////////////

/\*----Main Program------\*/

//////////////////////////

int main(void)

{

unsigned int tp1;

IODIR0 = LEDS; //Configure Port0 as output Port

PINSEL0 = 0; //Configure Port0 as General Purpose IO

PINSEL1 = 0 | AD0\_1; // Enable AD0.1

adc\_init(); //Initialise on-chip ADC

do

{ tp1 = adc\_read(1); // Channel AD0 0.1

tp1 = tp1 >> 2; // ADC 10 bit But LED 8bit, Truncate lsb 2 bits

IOSET0 = LEDS; //Switch OFF all LEDS

IOCLR0 = tp1 << 8; //Set VAlue

delay(1000);

}while(1);

}

**Output:** The Potentiometer knob was adjusted to generate Analog input and Digital display is observed

**Result:**

Thus C program was Written and executed for accessing an internal ADC and display the binary output in LEDS in LPC2148 kit.