**MINI PROJECT**

**TITLE : DIGITAL THERMOMETER USING ATMEGA328, LM35 SENSOR AND 16\*2 DISPLAY**

#ifndef \_\_AVR\_ATmega32\_\_

#define \_\_AVR\_ATmega32\_\_

#endif

#include <avr/io.h>

#define F\_CPU 1000000

#include <util/delay.h>

#include <stdlib.h>

#define enable 5

#define registerselection 6

void send\_a\_command(unsigned char command);

void send\_a\_character(unsigned char character);

void send\_a\_string(char \*string\_of\_characters);

int main(void)

{

DDRB = 0xFF;

DDRA = 0;

DDRD = 0xFF;

\_delay\_ms(50);

ADMUX |=(1<<REFS0)|(1<<REFS1);

ADCSRA |=(1<<ADEN)|(1<<ADATE)|(1<<ADPS0)|(1<<ADPS1)|(1<<ADPS2);

int16\_t COUNTA = 0;

char SHOWA [3];

send\_a\_command(0x01); //Clear Screen 0x01 = 00000001

\_delay\_ms(50);

send\_a\_command(0x38);

\_delay\_ms(50);

send\_a\_command(0b00001111);

\_delay\_ms(50);

ADCSRA |=(1<<ADSC);

while(1)

{

COUNTA = ADC/4;

send\_a\_string ("OM GAUTAM");

send\_a\_command(0x80 + 0x40 + 0);

send\_a\_string ("Temp(C)=");

send\_a\_command(0x80 + 0x40 + 8);

itoa(COUNTA,SHOWA,10);

send\_a\_string(SHOWA);

send\_a\_string (" ");

send\_a\_command(0x80 + 0);

}

}

void send\_a\_command(unsigned char command)

{

PORTB = command;

PORTD &= ~ (1<<registerselection);

PORTD |= 1<<enable;

\_delay\_ms(20);

PORTD &= ~1<<enable;

PORTB = 0;

}

void send\_a\_character(unsigned char character)

{

PORTB = character;

PORTD |= 1<<registerselection;

PORTD |= 1<<enable;

\_delay\_ms(20);

PORTD &= ~1<<enable;

PORTB = 0;

}

void send\_a\_string(char \*string\_of\_characters)

{

while(\*string\_of\_characters > 0)

{

send\_a\_character(\*string\_of\_characters++);

}

}