





All processes in this diagram are controlled by the Arduino. The LM35 temperature sensor is used to measure the ambient temperature and provides a voltage change of 10 mV at its output pin when the temperature changes by 1 degree. This fact can be easily verified with a voltmeter by connecting Vcc to pin 1, Ground to pin 3, and the output voltage to pin 2 of the LM35. For example, if the voltage at the output of the LM35 sensor is 250 mV, then this means that the ambient temperature is approximately 25 degrees Celsius. The Arduino reads the output voltage of the temperature sensor from its analog pin A0 and performs calculations to convert that analog voltage to a digital temperature value. After performing the calculations, the Arduino transmits the obtained temperature value to the 16x2 LCD.

In this project, we use a microcontroller to control the whole process, which is located on the Arduino board. Some people call Arduino a microcontroller, but that's not entirely true, because Arduino is an operating system or bootloader that runs on top of an AVR microcontroller.

The LM35 is a 3-pin temperature sensor that provides a voltage change of 10 mV at its output when the temperature changes by 1 degree Celsius. The upper limit of temperature measurement is about 150 degrees Celsius. The 1st contact of the sensor is supplied with supply voltage, the 2nd contact is the output of the sensor, and the 3rd is supplied with ground.



digital pins 7, 6, 5, 4, 3, 2. The LM35 temperature sensor is connected to analog pin A0 of the Arduino board.

And here is code for our device:

```
#include<LiquidCrystal.h>
LiquidCrystal lcd(7,6,5,4,3,2);
#define sensor A0
byte degree[8] =
    {
        0b00011,
        0b00011,
        0b00000,
        0b00000,
        0b00000,
        0b00000,
        0b00000,
        0b00000
    };
void setup()
{
    lcd.begin(16,2);
    lcd.createChar(1, degree);
    lcd.setCursor(0,0);
    lcd.print(" Digital ");
    lcd.setCursor(0,1);
    lcd.print(" Thermometer ");
    delay(4000);
    lcd.clear();
    lcd.print(" Circuit Digest ");
    delay(4000);
    lcd.clear();
}
void loop()
{
    /*-----Temperature-----*/
    float reading=analogRead(sensor);
    float temperature=reading*(5.0/1023.0)*100;
    delay(10);

    /*-----Display Result-----*/
    lcd.clear();
```

```
lcd.setCursor(2,0);  
lcd.print("Temperature");  
lcd.setCursor(4,1);  
lcd.print(temperature);  
lcd.write(1);  
lcd.print("C");  
delay(1000);  
}
```