18B20 Temperature Sensor V2 SKU: DFR0024

From Robot Wiki

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Introduction

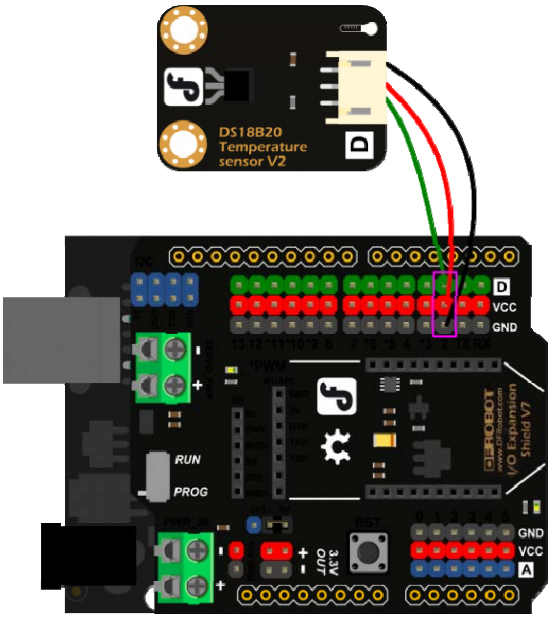
DS18B20 is a digital temperature sensor which is from DALLAS U.S. It can be used to quantify the environmental temperature testing.

The temperature range -55 ~ +125 ℃, the inherent temperature resolution of 0.5 ℃, support multi-point networking mesh. Three DS18B20 can deloyed on three lines, to achieve multi-point temperature measurement. It has a 9-12 bit serial output.

Specification

- Supply Voltage: 3.3V to 5V
- Temperature range :-55 °C ~ +125 °C
- Interface: Digital
- Size:22x32mm

Connection Diagram



Sample Code

```
#include <OneWire.h>

int DS18S20_Pin = 2; //DS18S20 Signal pin on digital 2

//Temperature chip i/o
OneWire ds(DS18S20_Pin);  // on digital pin 2

void setup(void) {
  Serial.begin(9600);
}

void loop(void) {
```

```
  float temperature = getTemp();
  Serial.println(temperature);

  delay(100); //just here to slow down the output so it is easier to read

}



float getTemp(){
  //returns the temperature from one DS18S20 in DEG Celsius

  byte data[12];
  byte addr[8];

  if ( !ds.search(addr)) {
      //no more sensors on chain, reset search
      ds.reset_search();
      return -1000;
  }

  if ( OneWire::crc8( addr, 7) != addr[7]) {
      Serial.println("CRC is not valid!");
      return -1000;
  }

  if ( addr[0] != 0x10 && addr[0] != 0x28) {
      Serial.print("Device is not recognized");
      return -1000;
  }

  ds.reset();
  ds.select(addr);
  ds.write(0x44,1); // start conversion, with parasite power on at the end
```

```
  byte present = ds.reset();
  ds.select(addr);
  ds.write(0xBE); // Read Scratchpad


  for (int i = 0; i < 9; i++) { // we need 9 bytes
    data[i] = ds.read();
  }

  ds.reset_search();

  byte MSB = data[1];
  byte LSB = data[0];

  float tempRead = ((MSB << 8) | LSB); //using two's compliment
  float TemperatureSum = tempRead / 16;

  return TemperatureSum;

}
```