```
// Include Libraries
#include "Arduino.h"
#include "MaxMatrix.h"
#include "Thermistor.h"


// Pin Definitions
#define LEDMATRIX_PIN_DIN        12
#define LEDMATRIX_PIN_CLK        13
#define LEDMATRIX_PIN_CS         5
#define THERMISTOR_PIN_CON1  A0



// Global variables and defines
byte ledMatrixinUse = 1;                    //Specify how many Max7219 led matrices are chained
int ledMatrixtextScrollingSpeed = 50;       //Specify the scrolling speed
char ledMatrixStr[] = "Hello World!    ";     //Specify the string to be displayed
// object initialization
MaxMatrix ledMatrix(LEDMATRIX_PIN_DIN,LEDMATRIX_PIN_CS,LEDMATRIX_PIN_CLK);
Thermistor thermistor(THERMISTOR_PIN_CON1);


// define vars for testing menu
const int timeout = 10000;       //define timeout of 10 sec
char menuOption = 0;
long time0;

// Setup the essentials for your circuit to work. It runs first every time your circuit is powered with
electricity.
void setup()
{
   // Setup Serial which is useful for debugging
   // Use the Serial Monitor to view printed messages
   Serial.begin(9600);
   while (!Serial) ; // wait for serial port to connect. Needed for native USB
   Serial.println("start");

   ledMatrix.init(ledMatrixinUse);       //Initialize Led Matrices
   ledMatrix.setIntensity(5);           //LED Intensity 0-15
   menuOption = menu();

}
```

```
// Main logic of your circuit. It defines the interaction between the components you selected.
After setup, it runs over and over again, in an eternal loop.
void loop()
{


   if(menuOption == '1') {
   // 8x8 LED display Matrix - MAX7219 - Test Code
   //Note that this function is blocking the loop until the end of the scrolling
   ledMatrix.printStringWithShift(ledMatrixStr, ledMatrixtextScrollingSpeed);  // Send scrolling
Text
   }
   else if(menuOption == '2') {
   // NTC Thermistor 10k - Test Code
   //Get Measurment from Thermistor temperature sensor.
   float thermistorTempC = thermistor.getTempC();
   Serial.print(F("Temp: ")); Serial.print(thermistorTempC); Serial.println(F("[°C]"));
   }

   if (millis() - time0 > timeout)
   {
      menuOption = menu();
   }

}



// Menu function for selecting the components to be tested
// Follow serial monitor for instrcutions
char menu()
{

   Serial.println(F("\nWhich component would you like to test?"));
   Serial.println(F("(1) 8x8 LED display Matrix - MAX7219"));
   Serial.println(F("(2) NTC Thermistor 10k"));
   Serial.println(F("(menu) send anything else or press on board reset button\n"));
   while (!Serial.available());

   // Read data from serial monitor if received
   while (Serial.available())
   {
      char c = Serial.read();
```

```
    if (isAlphaNumeric(c))
    {

      if(c == '1')
                  Serial.println(F("Now Testing 8x8 LED display Matrix - MAX7219"));
            else if(c == '2')
                  Serial.println(F("Now Testing NTC Thermistor 10k"));
      else
      {
        Serial.println(F("illegal input!"));
        return 0;
      }
      time0 = millis();
      return c;
    }
  }
}

/*****************************************************

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