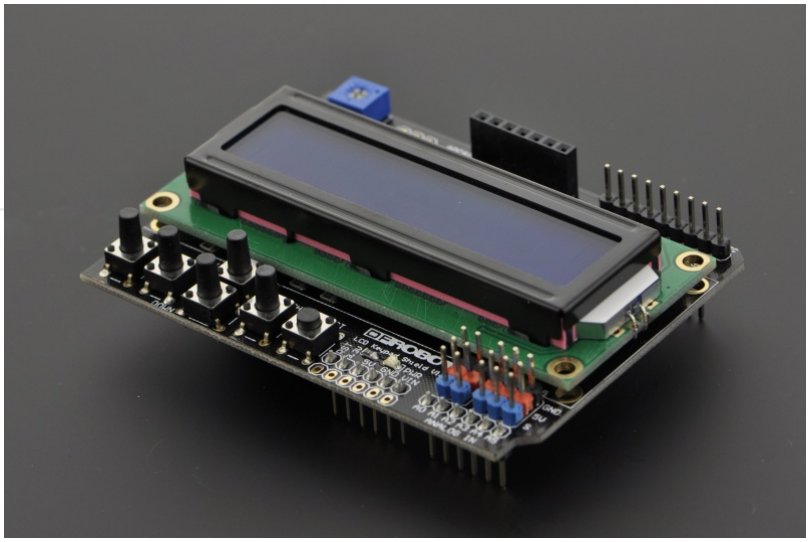
(https://www.dfrobot.com/product-51.html)



Introduction

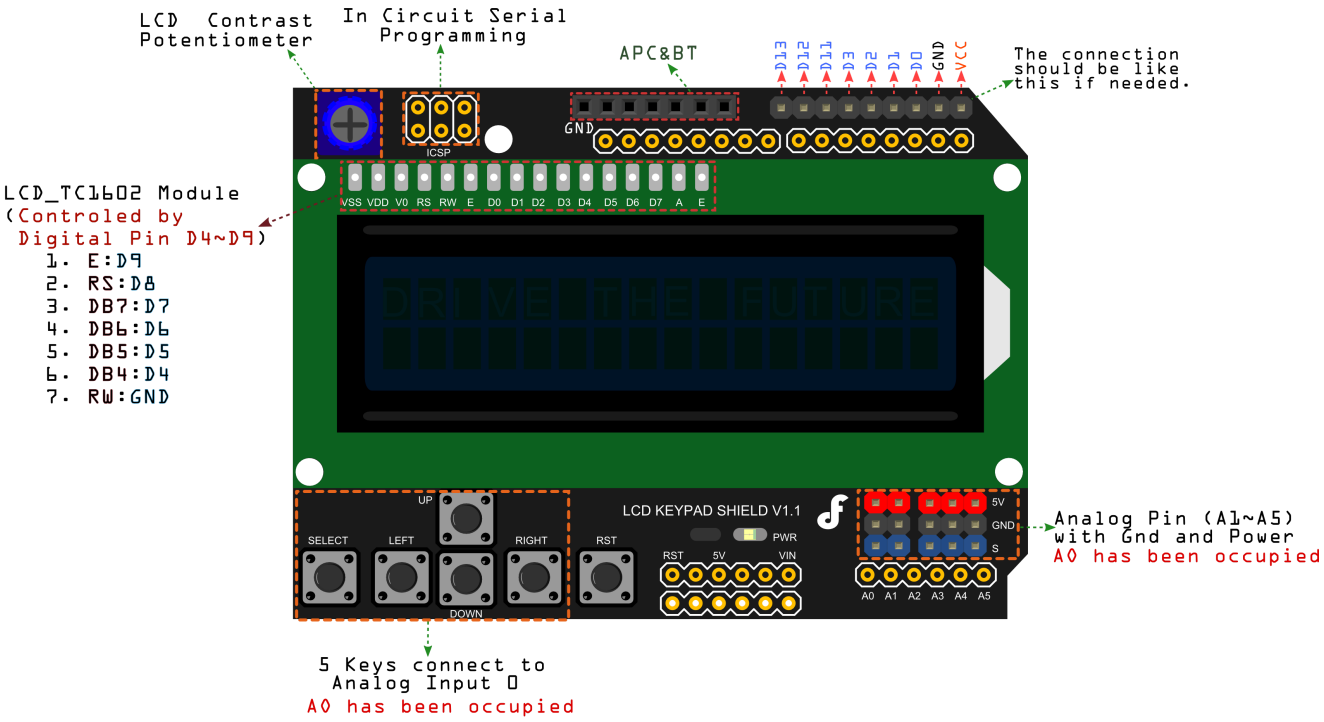
This is a very popular LCD Keypad shield for Arduino (https://www.dfrobot.com/product-51.html) or Freeduino board. It includes a 2x16 LCD display and 6 momentary push buttons. Pins 4, 5, 6, 7, 8, 9 and 10 are used to interface with the LCD. Analog Pin 0 is used to read the push buttons. The LCD shield supports contrast adjustment and backlit on/off functions. It also expands analog pins for easy analog sensor reading and display.

The LCD Keypad shield is developed for Arduino compatible boards (https://www.dfrobot.com/category-104.html), to provide a user-friendly interface that allows users to go through the menu, make selections etc. It consists of a 1602 white character blue backlight LCD. The keypad consists of 5 keys — select, up, right, down and left. To save the digital IO pins, the keypad interface uses only one ADC channel. The key value is read through a 5 stage voltage divider.

Specification

- Operating Voltage:5V
- 5 Push buttons to supply a custom menu control panel
- RST button for resetting arduino program
- Integrate a potentiometer for adjusting the backlight
- Expanded available I/O pins
- Expanded Analog Pinout with standard DFRobot configuration for fast sensor extension
- Dimension: 80 x 58 mm

Board Overview



Instruction for D4 To D10 and Analog Pin 0

Pin	Function	Instruction
Digital 4(D4)	D4~D7 are used as DB4~DB7	Four high order bidirectional tristate data bus pins. Used for data transfer and receive between the MPU and the LCD.
Digital 5(D5)		
Digital 6(D6)		
Digital 7(D7)		
Digital 8(D8)	RS	Choose Data or Signal Display
Digital 9(D9)	Enable	Starts data read/write
Digital 10(D10)	LCD Backlight Control	
Analog 0(A0)	Button select	Select, up, right, down and left

Tutorial

Requirements

- Hardware
  - DFRduino UNO R3 (https://www.dfrobot.com/product-838.html)
  - LCD Keypad Shield For Arduino (https://www.dfrobot.com/product-51.html)
  - Analog Linear Temperature Sensor (https://www.dfrobot.com/product-76.html)

Function Explanation

LiquidCrystal(rs, enable, d4, d5, d6, d7)

Creates a variable of type LiquidCrystal. The display can be controlled using 4 or 8 data lines. If the former, omit the pin numbers for d0 to d3 and leave those lines unconnected. The RW pin can be tied to ground instead of connected to a pin on the Arduino; if so, omit it from

this function's parameters. for example:

```
LiquidCrystal lcd(8, 9, 4, 5, 6, 7);
```

lcd.begin(cols, rows)

Initializes the interface to the LCD screen, and specifies the dimensions (width and height) of the display. begin() needs to be called before any other LCD library commands.for example:

```
lcd.begin(16, 2);
```

lcd.setCursor(col,row)

Set the location at which subsequent text written to the LCD will be displayed. for example:

```
lcd.setCursor(0,0);
```

lcd.print(data)

Prints text to the LCD.for example:

```
lcd.print("hello, world!");
```

lcd.write(data)

Write a character to the LCD.

More function can see:

- LiquidCrystal library (https://github.com/CainZ/LiquidCrystal/raw/master/LiquidCrystal.zip)

Connection Diagram

Plug the LCD Keypad to the UNO(or other controllers)

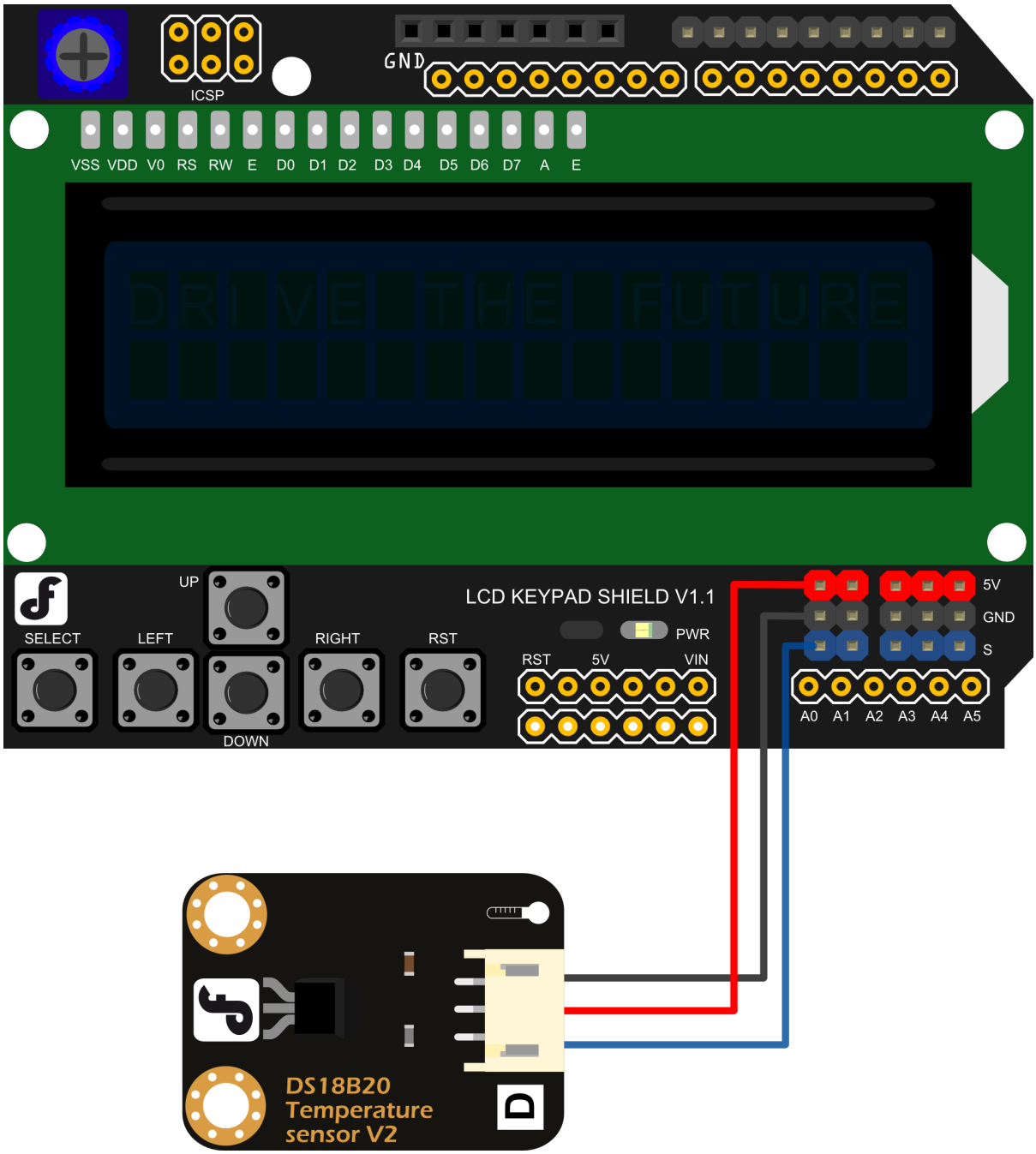
Temperture sensor: S(blue) -- A1()

Note: A0 has been occupied.

VCC(red) -- VCC

GND(black) -- GND

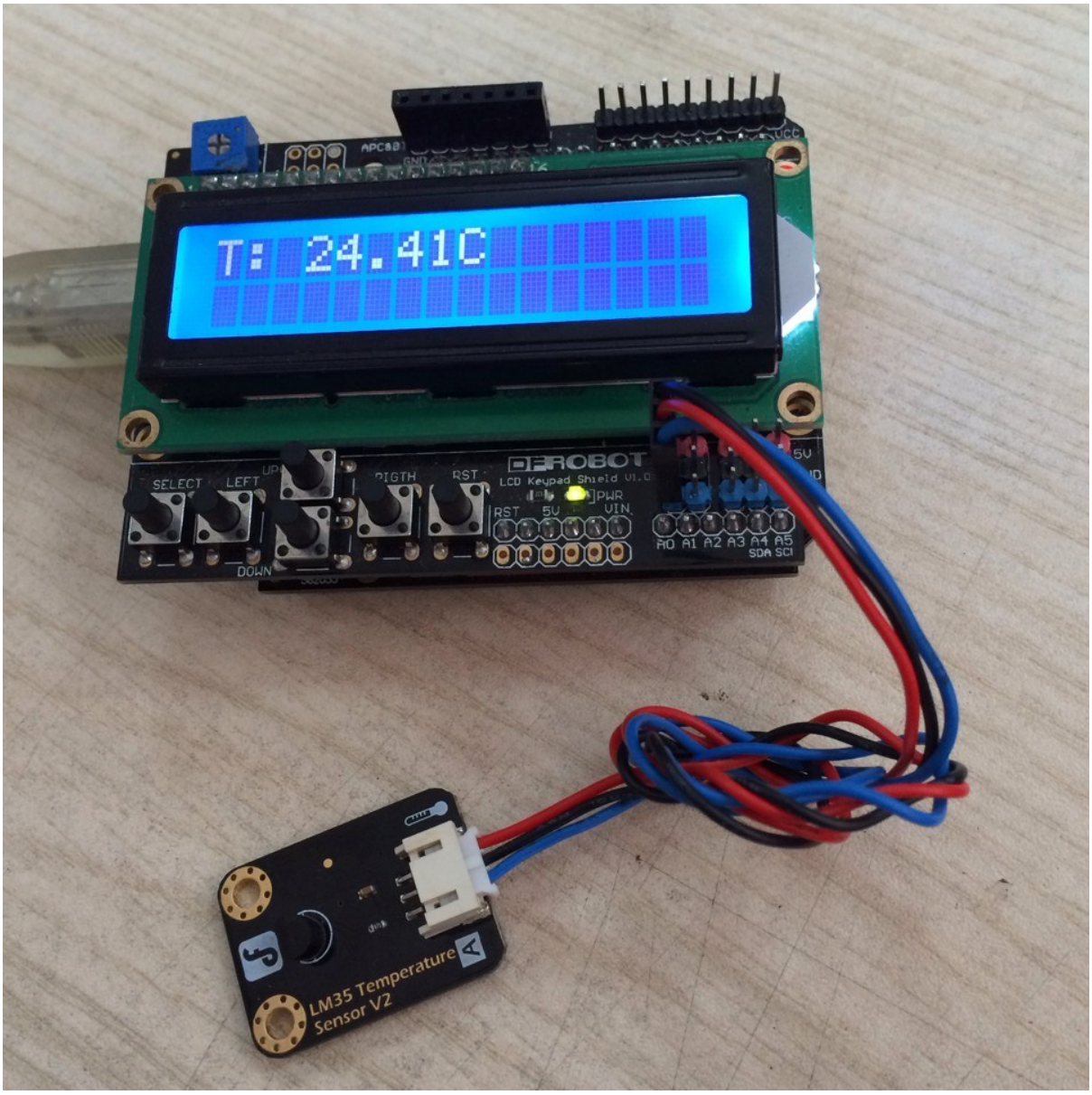
Tricks for changing sensor cable pin mapping (https://www.dfrobot.com/community/trick-for-changing-sensor-cable-pin-mapping.html)


ICSP
GND
VSS VDD V0 RS RW E D0 D1 D2 D3 D4 D5 D6 D7 A E
DRIVE THE FUTURE
UP
SELECT
LEFT
RIGHT
RST
DOWN
LCD KEYPAD SHIELD V1.1
PWR
RST 5V VIN
5V
GND
S
A0 A1 A2 A3 A4 A5
DS18B20
Temperature
sensor V2

Sample Code

```
/*********************************************************

   Description:
   Reads an analog input on pin 1, prints the result to the LCD.
   This program takes the temperture sensor LM35 for example.

   Connection:
   Plug the LCD Keypad to the UNO(or other controllers)
   Temperture sensor:
   S(blue) -- A1()
     Note: A0 has been occupied.
   VCC(red) -- VCC
   GND(black) -- GND

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

#include <LiquidCrystal.h>

LiquidCrystal lcd(8, 9, 4, 5, 6, 7);        // select the pins used on the LCD panel

unsigned long tepTimer ;

void setup(){
    lcd.begin(16, 2);                       // start the library
}

void loop(){
    lcd.setCursor(0, 0);                   // set the LCD cursor   position
    int val;                               // variable to store the value coming from
    double data;                           // variable to store the temperature value
    val=analogRead(1);                     // read the analog in value:
    data = (double) val * (5/10.24);       // temperature conversion formula

    if(millis() - tepTimer > 500){         // output a temperature value per 500ms
             tepTimer = millis();

             // print the results to the lcd
             lcd.print("T: ");
             lcd.print(data);
             lcd.print("C");
     }
}
```

Expected Results



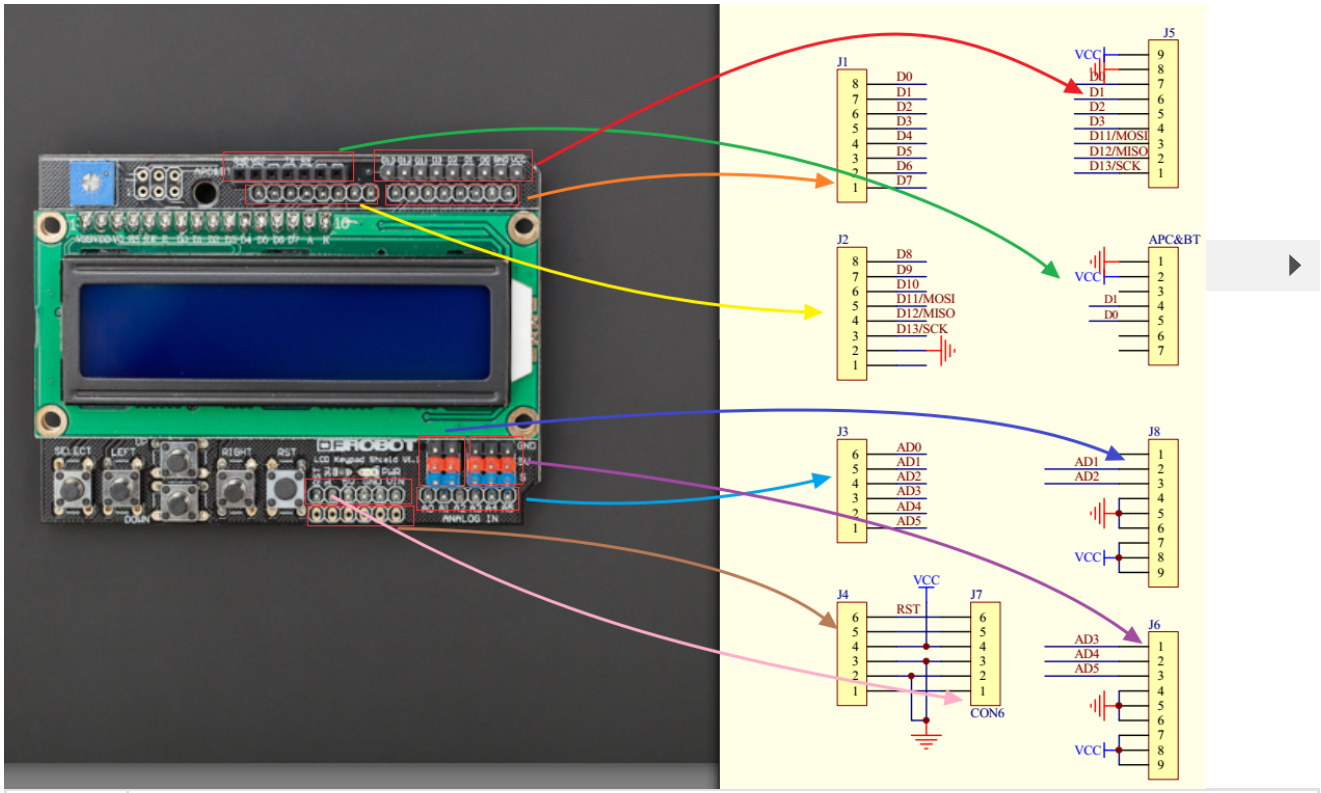
FAQ

Q&A	Some general Arduino Problems/FAQ/Tips
Q1	I do not understand your schematic. There are too many connectors illustrated thar mapping?
A1	The J1-J8 include the both the user interface, i.e. Analog pins, APC220(Serial) pins, I Arduino card, e.g. Uno/ Leonardo. Here is a simple mapping picture.
Q2	Why my LCD keypad cannot **display anything** on the Intel Edison (https://www.dfrc route=product/product&product_id=1198&search=Intel%C2%AE+Edison+with+A while all right on Romeo (https://www.dfrobot.com/index.php?

	while all right on Romeo (https://www.dfrobot.com/index.php?route=product/product&product_id=1198&search=Intel%C2%AE+Edison+with+A

Q&A	Some general Arduino Problems/FAQ/Tips
A2	It works well if uploaded by Arduino 1.5.3 version, however, the latest 1.6.* have dis

```
void setup() {
  for(int i=4;i<10;i++){
  pinMode(i,OUTPUT);
  }
  lcd.begin(16, 2);  // set up the LCD's number of columns and rows
}
```



Q&A	Some general Arduino Problems/FAQ/Tips
A	For any questions, advice or cool ideas to share, please visit the **DFRobot Forum** (https://www.dfrobot.com/forum/).

More Documents

- LCDKeypad Shield v1.1 Schematics (https://www.dfrobot.com/image/data/DFR0009/LCDKeypad%20Shield%20V1.0%20SCH.pdf)
- Old version: LCD Keypad Shield Old Wiki Doc

(https://www.dfrobot.com/wiki/index.php/Arduino_LCD_KeyPad_Shield__SKU:_DFR0009_)

- LCDKeypad Shield Schematics V1.0 (https://www.dfrobot.com/image/data/DFR0009/LCDKeypad%20Shield%20V1.0%20SCH.pdf)

 Get **Gravity: 1602 LCD Keypad Shield For Arduino** (https://www.dfrobot.com/product-51.html) from DFRobot Store or **DFRobot Distributor**. (https://www.dfrobot.com/distributor)

Turn to the Top