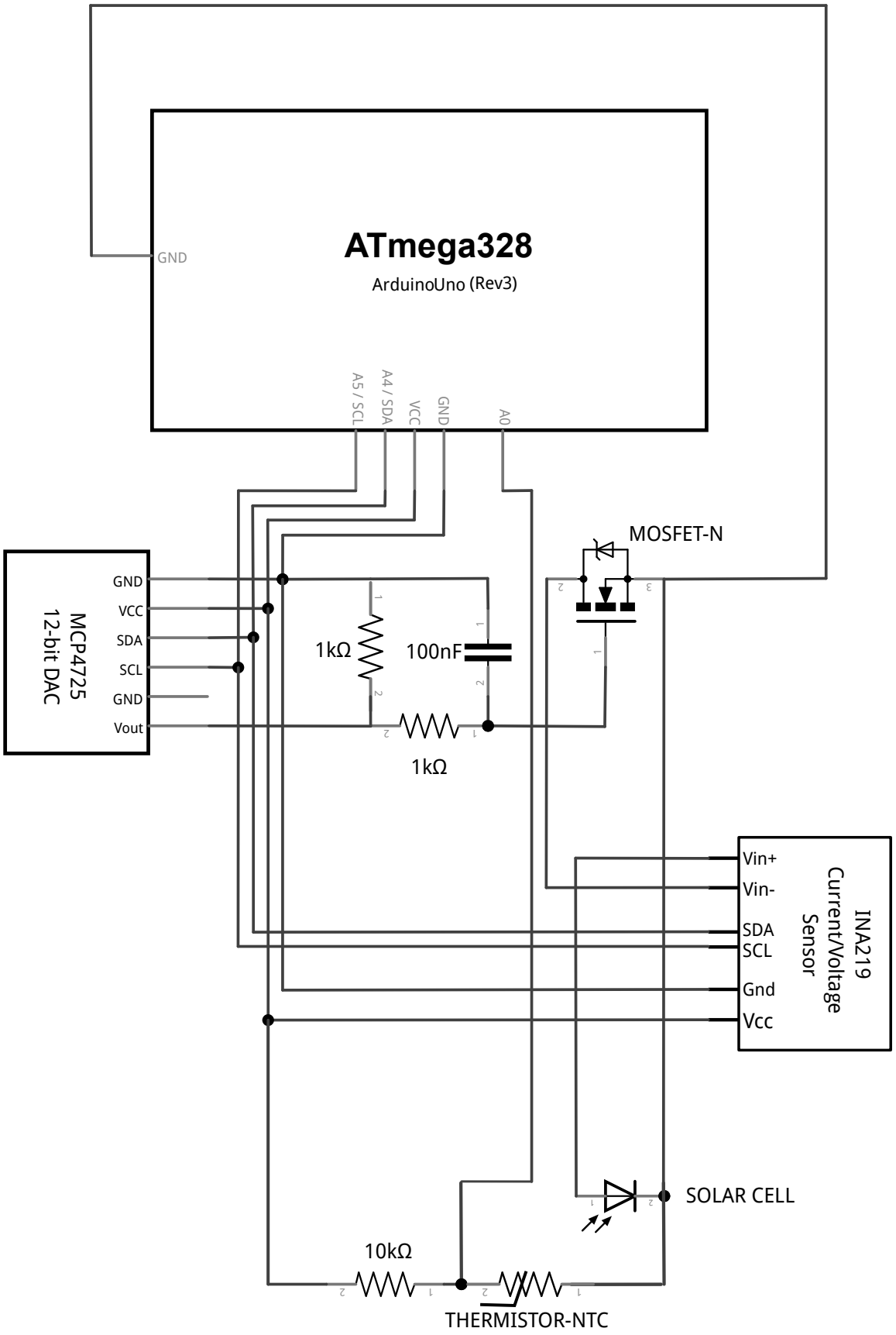
PEROVSKINO

Version 1. 11/10/2023
Emilio J. Juarez-Perez, ejjuarezperez@unizar.es

Table of Contents

Schematic

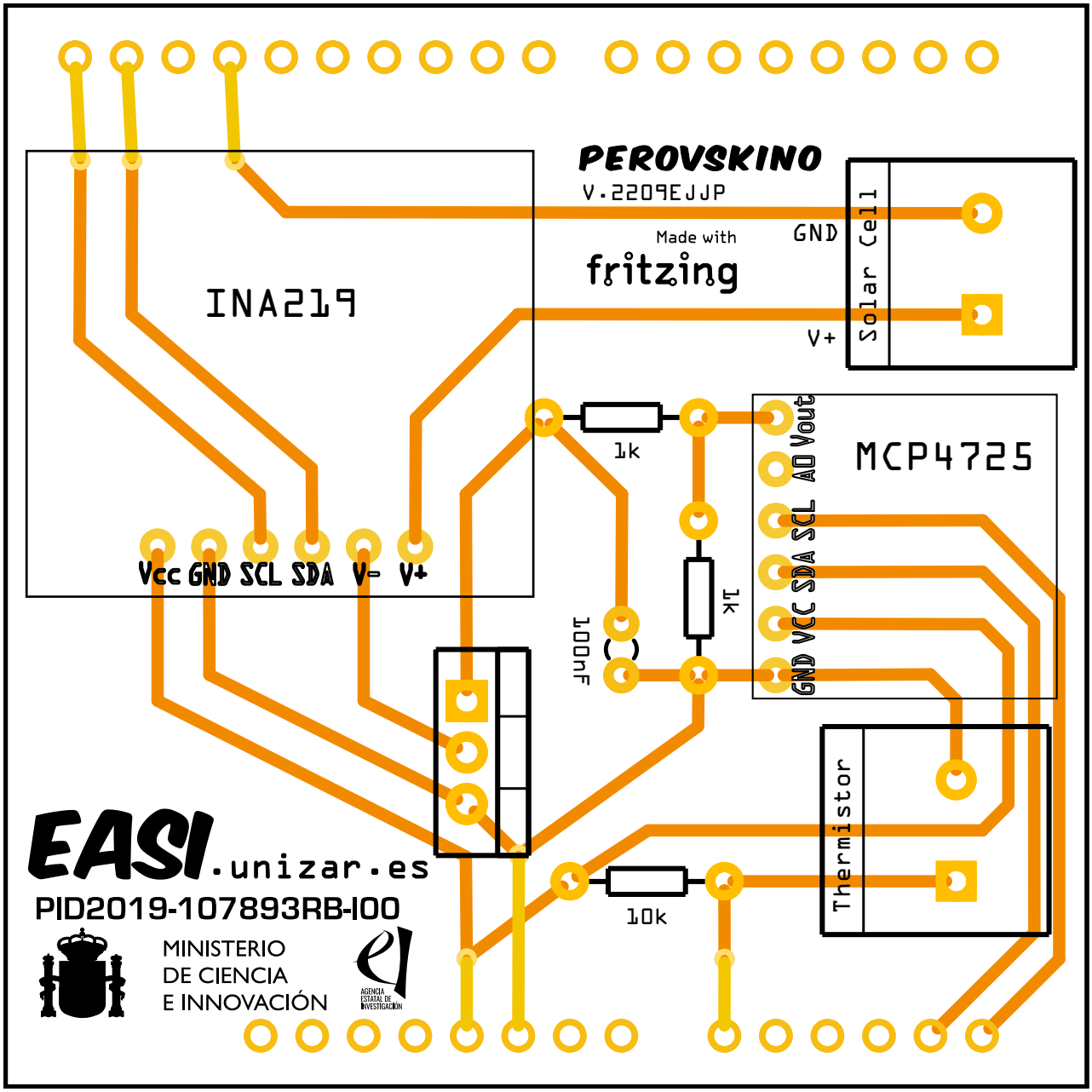

ATmega328
ArduinoUno (Rev3)
GND
A5 / SCL
A4 / SDA
VCC
GND
A0
MOSFET-N
MCP4725
12-bit DAC
GND
VCC
SDA
SCL
GND
Vout
1kΩ
100nF
1kΩ
Vin+
Vin-
SDA
SCL
Gnd
Vcc
INA219
Current/Voltage
Sensor
SOLAR CELL
10kΩ
THERMISTOR-NTC

Bill of Materials

Amount	Part Type	Properties
1	ATmega328	Atmel microchip as found in Arduino UNO (Rev3) or equivalent
1	MCP4725 12-bit DAC	chip label MCP4725 Breakout; editable pin labels false; variant variant 2; pins 6
1	INA219 DC Current Sensor Breakout	variant variant 5
1	Basic FET N-Channel	package TO220 [THT]; type n-channel, IRLZ34N, IRLI540N
1	Ceramic Capacitor	voltage 6.3V; capacitance 100nF; package 100 mil [THT, multilayer]
2	1kΩ Resistor	bands 4; tolerance ±5%; package THT; resistance 1kΩ; pin spacing 400 mil
1	10kΩ Resistor	bands 4; tolerance ±5%; package THT; resistance 10kΩ; pin spacing 400 mil
1	Temperature Sensor (Thermistor)	resistance at 25° 10kΩ; package THT; type thermistor; thermistor type NTC
2	Screw terminal - 2 pins	pin spacing 0.197in (5.0mm); hole size 1.0mm,0.508mm; package THT; pins 2

PEROVSKINO Shield 2209EJJP

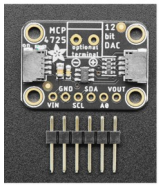
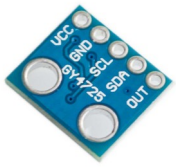
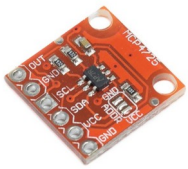
https://aisler.net/p/VEECBBJB



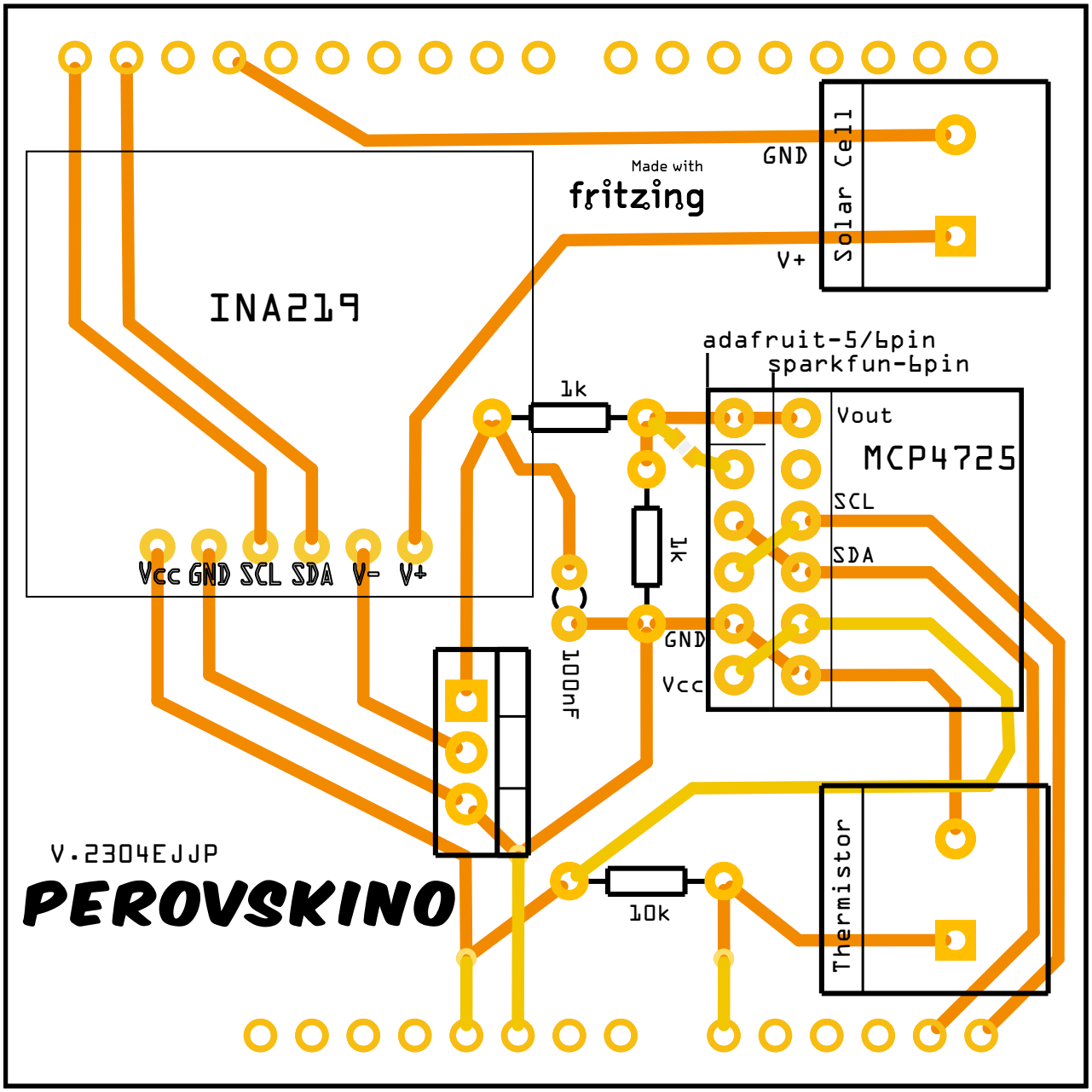
PEROVSKINO Shield 2304EJJP

https://aisler.net/p/SDRQAOGS

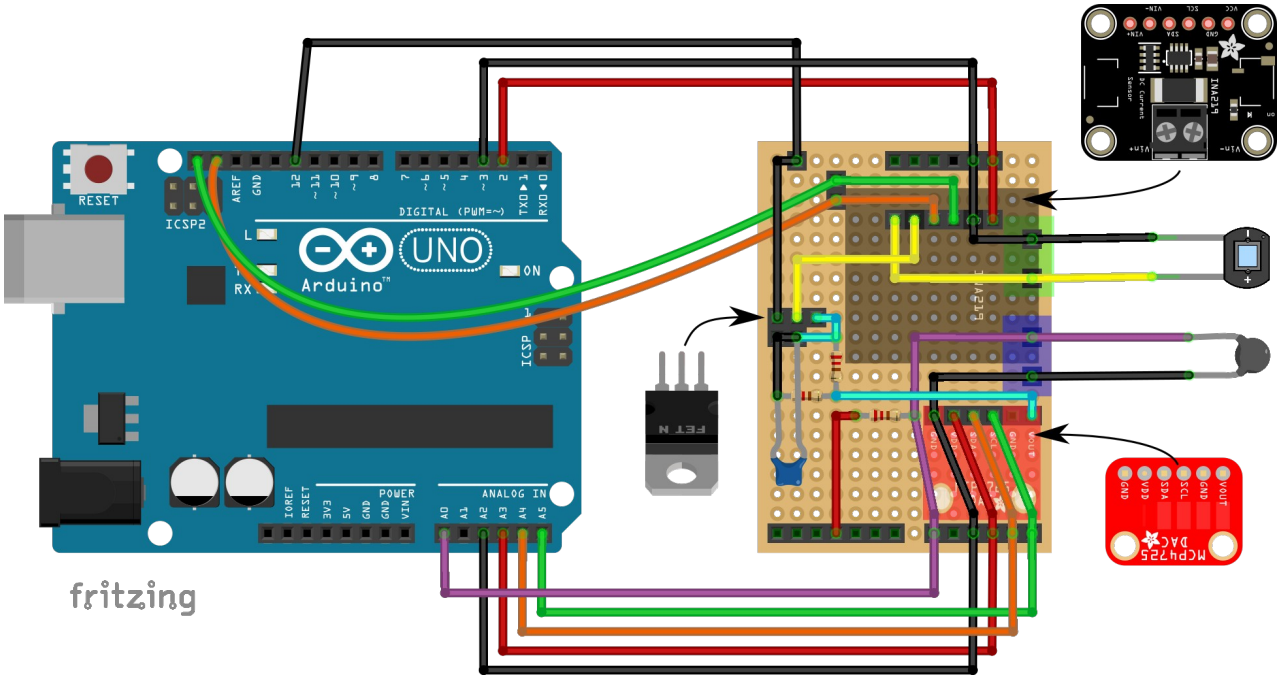
Update of the shield to accommodate various commercially available versions of MCP4725:

If employing the 5-pin Adafruit pin configuration, solder the pad connecting VGATE and pin 5.



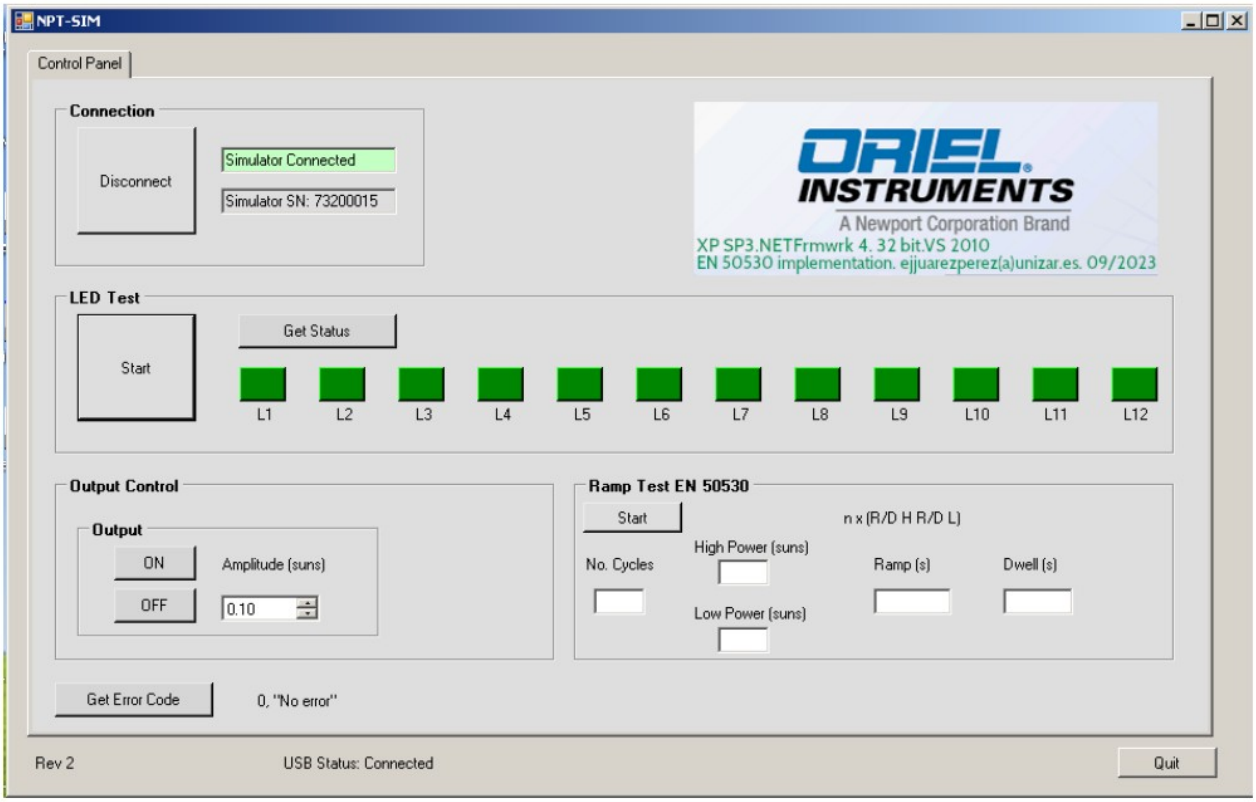
PEROVSKINO Perfboard Implementation



LSH-7320 Oriel Solar Simulator

For inquiries regarding a program to conduct EN50530 illumination cycle tests in the LSH-7320 LED-based Oriel Solar Simulator, please contact ejjuarezperez@unizar.es

C#, Winforms, Visual Studio 2010



Figures

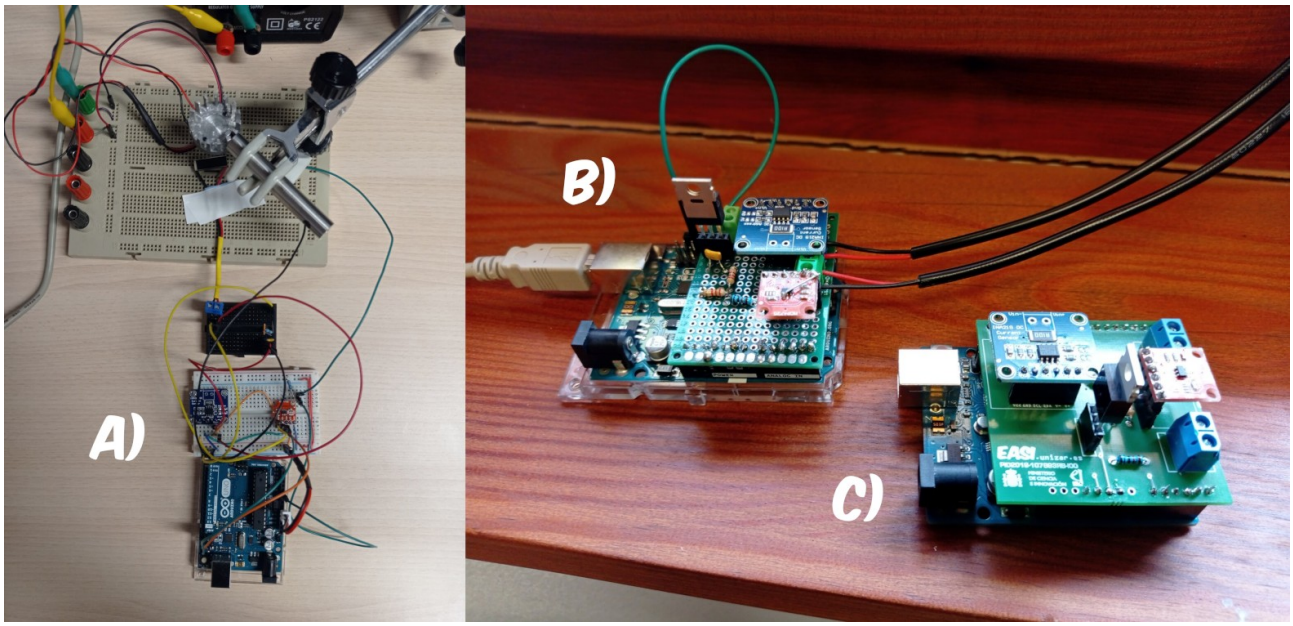


Figure: a) bread-, b) perf- and c) printed circuit- board (PCB) implementations of the **PEROVSKINO** shield.

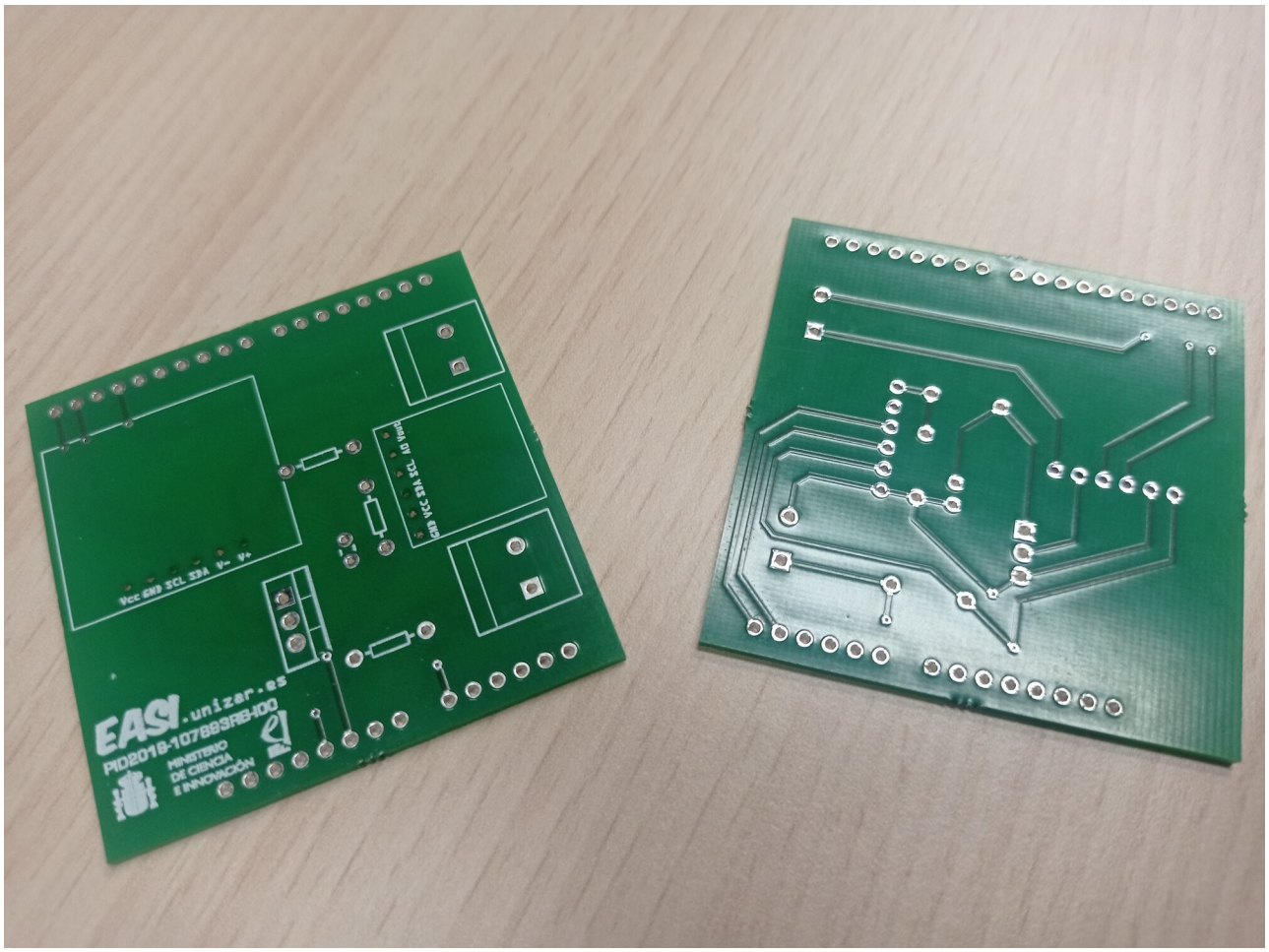


Figure: front and back of the **PEROVSKINO** shield (early version 0).

Figure: printed box with banana plugs for the Arduino + **PEROVSKINO** shield.