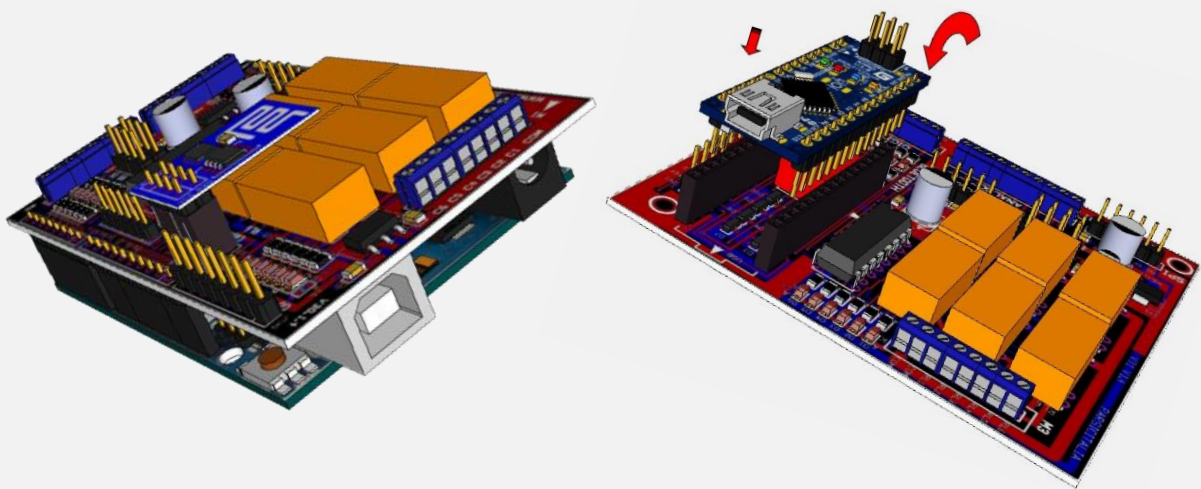


Home Automation With Arduino Nano



Features V31

Applications:

- Build Automation
- Teaching school – Self-Learning

Description

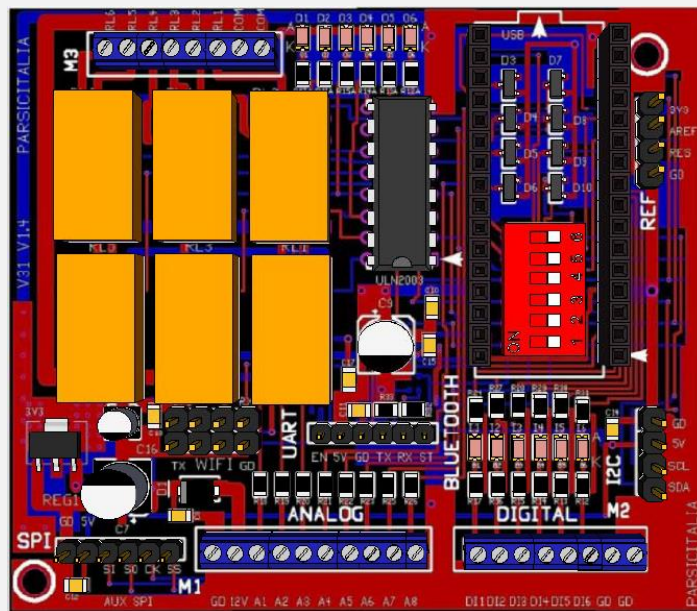
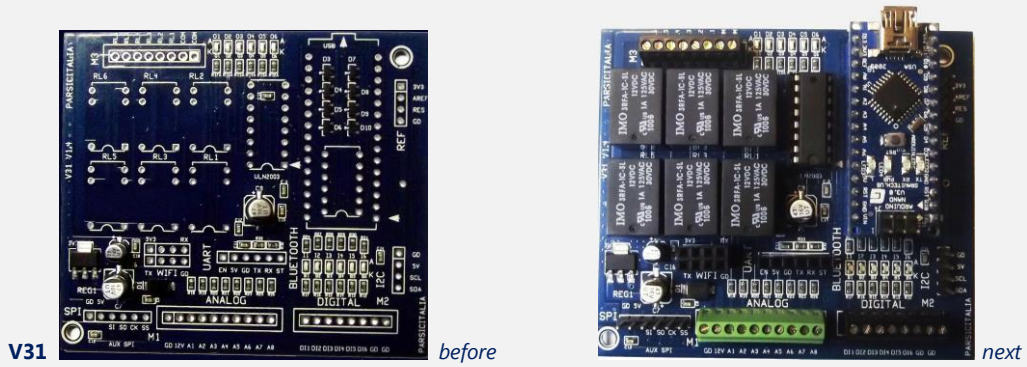
- Power supply 9-12V 500 mA protected input voltage
- Output Voltage 3V3 - 5V 200mA for internal or external sensor
- 6 Bidirectional digital lines in/out 0-5V (out 20mA), with signal led
- 6 Digital out lines on relays 1Amper
- 8 ADC 10 bit, 0-5V (10Vmax) input protected
- 1 dip-switch/Jumper-switch selector for SPI/I2C
- 1 port SPI/I2C
- 1 port UART
-

Led signal on board

LED	Description	Comment
LD1 Verde	Power input +9 (range 9-12Vcc)	Arduino Nano PWR
LD2 Rosso	TX	Arduino Nano UART
LD3 Rosso	RX	Arduino Nano UART
LDI1 Rosso	Digital Input 1	Bidirectional
LDI2 Rosso	Digital Input 2	Bidirectional
LDI3 Rosso	Digital Input 3	Bidirectional
LDI4 Rosso	Digital Input 4	Bidirectional
LDI5 Rosso	Digital Input 5	Bidirectional
LDI6 Rosso	Digital Input 6	Bidirectional
LDO1 Verde	Digital Output 1	Relay 1
LDO2 Verde	Digital Output 2	Relay 2
LDO3 Verde	Digital Output 3	Relay 3
LDO4 Verde	Digital Output 4	Relay 4
LDO5 Verde	Digital Output 5	Relay 5
LDO6 Verde	Digital Output 6	Relay 6

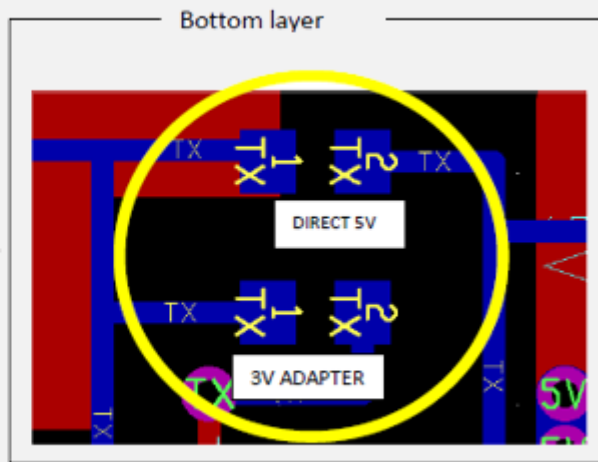
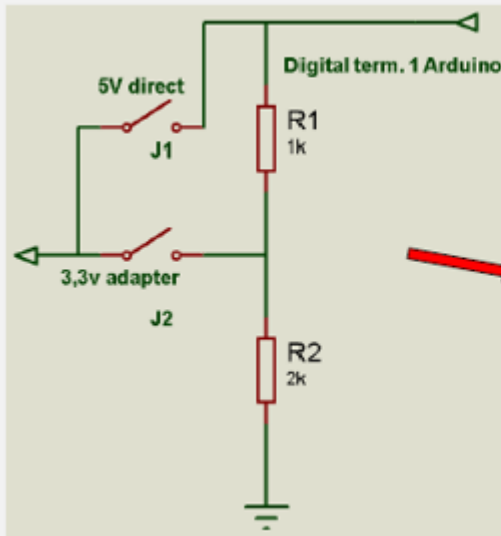
Circuit Board Hardware Mounting Kit

This printed circuit board have been designed to fit in any electrical box, by use a DIN Rail support and universal guide plastic 72mm. With this kit, you will have to solder few passive components: all SMT components are already soldered on board. Once you have done installing all components, the board will be ready for your Arduino applications.

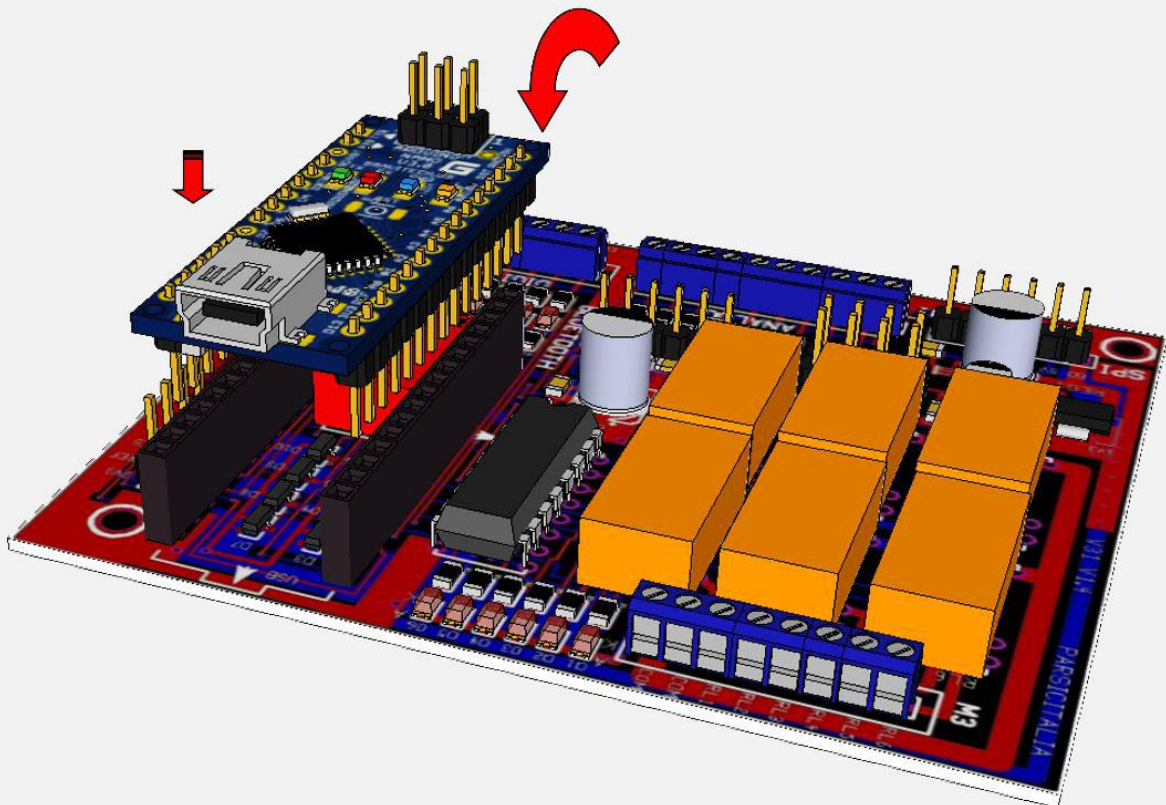


Plastic Cover DIN Rail

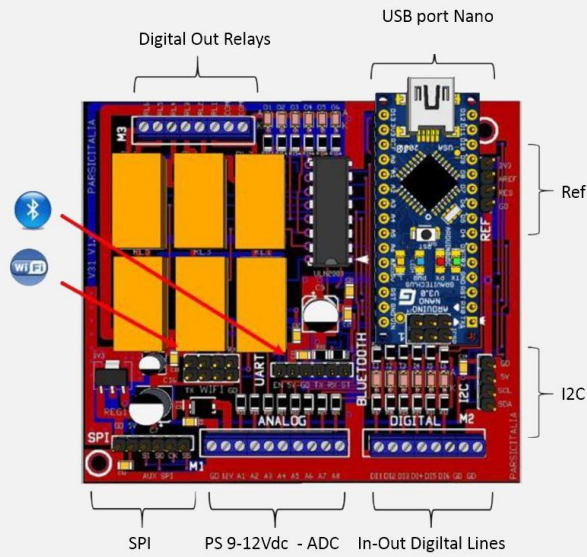
Set Jumper Wi-Fi



Arduino Nano



Pinout V31

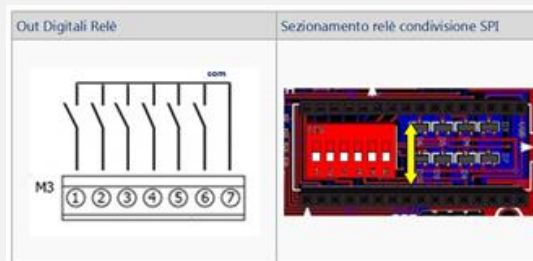


Input M2	Digital Inputs	Notes
M2-1	Digital Input 1 PD2	Bidirectional D2
M2-2	Digital Input 2 PD3 - PWM	Bidirectional D3 - PWM
M2-3	Digital Input 3 PD4	Bidirectional D4
M2-4	Digital Input 4 PD5 - PWM	Bidirectional D5 - PWM
M2-5	Digital Input 5 PD6 - PWM	Bidirectional D6 - PWM
M2-6	Digital Input 6 PD7	Bidirectional D7
M2-7	GND	Ground
M2-8	GND	Ground
Outputs M3	Digital OUT (Relays). PB1~PB5 are common lines	Notes
M3-1	COM	Common contact
M3-2	COM	Common contact
M3-3	Relè 1 PB0	Contact NO 1A
M3-4	Relè 2 PB1 - PWM	Contact NO 1A
M3-5	Relè 3 PB2 - SS/PWM	Contact NO 1A
M3-6	Relè 4 PB3 - MOSI/PWM	Contact NO 1A
M3-7	Relè 5 PB4 - MISO	Contact NO 1A
M3-8	Relè 6 PB5 - SCK	Contact NO 1A
Input ADC M1	Description ADC. Max input 10V!	Comment
M1-1	GND	GND Ground
M1-2	Input Power Supply Board 9-12Vdc	Suggest power supply 9Vdc
M1-3	ADC0	
M1-4	ADC1	
M1-5	ADC2	
M1-6	ADC3	
M1-7	ADC4 - SDA	Common line I2C SDA SW6
M1-8	ADC5 - SCL	Common line I2C SCL SW5
M1-9	ADC6	
M1-10	ADC7	

SPI lines

To use the **SPI communication device**, the digital output lines (relay) are selectable by dip-switches, located inside the connector to 30-pin Arduino. Switch Off switches (1) SCK, MOSI (2), (3) MISO, SS (4) where you will have to use an external SPI device. These switches, when open, rule out the 3/4/5/6 drive relay. The following table shows the digital terminals interested in the SPI serial communication.

AUX-SPI	Description SPI	Notes
J1	GND	GND
J2	+5V	Out aux 5V
J3	SPI MOSI (SI)	SPI MOSI = SW2
J4	SPI MISO (SO)	SPI MISO = SW3
J5	SPI SCK (CK)	SPI SCK = SW1
J6	SPI SS (SS)	SPI SS = SW4



I2C lines

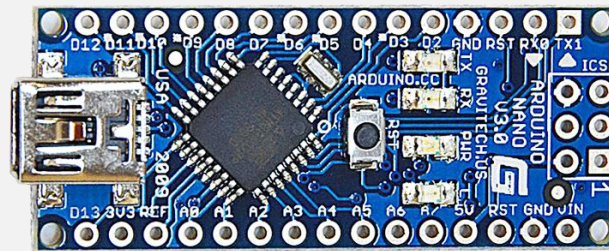
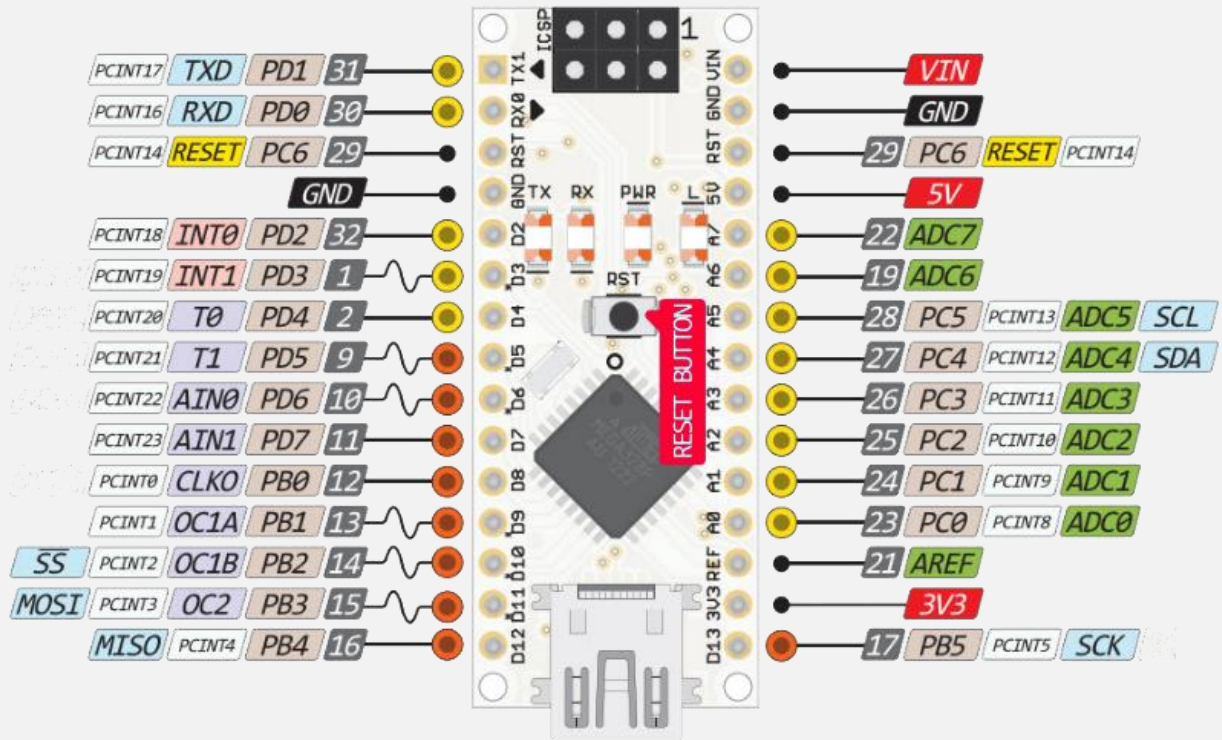
To use the **I2C lines**, selectable by dip-switches 6 and 6, located inside the connector to 30-pin Arduino. Switch Off switches (5) SCL and (6) SDA, where you will have to use an external I2C device. These switches, when open, rule out the ADC4 and ADC5. The following table shows the ADC terminals interested in the I2C serial communication.

I2C lines	Description	Comment
J1	GND	Ground
J2	Alimentazione ausiliaria 5V	Aux out 5V 100mA
J3	ADC5 - SCL	SCL line
J4	ADC4 - SDA	SDA line

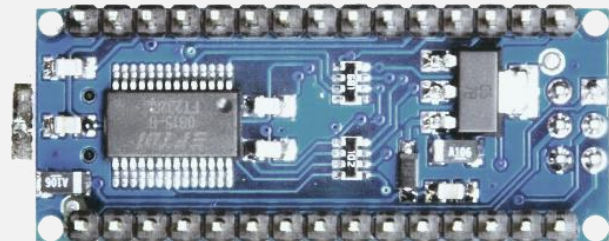
AUX REF

AUX REF	Description	Comment
J1	3V3 Tensione ausiliaria 3,3V	Out alimentazione 3,3V 250mA
J2	AREF	Tensione di riferimento analogico
J3	Reset	Pulsante di reset esterno
J4	GND	Massa generale

Pinout Arduino Nano

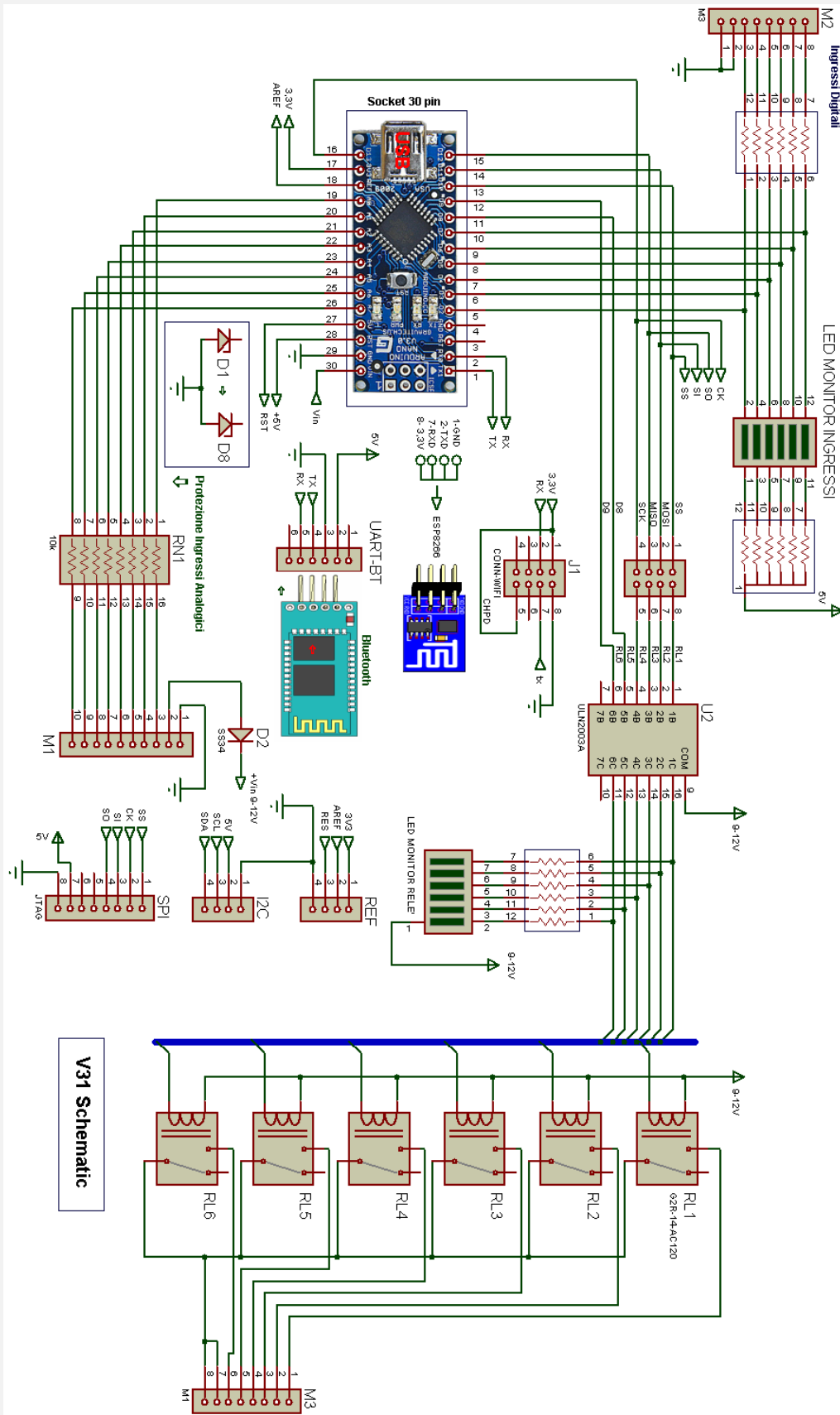


Upper layer



Bottom layer

Electrical Diagram V31



V31 Schematic