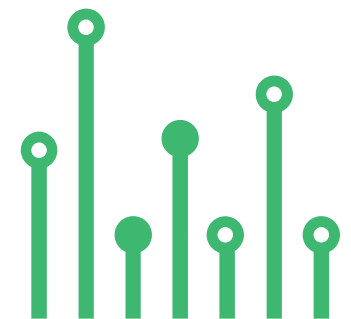


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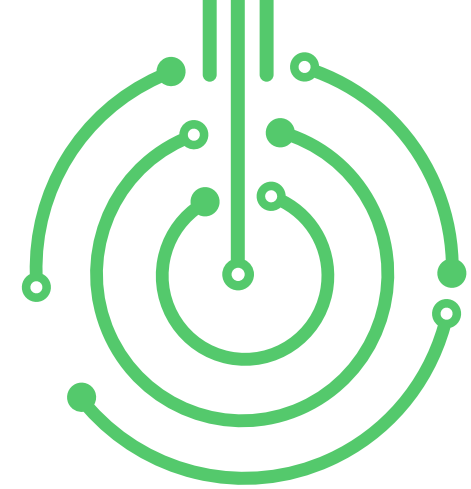
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ARDUINO



Over Current Alarm with 15 Segment Bar- Graph Display



SKU: EL148238

Over Current Alarm with 15 Segment Bar-Graph Display



This Bar-Graph Display provides a high visibility 15-Segment Bar-Graph display for current measurements. A buzzer provides audible sound when an over-current condition event occurs. The 15 segments are made with Red, Blue, Green, and yellow color LEDs. All LEDs are SMD size 1206. This tiny board can display 0 to 2A current and provide an Alarm sound when the current level goes more than 2A. The project is Arduino-compatible and is based on an ATMEGA328 chip. INA198 chip measures the load current across the shunt resistor and provides an output voltage to ADC of ATMEGA328. The microcontroller drives and controls the 15 LEDs connected to I/O lines.

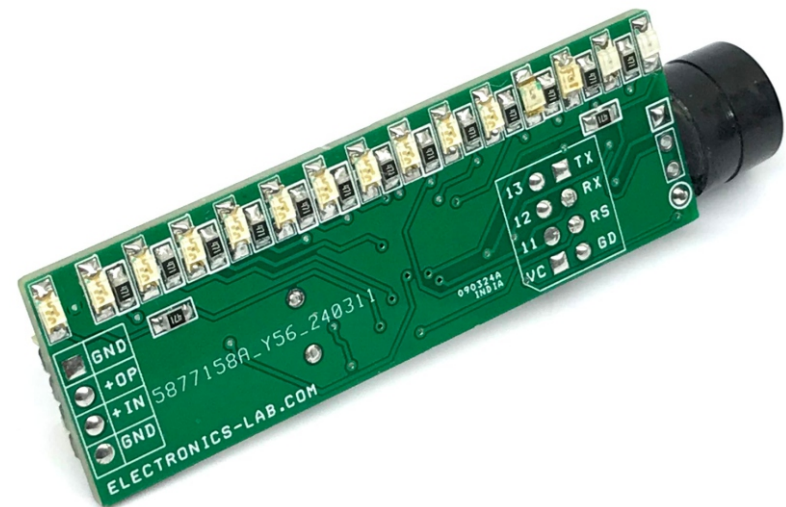
The project is Arduino-compatible. Connectors CN2 and CN3 are provided for Arduino programming and boot-loader. An example Arduino code is available as a download. Users may modify and write their code. Refer to the diagrams below for Bootloader and Arduino programming connection. Each LED display consumes approx. 125mA current and the ADC Map values to 15Leds + Buzzer.



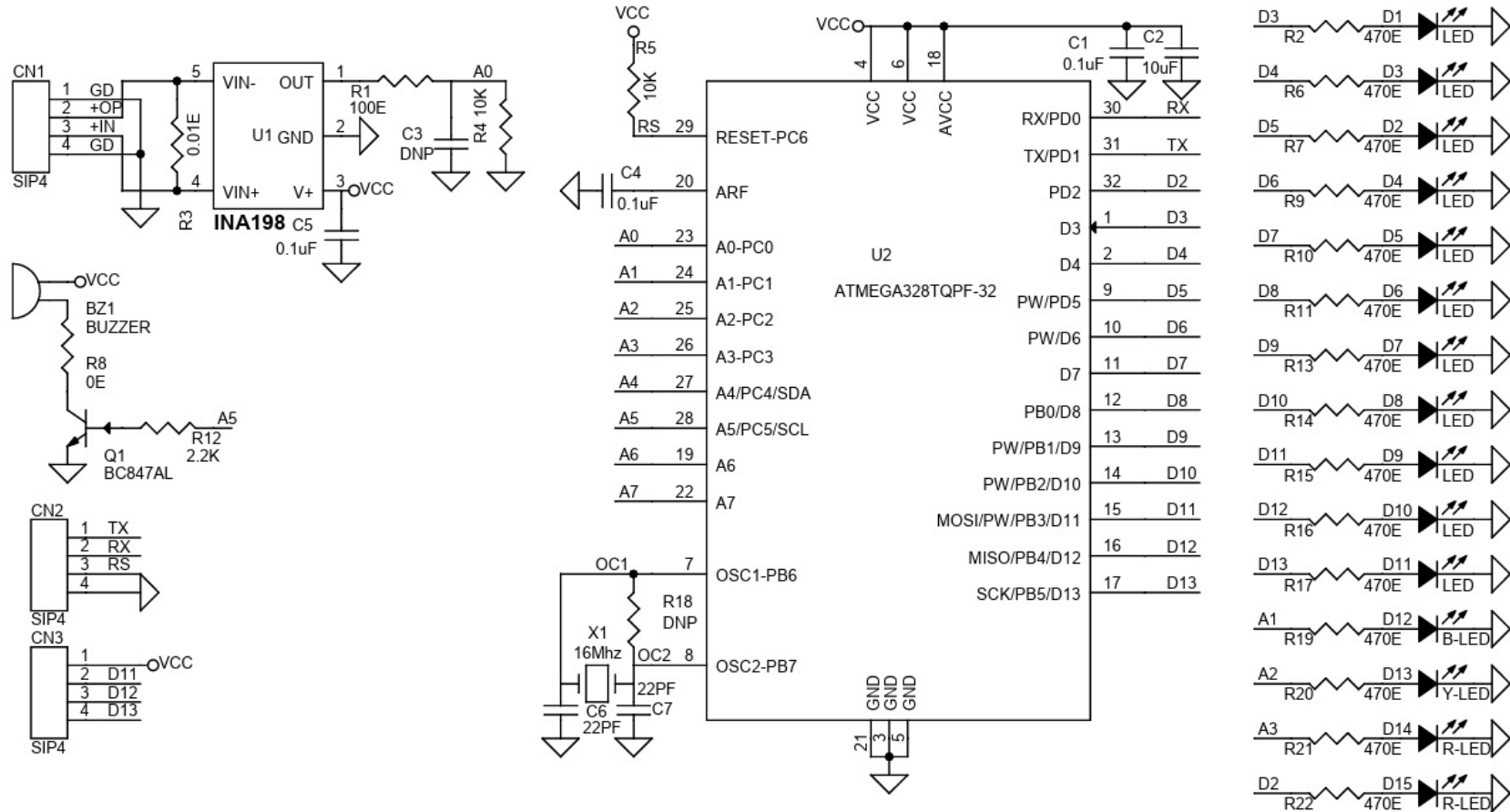
Note: Arduino code is written to measure 2A current. The project can support a higher or lower current range, by changing the value of the shunt resistor. A higher or lower current range can be achieved. Please read the datasheet of INA198 for more info.

FEATURES

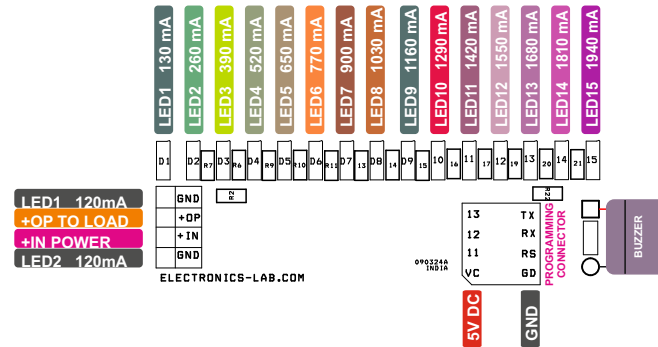
- Power 5V DC
- 15 Bar-Graph LEDs (Red, Green, Blue, Yellow Colour)
- Buzzer for Over Current
- INA198 Current to Voltage Converter Chip
- Arduino Compatible Project
- PCB Dimensions 59.37X19.84MM
- Header Connector for Current Measurement
- Header Connector for Arduino Programming and Bootloader
- PCB Dimensions 59.37 x 19.84mm



Schematic



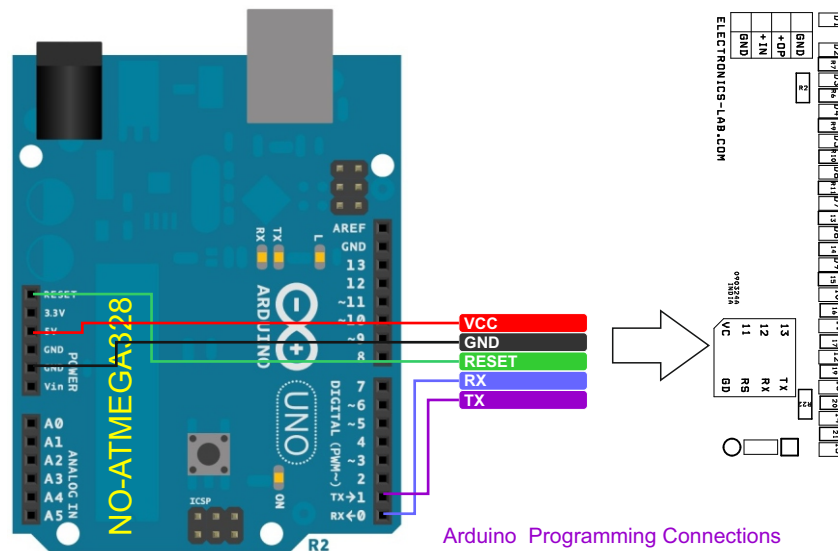
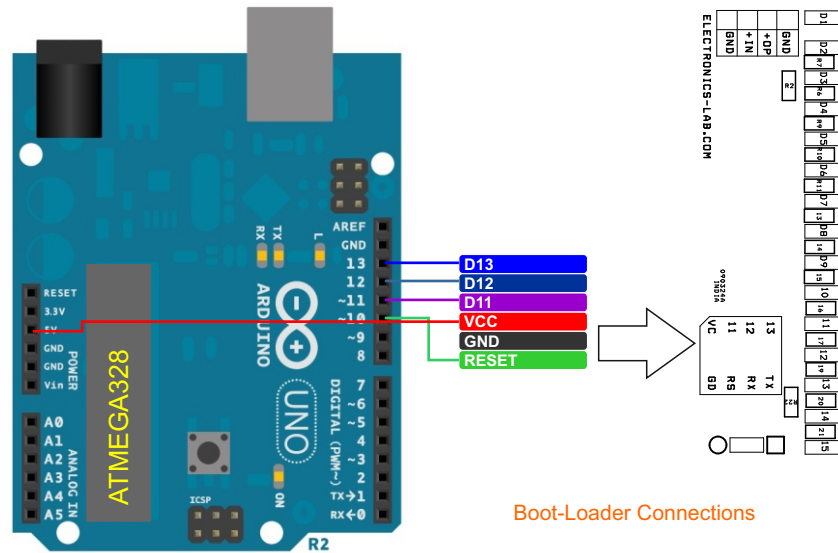
Connections



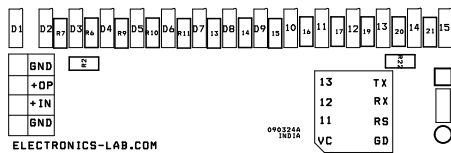
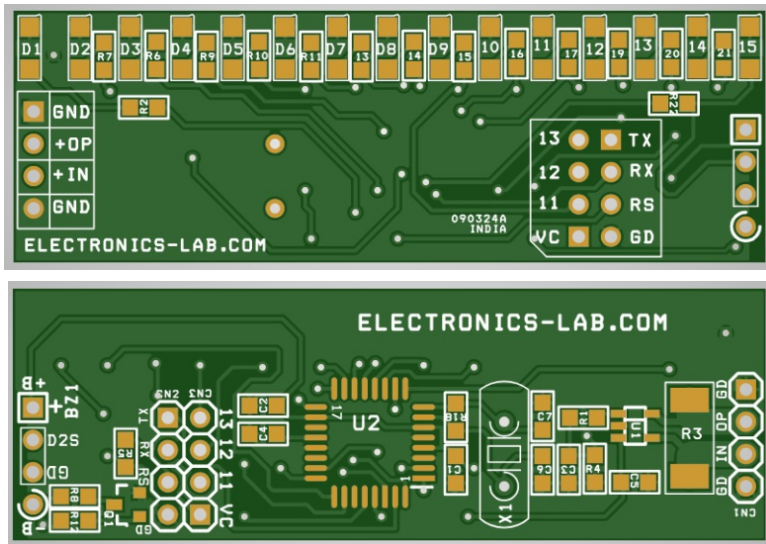
CONNECTIONS

- Cn1: Pin 1 = GND, Pin 2 = +OP to Load, Pin 3 = +In, Pin 4 = GND
- CN2: Pin 1 = TX, Pin 2 = TX, Pin 3 = Reset, Pin 4 = GND, (Programming Connector)
- CN3: Pin 1 = VCC 5V, Pin 2 = D11, Pin 3 = D12, Pin 4 = D13 (Programming Connector)
- Arduino Pins: Buzzer A5, Analog Current Sense Input = A0
- Bar-Graph LED Vs Arduino Pins: LED 1 = D3, LED 2 = D5, LED 3 = D4, LED 4 = D6, LED 5 = D7, LED 6 = D8, LED 7 = D9, LED 8 = D10, LED 9 = D11, LED 10 = D12, LED 11 = D13, LED 12 = A1, LED 13 = A2, LED 14, A3, LED 15 = D2

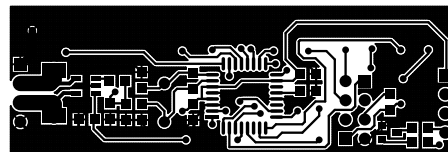
ARDUINO PROGRAMMING



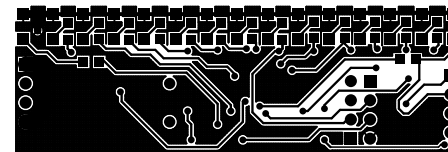
PCB



SILK SCREEN TOP



BOTTOM LAYER

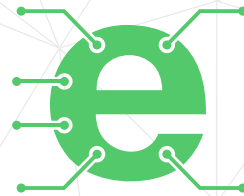


TOP LAYER

PCB DIMENSIONS 59.37X19.84MM

Parts List

BOM						
NO	QNTY	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	BZ1	5V BUZZER 10MM	CUI AUDIO	DIGIKEY	102-1155-ND
2	3	CN1,CN2,CN3	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
3	3	C1,C4,C5	0.1uF/50V CERAMIC SMD	YAGEO/MURATA	DIGIKEY	
4	1	C2	10uF/16V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	2	C3,R18	DNP			
6	2	C6,C7	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	11	D1,D2,D3,D4,D5,D6,D7,D8,D9,D10,D11	LED-GREEN SMD SIZE 1206	WURTH	DIGIKEY	732-4993-1-ND
8	1	D12	BLUE-LED SMD SIZE 1206	WURTH	DIGIKEY	732-4989-1-ND
9	1	D13	YELLOW-LED SMD SIZE 1206	LITE ON INC	DIGIKEY	160-1406-1-ND
10	2	D14,D15	RED-LED SMD SIZE 1206	WURTH	DIGIKEY	732-4991-1-ND
11	1	Q1	BC847AL SOT23-3	ONSEMI	DIGIKEY	BC847CLT3GOSCT-ND
12	1	R1	100E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	15	R2,R6,R7,R9,R10,R11,R13,R14,R15,R16,R17,R19,R20,R21,R22	470E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R3	0.01E 1% 2W SMD SIZE 2512	YAGEO/MURATA	DIGIKEY	
15	2	R4,R5	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
16	1	R8	0E SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
17	1	R12	2.2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
18	1	U1	INA198 SOT23-5	TI	DIGIKEY	296-38950-1-ND
19	1	U2	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328P-AURCT-ND
20	1	X1	16Mhz	ECS INC.	DIGIKEY	16MHZ CRYSTAL



Keep
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