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boards

Fuel Gauge with OLED Display

SKU: EL153860

Fuel Gauge, OLED Display

This project enables the measurement of fuel levels in a tank using a resistive float sensor. The fuel level is measured and displayed on an OLED display. The project is compatible with Arduino and features an ATMEGA328 microcontroller. The resistive sensor, connected to a divider resistor, is linked to Analog pin A0 of the Arduino chip. The OLED display is connected to the I2C pins of the microcontroller. Overall, the OLED display with needle-type visualization and 0 to 100% fuel capacity range provides a clear, accurate, and easy-to-read indication of the fuel level, making it an essential feature in modern vehicles.

FEATURES

- Power Supply 5V DC
- 0.96Inch OLED Display
- Arduino Compatible Project
- Project Accommodates Any Resistive Sensor 2 Wire or 3 Wire
- On Board Connector for Bootloader and Arduino Programming
- PCB Dimensions 27.62MMX28.73MM
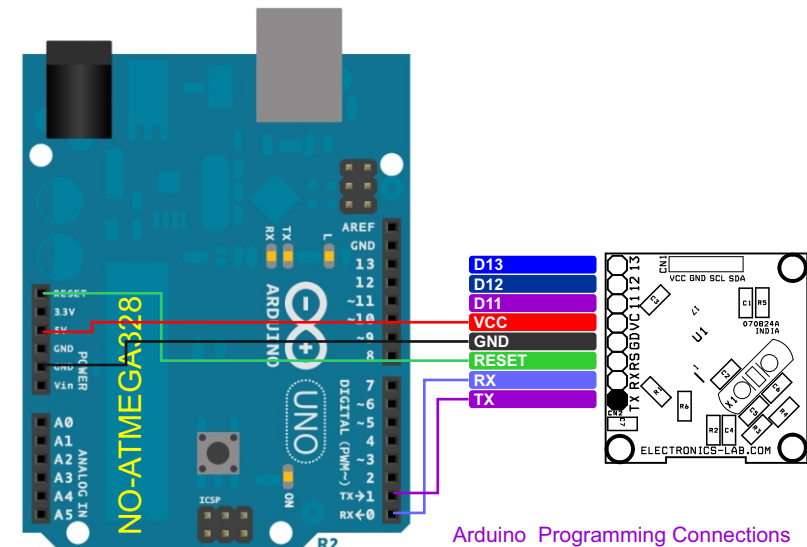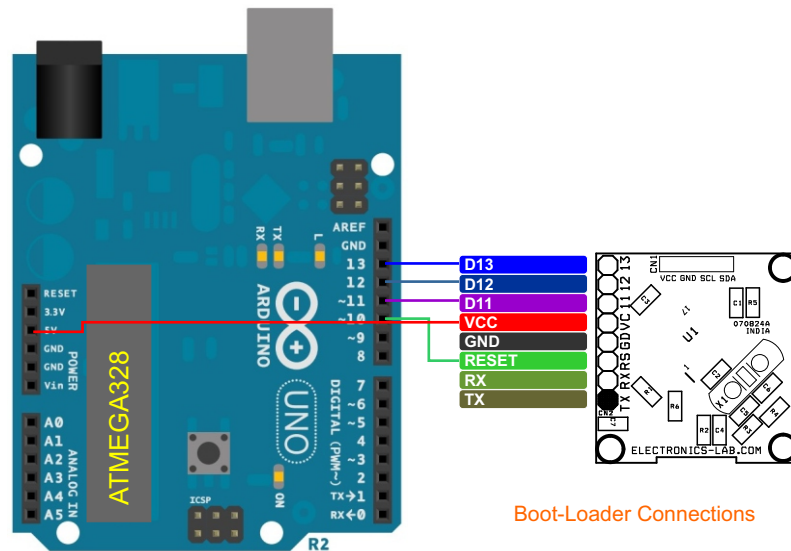
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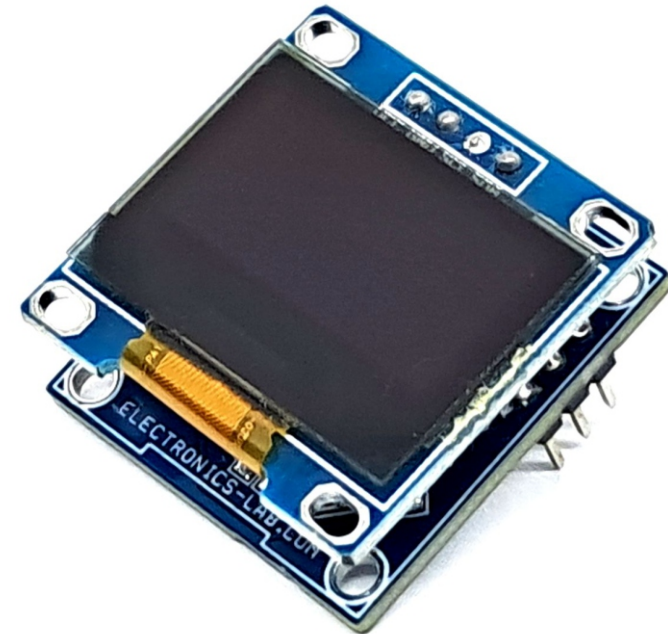
Arduino Code

The Arduino code for testing the project is available in downloads. To utilize the code, load the bootloader and upload the code to a new ATMEGA328 microcontroller using the onboard programming connector. Please refer to the connection diagram for guidance.

Bootloader: https://docs.arduino.cc/retired/hacking/software/Bootloader/

Arduino Bootloader and Arduino Programming: https://docs.arduino.cc/built-in-examples/arduino-isp/ArduinoToBreadboard/

Boot-Loader Connections

Arduino Programming Connections

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Sensor

The resistive sensor is employed to measure the fuel level, and when paired with a 1K divider resistor, it produces an analog value ranging from 795 to 980. This analog signal is then connected to the Analog-to-Digital Converter (ADC) pin A0 of the Arduino chip. The Arduino chip evaluates the input signal and subsequently displays the fuel level on the OLED display.

> **Note:** Different sensors may produce varying output values. To ensure accurate readings, it is recommended to map the correct value in the Arduino code according to the specific sensor's output. This calibration step is crucial to obtain reliable fuel level measurements.
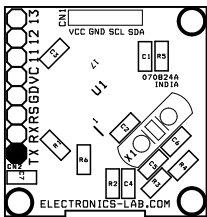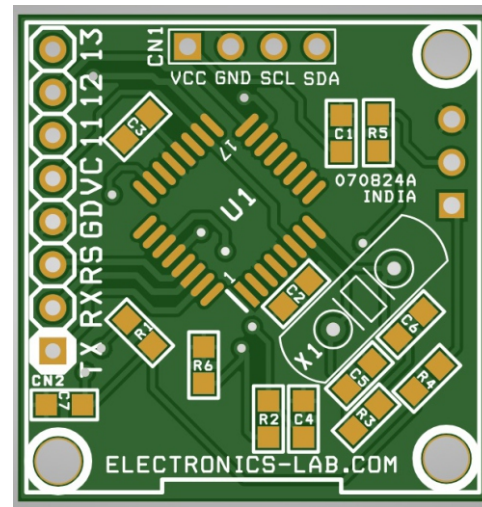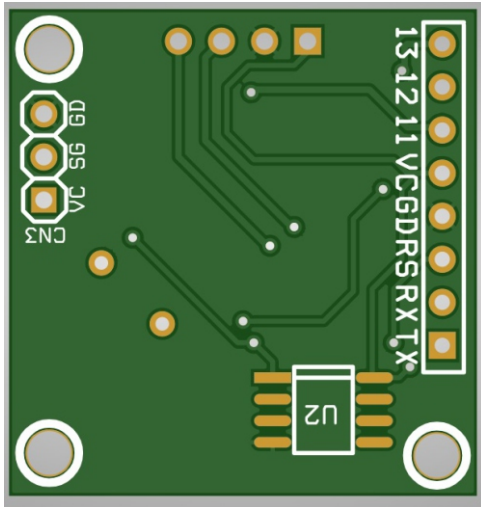
Schematic

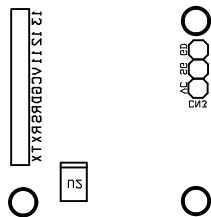Open Source Hardware Projects
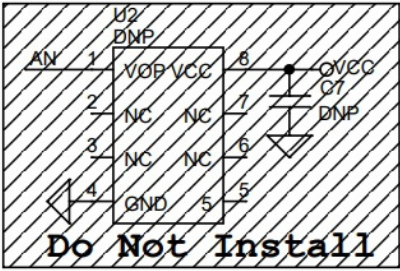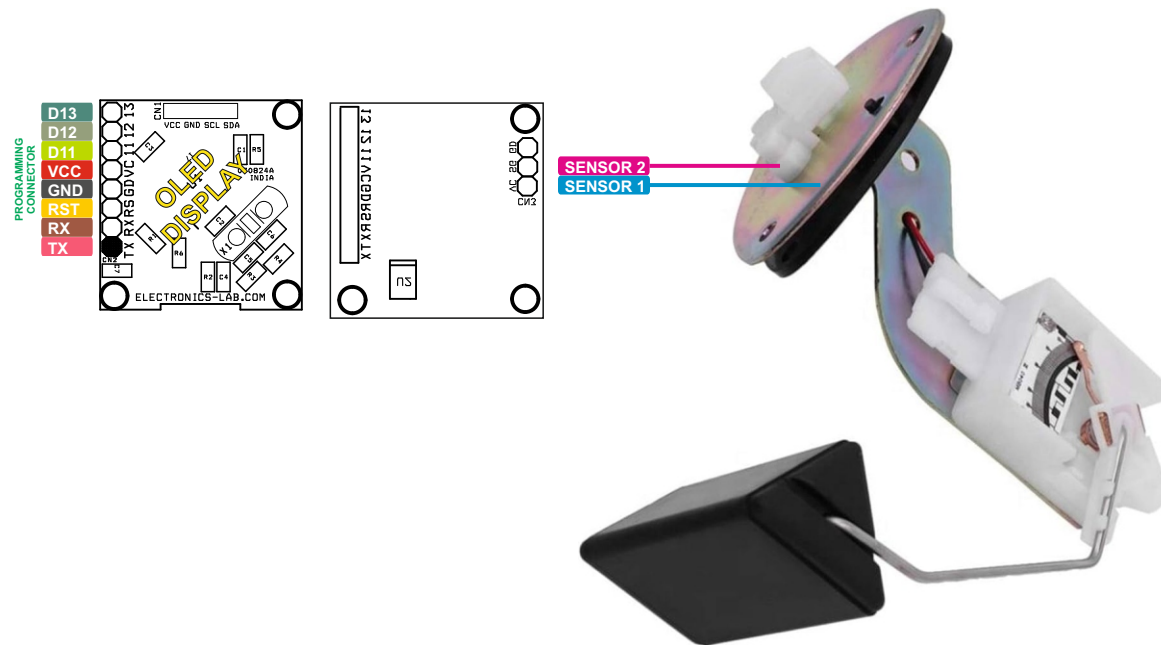
Connections

Connections

- CN1: OLED Display, Pin 1 = VCC, Pin 2 = GND, Pin 3 = SCL, Pin 4 = SDA
- CN1: Programming Connector, Pin 1 = TX, Pin 2 = RX, Pin 3 = Reset, Pin 4 = GND, Pin 5 = VCC, Pin 6 = D11, Pin 7 = D12, Pin 8 = D13
- CN3: Sensor Connection, Pin 1 = Sensor 1 (VCC), Pin 2 = Sensor 2 (Analog A0), Pin 3 = GND Note in Use
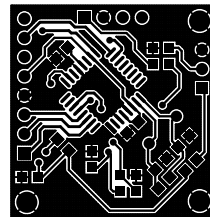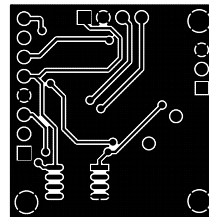
PCB

PCB GERBER
FILES
AVAILABLE

SILK SCREEN TOP

SILK SCREEN BOTTOM

TOP LAYER

BOTTOM LAYER

PCB DIMENSIONS 27.62MMX28.73MM

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Parts List

| QNTY.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
			BOM			
1	1	CN1	OLED DISPLAY 0.96INC 128X64	WINSTAR	DIGIKEY	4863-WEA012864DWPP3N00003-ND
2	1	CN2	8 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5321-ND
3	1	CN3	3 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5316-ND
4	1	C1	10uF/10V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	3	C2,C3,C4	100nF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	2	C5,C6	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	2	U2,C7	DNP			
8	1	R1	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
9	3	R2,R4,R5	0E SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	1	R3	1M 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	R6	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	U1	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328P-AU-ND
13	1	X1	16Mhz	ECS INC	DIGIKEY	X1103-ND

Notes

APP
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Android App

DOWNLOAD

Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

SCAN QR CODE

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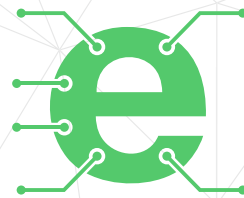
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