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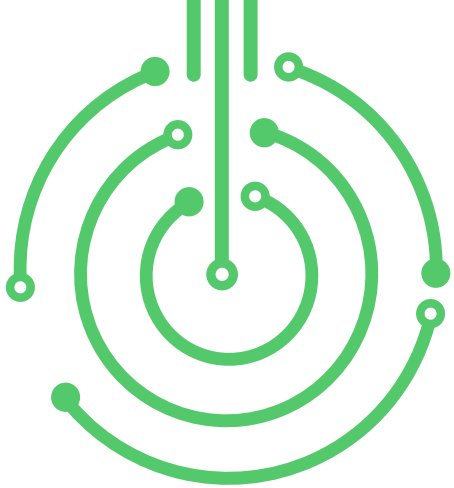


Fuel Level Monitor with 15 Segments Bar-Graph Display

SKU: EL150128

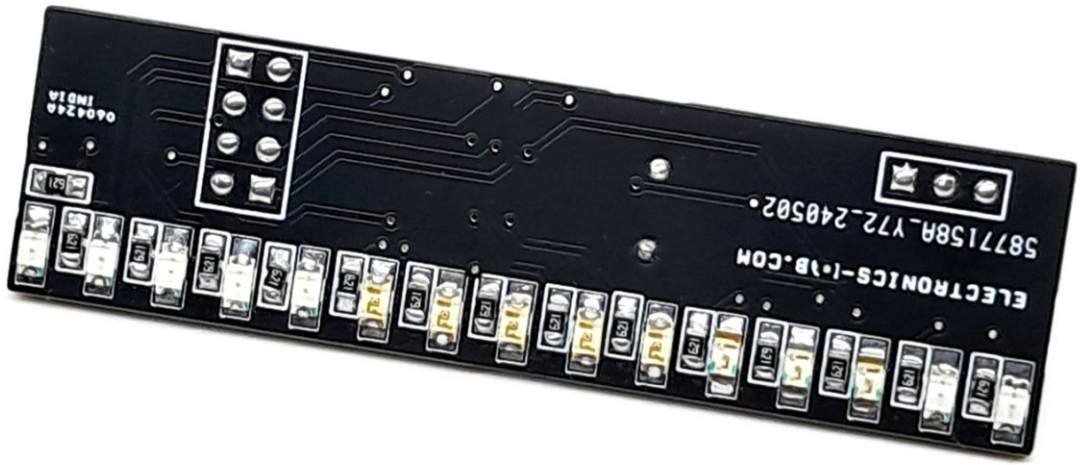
AUTOMOTIVE

Fuel Level Monitor, 15 Segments Bar-Graph Display

This Fuel level Monitor allows users to measure the fuel level using a resistive float sensor in the fuel tank. The project measures the fuel level and displays it on a 15-segment bar-graph display. The project is Arduino-compatible and consists of ATMEGA328 controller. The resistive sensor with a divider resistor is connected to Analog pin A0 of the MCU chip. The 15 LEDs of different colors are connected to various Arduino pins.

FEATURES:

- Power Supply 5V DC
- 15 Segments Bar-Graph Display
- Arduino Compatible Project
- Project Accommodates Any Resistive Sensor 2 Wire or 3 Wire
- Multicolour LEDs Used for Easy Visualisation
- On Board Connector for Bootloader and Arduino Programming
- PCB Dimensions 65.41X18.42MM



Arduino Code

Arduino code is available to test the project. Burn the bootloader and code to a new ATMEGA328 microcontroller using the onboard programming connector. Refer to the connection diagrams below.

Bootloader:

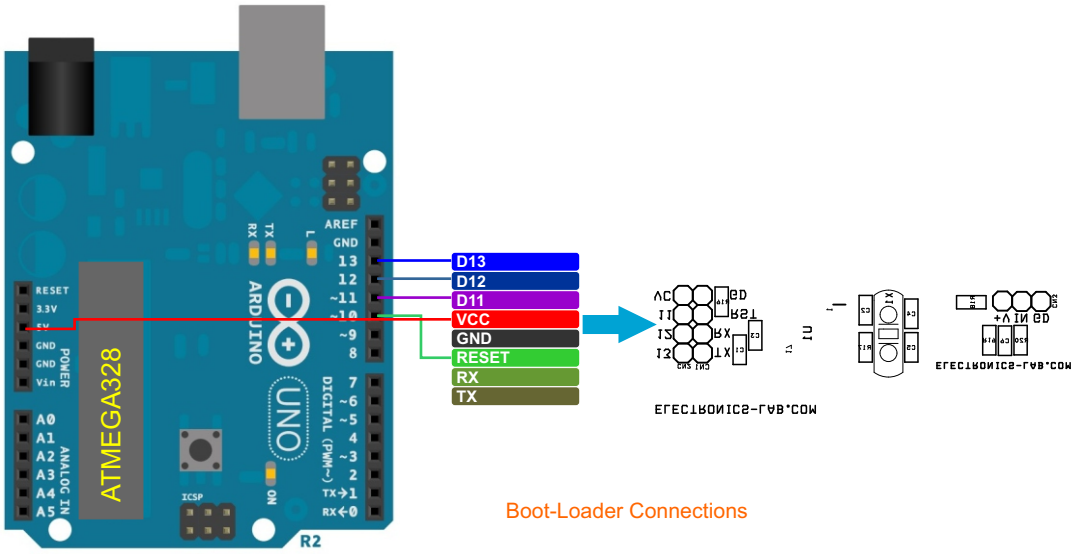
https://docs.arduino.cc/retired/hacking/software/Bootloader/

Arduino Bootloader and Arduino Programming:

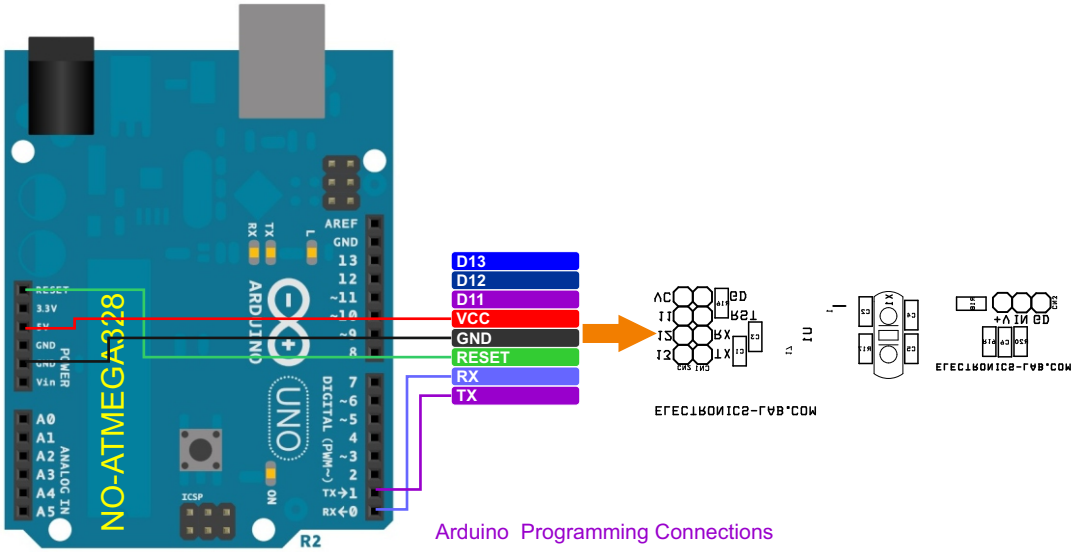
https://docs.arduino.cc/built-in-examples/arduino-isp/ArduinoToBreadboard/

Sensor

A resistive sensor is used to measure the fuel level. This sensor with 1kΩ divider resistor outputs analog values 785 to 984. This analog signal is connected to ADC A0 of the Arduino chip. Arduino chip evaluates input signal and controls 15LEDs. Different sensor provides different outputs. It is advisable to map the right value in Arduino code as per the sensor's output.

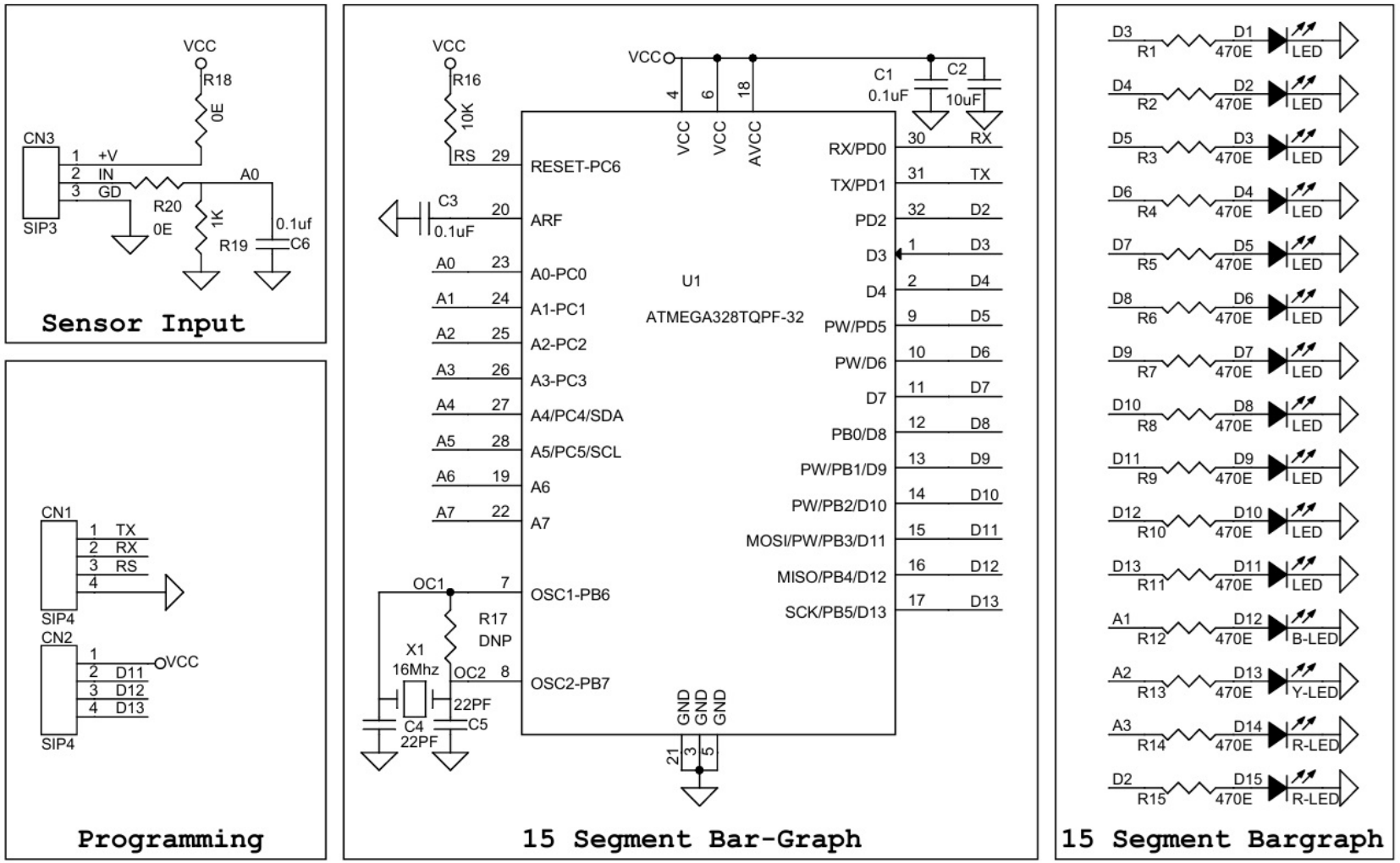


Boot-Loader Connections



Arduino Programming Connections

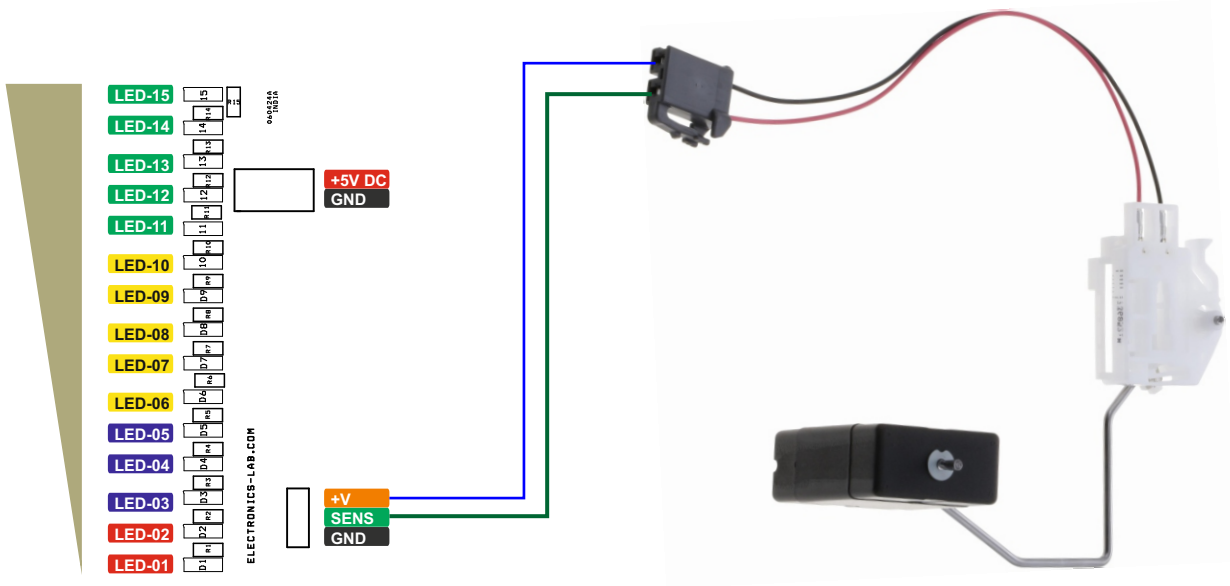
Schematic


VCC
R18
0E
CN3
1 +V
2 IN
3 GD
A0
R20
0E
1K
R19
0.1uf
C6
SIP3
Sensor Input
CN1
1 TX
2 RX
3 RS
4
SIP4
CN2
1
2 D11
3 D12
4 D13
VCC
SIP4
Programming
VCC
R16
10K
RS 29
RESET-PC6
C3
0.1uF
20
ARF
A0 23
A0-PC0
A1 24
A1-PC1
A2 25
A2-PC2
A3 26
A3-PC3
A4 27
A4/PC4/SDA
A5 28
A5/PC5/SCL
A6 19
A6
A7 22
A7
OC1 7
OSC1-PB6
R17
DNP
X1
16Mhz
OC2 8
OSC2-PB7
22PF
C4
22PF
C5
VCC
4
6
18
VCC
VCC
AVCC
C1
0.1uF
C2
10uF
GND
GND
GND
21
3
5
U1
ATMEGA328TQPF-32
RX/PD0 30 RX
TX/PD1 31 TX
PD2 32 D2
D3 1 D3
D4 2 D4
PW/PD5 9 D5
PW/D6 10 D6
D7 11 D7
PB0/D8 12 D8
PW/PB1/D9 13 D9
PW/PB2/D10 14 D10
MOSI/PW/PB3/D11 15 D11
MISO/PB4/D12 16 D12
SCK/PB5/D13 17 D13
15 Segment Bar-Graph
D3 R1 D1 470E LED
D4 R2 D2 470E LED
D5 R3 D3 470E LED
D6 R4 D4 470E LED
D7 R5 D5 470E LED
D8 R6 D6 470E LED
D9 R7 D7 470E LED
D10 R8 D8 470E LED
D11 R9 D9 470E LED
D12 R10 D10 470E LED
D13 R11 D11 470E LED
A1 R12 D12 470E B-LED
A2 R13 D13 470E Y-LED
A3 R14 D14 470E R-LED
D2 R15 D15 470E R-LED
15 Segment Bargraph

Connections

Arduino Pins

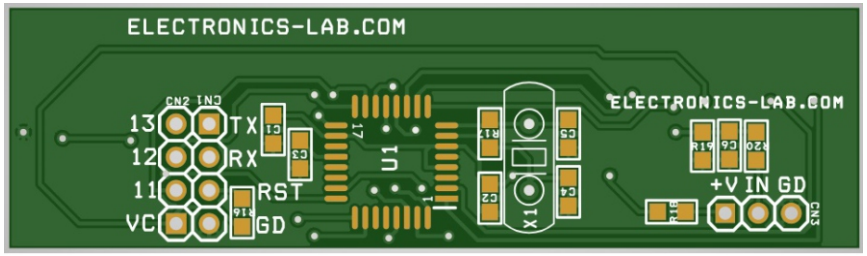
- Sensor Input Analog-0 Arduino
- Arduino D3 = LED01
- Arduino D4 = LED02
- Arduino D5 = LED03
- Arduino D6 = LED04
- Arduino D7 = LED05
- Arduino D8 = LED06
- Arduino D9 = LED07
- Arduino D10 = LED08
- Arduino D11 = LED09
- Arduino D12 = LED10
- Arduino D13 = LED11
- Arduino A1 = LED12
- Arduino A2 = LED13
- Arduino A3 = LED14
- Arduino D2 = LED15

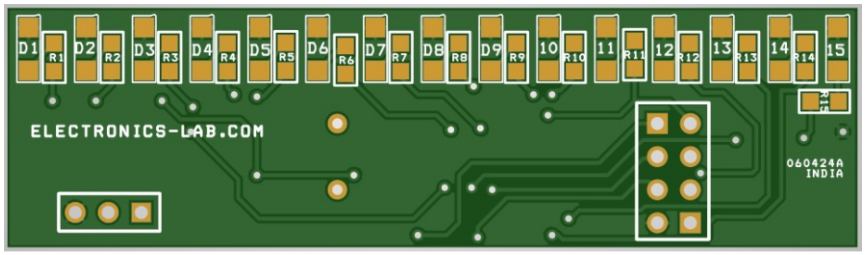


Connections

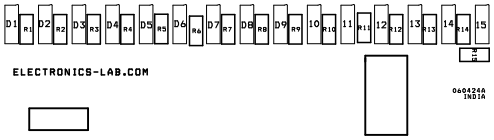
- CN1: Programming Pin 1 = TX, Pin 2 = TX, Pin 3 = Reset, Pin 4 = GND
- CN2: Programming Pin 1 = VCC, Pin 2 = D11, Pin 3 = D12, Pin 4 = D13
- CN3: Pin 1 = Sensor 1, Pin 2 = Sensor 2, Pin 3 = GND No Use

PCB

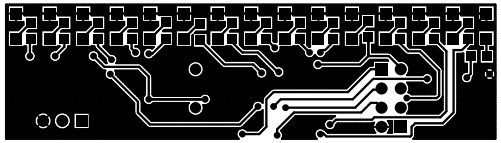




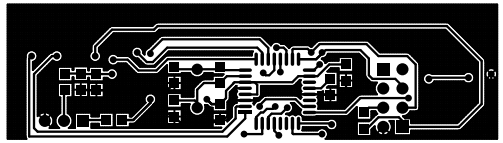
PCB GERBER FILES AVAILABLE



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 65.41X18.42MM

Parts List

BOM						
NO.	QNTY.	REF.	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	2	CN1,CN2	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
2	1	CN3	3 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5316-ND
3	3	C1,C3,C6	0.1uf/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
4	1	C2	10uF/10V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	2	C4,C5	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	5	D1,D2,D3,D4,D5	GREEN-LED SMD SIZE 1206	WURTH	DIGIKEY	732-4990-1-ND
7	5	D6,D7,D8,D9,D10	YELLOW-LED SMD SIZE 1206	LITE ON INC	DIGIKEY	160-1406-1-ND
8	3	D11,D12,D13	BLUE-LED SMD SIZE 1206	WURTH	DIGIKEY	732-4989-1-ND
9	2	D14,D15	RED-LED SMD SIZE 1206	WURTH	DIGIKEY	732-4991-1-ND
10	15	R1,R2,R3,R4,R5,R6,R7,R8,R9,R10,R11,R12,R13,R14,R15	470E - 620E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	R16	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	R17	DNP			
13	2	R18,R20	0E SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R19	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
15	1	U1	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328PB-AURCT-ND
16	1	X1	16Mhz	ECS INC	DIGIKEY	X1103-ND

Notes

APP

Android App

DOWNLOAD

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

SCAN QR CODE

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