THE

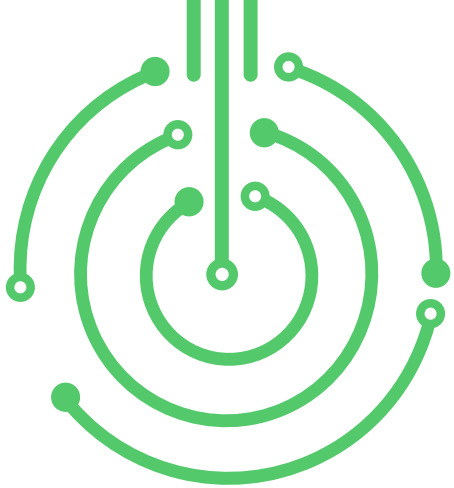
electronics-lab.com

from ideas to boards

electronics-lab - Projects | Embedded News | Online Community | e-Shop

Open Source Hardware Electronics Projects

electronics-lab.com /projects



434Mhz Arduino Wireless Analog Sensor Data Receiver

SKU: EL154739

434Mhz Arduino Wireless Analog Sensor Data Receiver

The Wireless Analog Sensor Receiver is a complementary component to the Wireless Analog Sensor Transmitter, designed to receive and process data transmitted from the transmitter.

This Receiver project is compatible with the 434Mhz Arduino Wireless Analog Sensor Transmitter

The receiver system consists of:

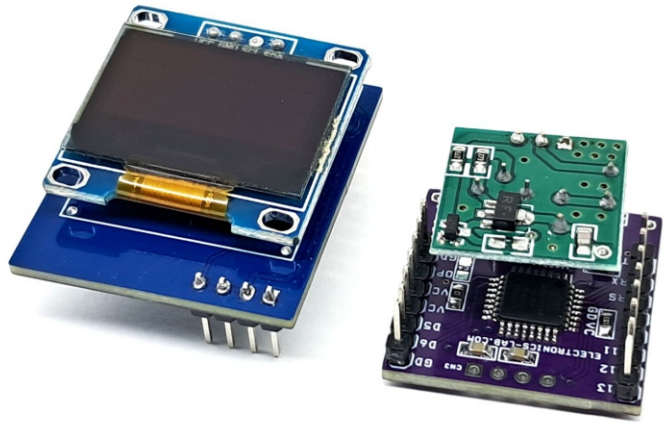
- 434MHz RF ASK Receiver module: This module receives the data transmitted from the transmitter.
- Arduino-compatible microcontroller ATMEGA328: This microcontroller processes the received data and controls the display of the analog value on the OLED display.
- 0.96Inch OLED display: This display shows the received analog value, providing a visual representation of the sensor data.

The system operates as follows:

- The 434MHz RF ASK Receiver module receives the data transmitted from the transmitter.
- The microcontroller, ATMEGA328, receives the data on digital pin D12.
- The microcontroller processes the received data and extracts the analog value.
- The processed analog value is then displayed on the 0.96Inch OLED display.

FEATURES

- Supply 5V DC
- 8 Pin Programming Connector
- On Board RF 434Mhz Module
- PCB Dimensions 31.12X35.08MM



The receiver also features:

- 8-pin header connector for bootloader and Arduino programming: This connector allows for easy programming and updating of the microcontroller.
- Optional 4-pin connector with 2 x I/O D5 and D6: This connector provides additional digital I/O pins for future expansion or customization.
- The Wireless Analog Sensor Receiver is a cost-effective solution for receiving and displaying analog sensor data, making it an ideal component for various applications that require remote monitoring and data transmission.

The Wireless Analog Sensor Receiver project is accompanied by a transmitter component, which can be accessed through the provided link.

Arduino Programming

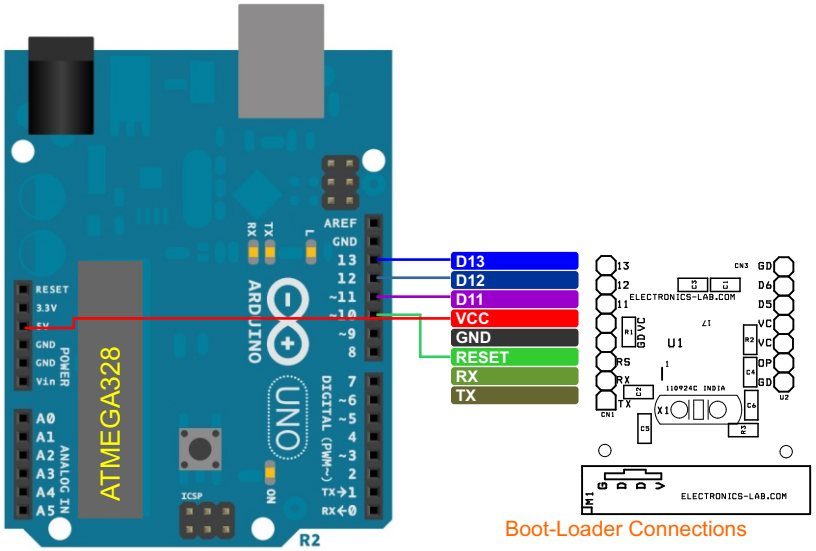
To test the project, Arduino code is available for download, allowing users to receive and display analog data on the OLED display, ranging from 0 to 1023.

The code can be modified to suit specific application requirements, and users can map the analog value for proper representation on the display. It is important to note that a new ATMEGA328 microcontroller requires a bootloader before programming the Arduino code.

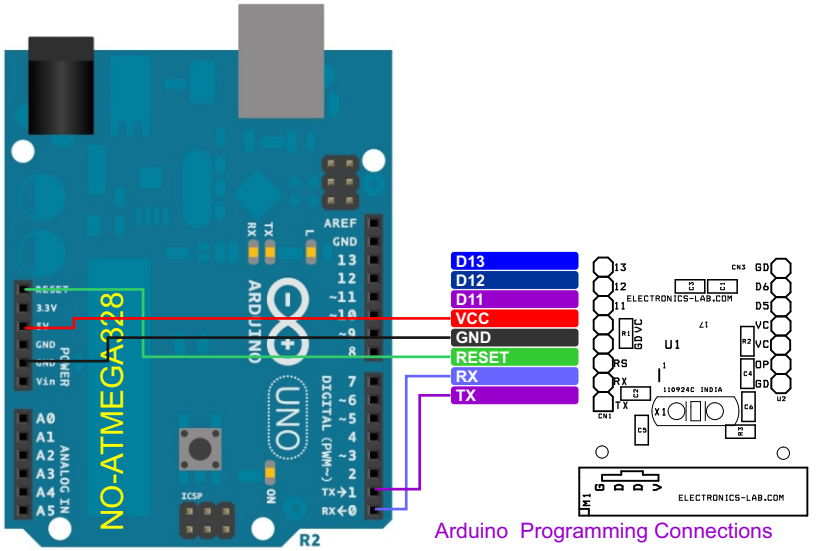
To facilitate this process, a connection diagram is provided for both bootloader and Arduino programming. Additionally, users can refer to the official Arduino documentation, specifically the “Arduino to Breadboard” example, for more information on Arduino programming and bootloader installation.

The provided link to the Arduino documentation (https://docs.arduino.cc/built-in-examples/arduino-isp/ArduinoToBreadboard/) offers a comprehensive guide on how to program the ATMEGA328 microcontroller and install the bootloader, ensuring seamless integration with the Wireless Analog Sensor Receiver project.

Ensure that you have the necessary libraries installed in your Arduino IDE, before uploading the code to Arduino microcontroller ATMEGA328.

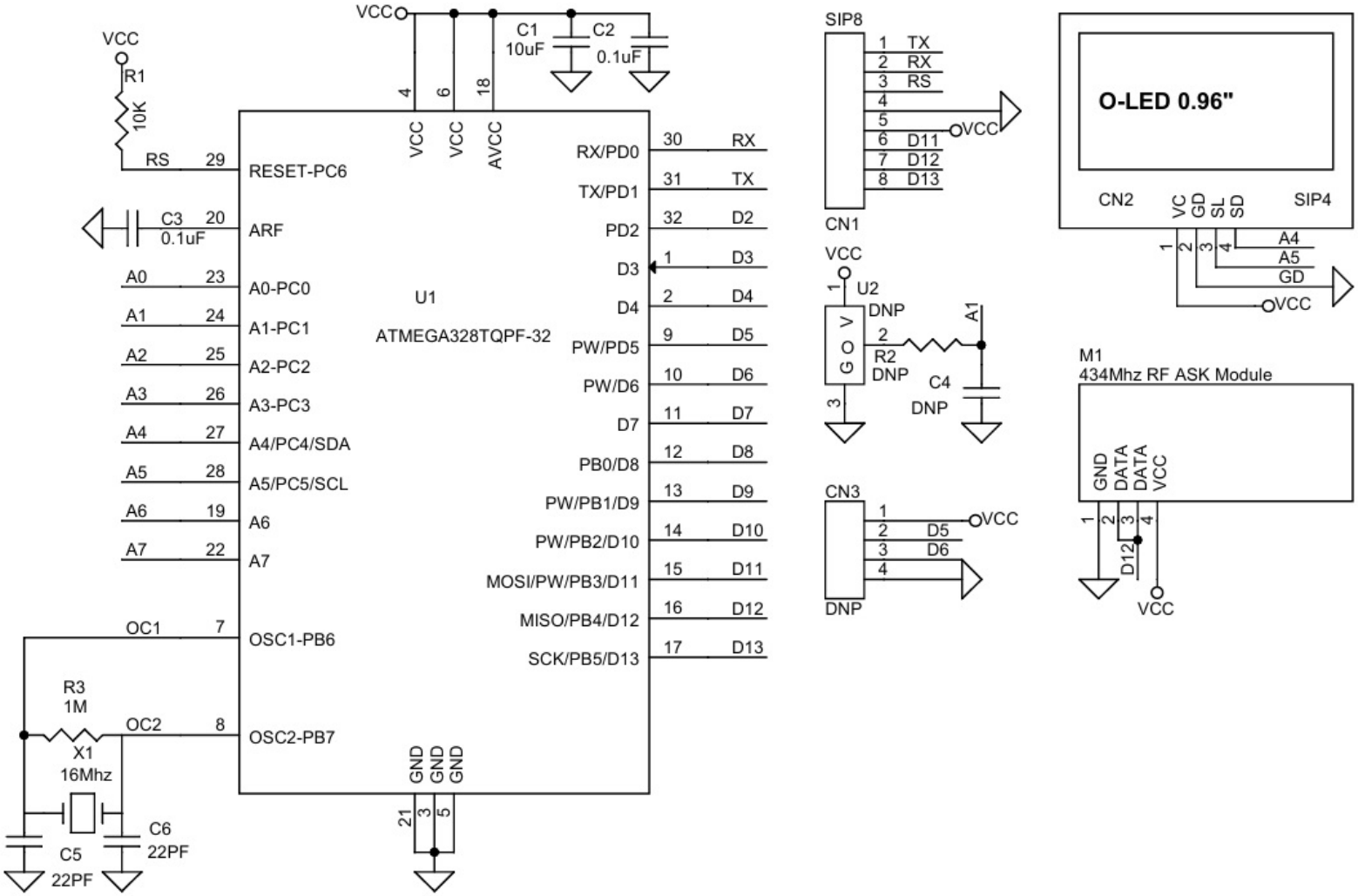


Boot-Loader Connections

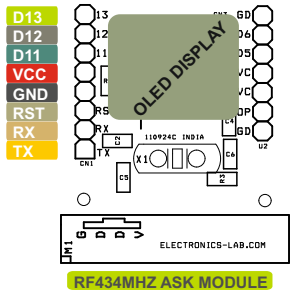


Arduino Programming Connections

Schematic


VCC
R1
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
R3
1M
OC2
8
OSC2-PB7
X1
16Mhz
C5
22PF
C6
22PF
U1
ATMEGA328TQPF-32
VCC
C1
10uF
C2
0.1uF
4
6
18
VCC
VCC
AVCC
GND
GND
GND
21
3
5
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
SIP8
1 TX
2 RX
3 RS
4
5
6 D11
7 D12
8 D13
VCC
CN1
O-LED 0.96"
CN2
VC
GD
SL
SD
SIP4
A4
A5
GD
VCC
VCC
U2
DNP
G O V
R2
DNP
A1
C4
DNP
M1
434Mhz RF ASK Module
GND
DATA
DATA
VCC
D12
VCC
CN3
1
2 D5
3 D6
4
VCC
DNP

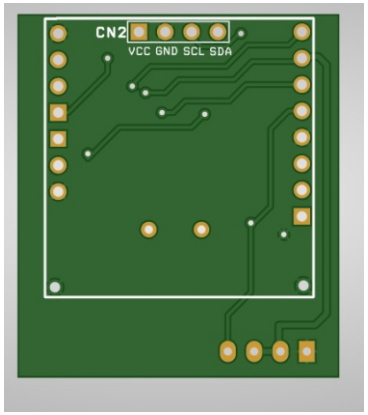
Connections

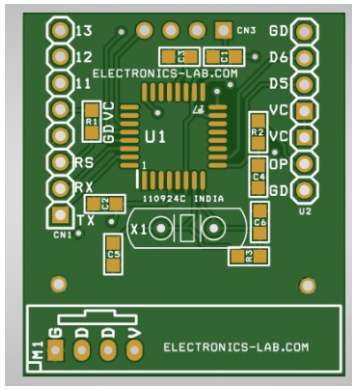


Connections:

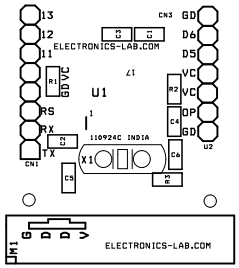
- Cn1 Programming Connector: Pin 1 = TX, Pin 2 = RX, Pin 3 = Reset, Pin 4 GND, Pin 5 = VCC, Pin 6 = D11, Pin 7 = D13, Pin 8 = D13
- Cn2: OLED Display 0.96Inch, Pin 1 VCC, Pin 2 = GND, Pin 3 = A4/SCL, Pin 4 = A5/SDA

PCB

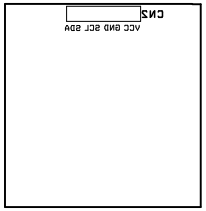




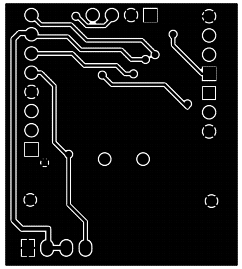
PCB GERBER FILES AVAILABLE



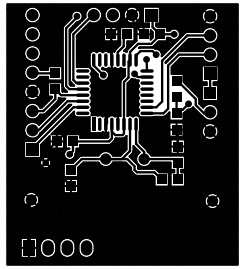
SILK SCREEN TOP



SILK SCREEN BOTTOM



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 31.12X35.08MM

Parts List

BOM						
NO	QNTY	REF.	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	8 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5321-ND
2	1	CN2	0.96INCH OLED DISPLAY I2C	AMAZON/EBAY	DIGIKEY	
3	2	CN3,C4	DNP			
4	1	C1	10uF/16V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	2	C2,C3	0.1uF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	2	C5,C6	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	1	M1	434Mhz RF ASK MODULE	AMAZON/EBAY	DIGIKEY	
8	1	R1	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
9	1	R2	0E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	1	R3	1M 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	U1	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328P-AU-ND
12	1	U2	DNP			
13	1	X1	16Mhz	ECS I9NC	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

Keep
In touch..

electronics-lab
.com

info@electronics-lab.com
www.electronics-lab.com

from ideas to boards