

## Arduino RCA Video Output to TV

• [Tesla](#)

⌚ October 30, 2019

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### About

In this tutorial, you will learn how to output video from an Arduino and display it on a TV. We will make a board/cable adapter that will connect the Arduino to the TV through the RCA input. Then we'll look at some of the functions available to us in the TVout library and use them to output something to the screen.

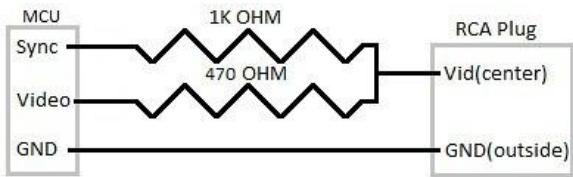
If you would like to know how to output an image to the TV see [this post](#).

### Hardware used:

#ad [Amazon Link](#) [Arduino](#)



## Hardware Connections

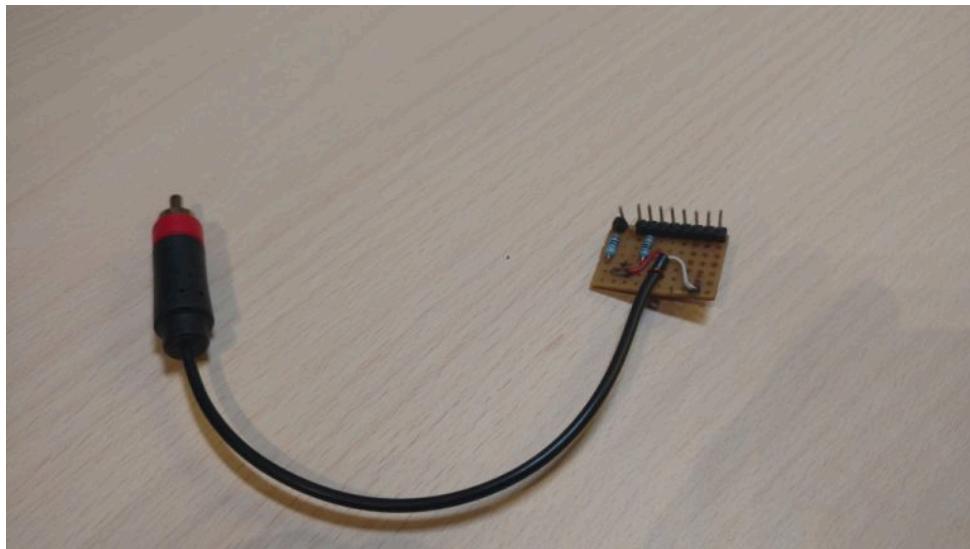


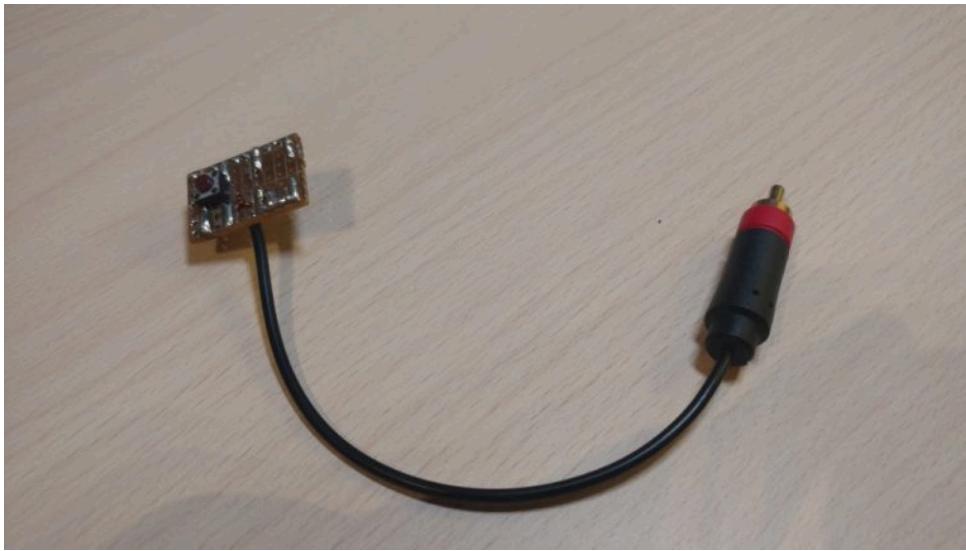
source: <https://playground.arduino.cc/Main/TVout/>

In this table, you can see which pins you need to use for **Sync** and **Video** depending on what board you are using.

Arduino	SYNC	VIDEO	AUDIO
NG,Decimila, UNO	9	7	11
Mega	11	A7(D29)	10
sanguino	13	A7(D24)	8
Leonardo	9	8	11

Source: <https://github.com/Avamander/arduino-tvout>





According to the schematic, I made a board that easily plugs into the Arduino. I also added a button between ground and pin 11 to be used as an input(see the second code example).

## Software

You first have to install the [TVout library](#). You can do that by using the Arduino library manager. If you don't exactly know how to install a library see the first part of [this tutorial](#).

For the first example let's do something simple and just output some text to the screen.

```
1. #include <TVout.h>
2. #include <fontALL.h>
```

```

7. {
8.     //Setup display. (PAL/NTSC, resolution width, resolution height)
9.     TV.begin(PAL,120,96);
10.    //Select font.
11.    TV.select_font(font6x8);
12. }
13.
14. void loop()
15. {
16.     //Clear screen at the beginning of the loop.
17.     TV.clear_screen();
18.
19.     //Set cursor position. (x,y)
20.     TV.set_cursor(0, 10);
21.     //Print text.
22.     TV.println("TEST!!!");
23.
24.     TV.delay(60);
25. }
```

## Output:



That was the bare minimum code you need to display something. Now let's take a look at a few examples of other useful features.

```

1. #include <TVout.h>
2. #include <fontALL.h>
3.
4. TVout TV;
5.
6. int bar = 0;
7. int barMax = 36;
8. int buttonPin = 11;
9.
10. void setup()
11. {
12.     //Setup display.
```

```

17.     pinMode(buttonPin, INPUT_PULLUP);
18. }
19.
20. void loop()
21. {
22. //Clear screen at the begining of the loop.
23. TV.clear_screen();
24.
25. //Set cursor position. (x,y)
26. TV.set_cursor(0, 10);
27. //Print text.
28. TV.println("TEST!!!");
29.
30. //Set individual pixel. (x,y, color) // 0 - black, 1 - white
31. TV.set_pixel(60,10,1);
32.
33. //Draw line. (x1,y1,x2,y2,color) // 0 - black, 1 - white
34. TV.draw_line(0,25,100,25,1);
35.
36. //Increment progress bar. (I haven't debounced the button but in this case that mak
37. if(digitalRead(buttonPin) == LOW && bar <= barMax){
38. bar++;
39. }else if(bar > barMax){
40. bar = 0;
41. }
42.
43. //Using rectangles to make a progress bar.
44. //draw_rect(x,y,w,h,color,fill) // 0 - black, 1 - white
45. TV.draw_rect(0,43,40,10,1,0);
46. TV.draw_rect(2,45,bar,6,1,1);
47.
48. TV.delay(60);
49. }

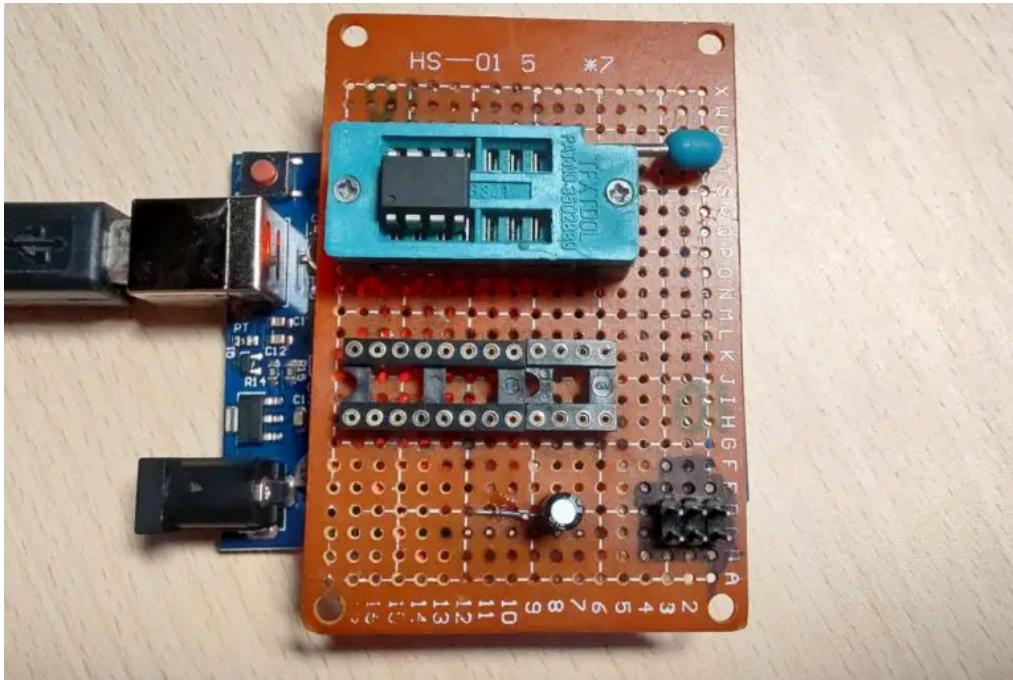
```

## Output:



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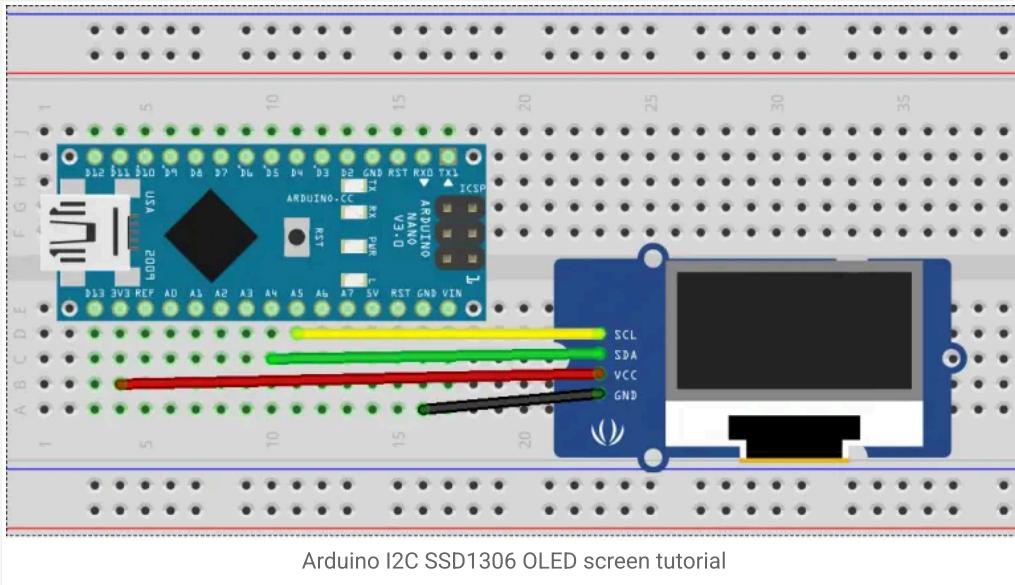
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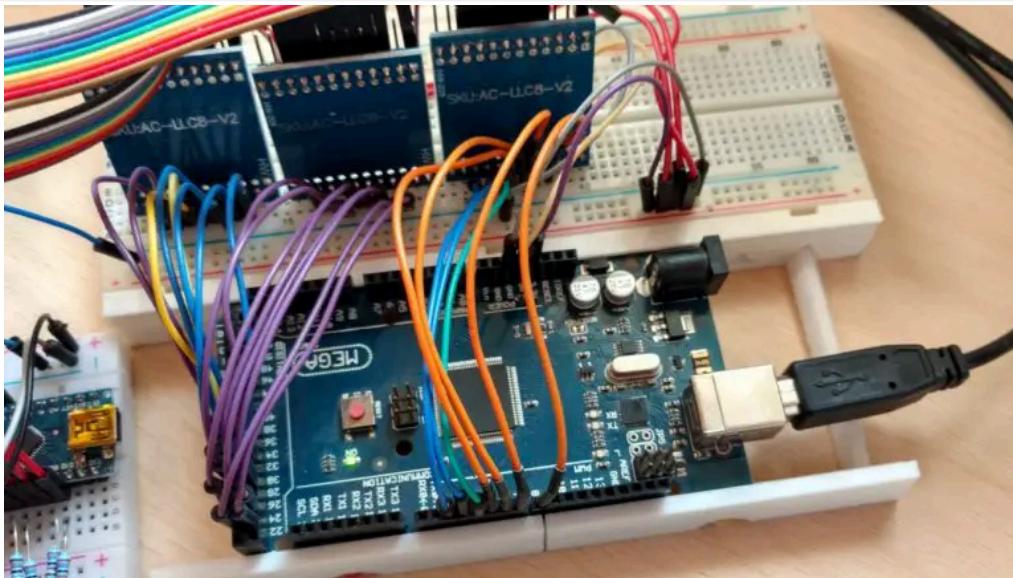
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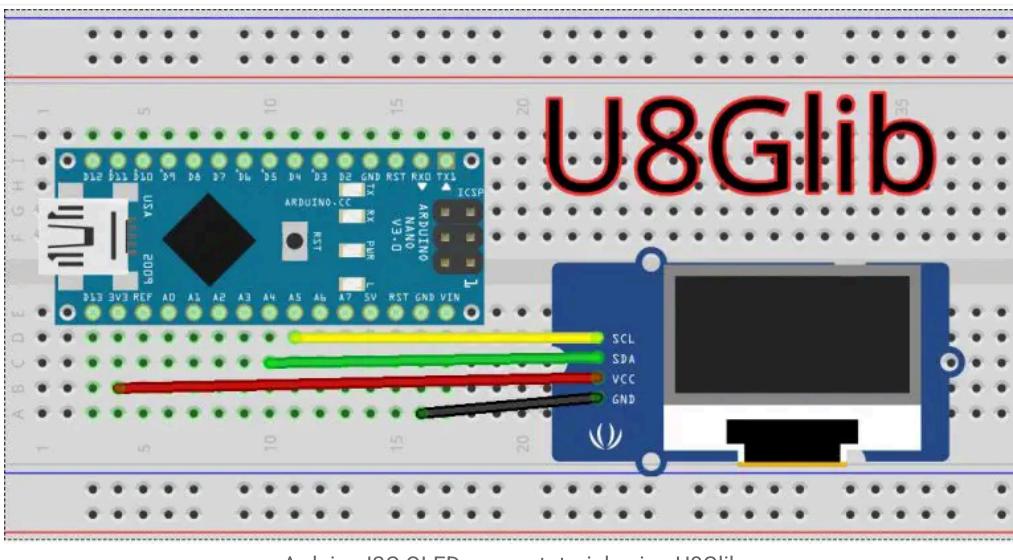
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**an arduino fan**

March 30, 2023 at 4:58 am

it says it can't find the fontAll.h file

[Reply](#)



**Tsla**

March 30, 2023 at 7:03 pm

Hi.

This used to work when I made this blog post. But when I tried this now on my computer I get the same error as you.

• • •

I was able to solve it like so:

Go into the folder where your Arduino libraries are installed.

This should be at **C:\Users\yourusername\Documents\Arduino\libraries\**

There should be a folder named **TVout** go into it.

Then there should be another folder in this folder named **TVoutfonts** go into it.

Copy all the files that begin with **font** from this folder into the **TVout** folder.

This should fix the problem.

[Reply](#)



**SAMY**

January 17, 2023 at 2:02 pm

impressive project with many potentials. How come the code did not show the setup pins of arduino for SYNC & Video ?





January 19, 2023 at 8:20 pm

Hi.

The TVout library uses pin 9 for sync and pin 7 for video.

<https://github.com/Avamander/arduino-tvout>

I should have specified this more clearly in the blog post. I will update it.

• • •

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