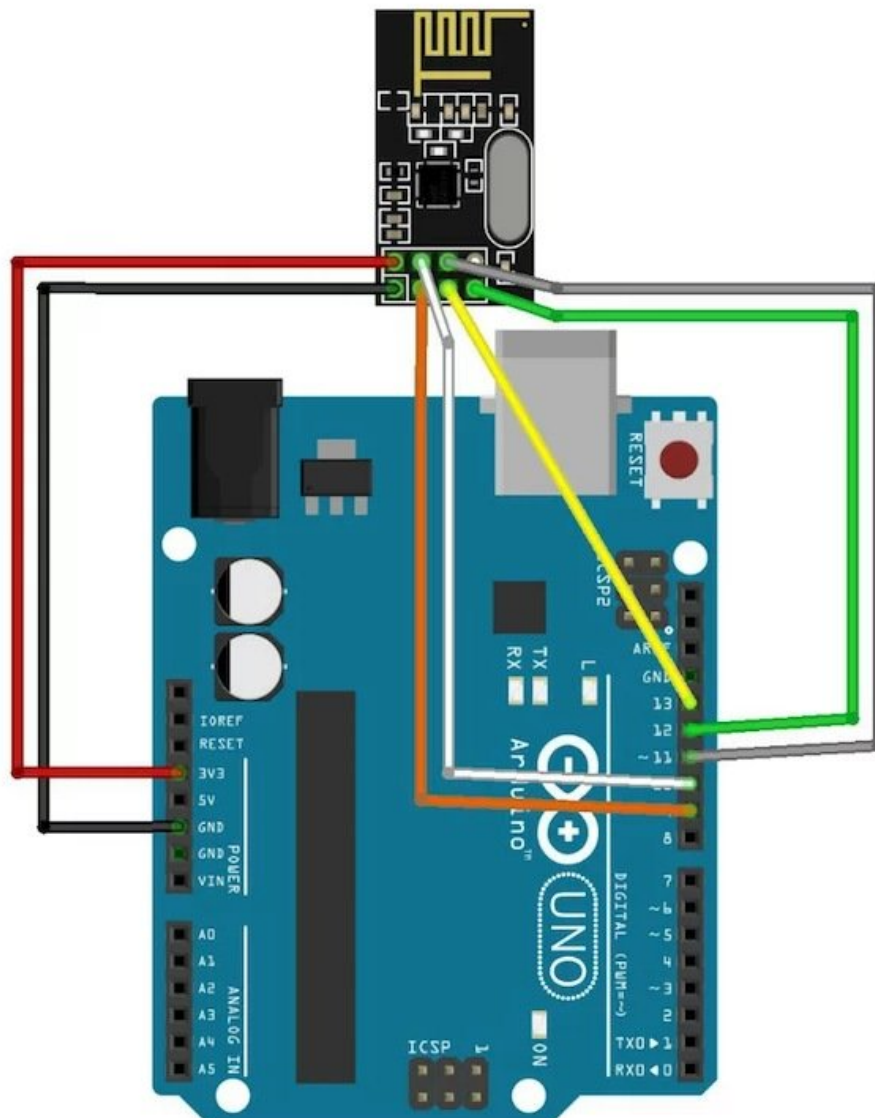


brandeismakerlab

Connect 2 Arduinos via radio

Using two NRF M24L01+ transceivers, get two Arduinos to talk to each other wirelessly. Applications include remote controls and distant sensors.

Written By: Allegra Copland



INTRODUCTION

Much of the information for this guide, including some diagrams, were taken from this tutorial <https://www.allaboutcircuits.com/project...>

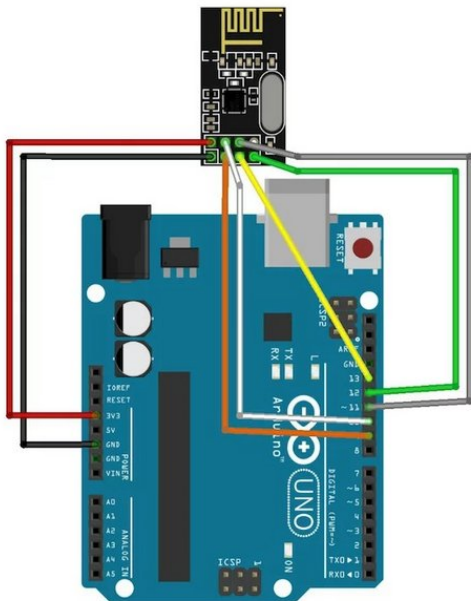
Note that you'll need the Arduino IDE installed on your computer (potentially two computers) to do this guide. Look [here for Windows](#) or [here for Mac](#) if you need help installing the IDE.



PARTS:

- [Arduino UNO](#) (2)
 - [NRF24L01 chip](#) (2)
 - [male to female wires](#) (14)
-

Step 1 — Connect 2 Arduinos via radio



- Wire each of your Arduinos as shown, using 7 male-to-female jumper cables. You'll be putting the female ends on the NRF chip pinheads, and putting the male ends in the Arduino.
- Different colored cables not necessary but *highly* recommended if you value your sanity.

Step 2



- Download [these libraries](#). They contain code that will make it easier to operate the radio, as well as an example sketch we will use later.
- To install the libraries, got to Sketch > Add .ZIP Library in your Arduino IDE and navigate to and select the archive folder you downloaded from the link above.

Step 3



- For bonus impressiveness, repeat the previous step for second computer, preferably in another room, and complete all subsequent steps twice on two separate computers **UNLESS OTHERWISE NOTED**.
- If you choose not to do this, you'll need to repeat all the subsequent steps twice on two different instances of your Arduino IDE **UNLESS OTHERWISE NOTED**. This means that you will need to click the Arduino IDE icon in your start menu or desktop twice. You can't just open a new window.
- Either way, your Arduinos *will* be communicating over the air, but it's certainly cooler if they're not both connected to the same computer.

Step 4



- **MAKE SURE** that your Arduino IDE is set to the correct board under Tools > Board. Also ensure that a COM (could be any number, but probably COM3) is selected under Tools > Port.

Step 5



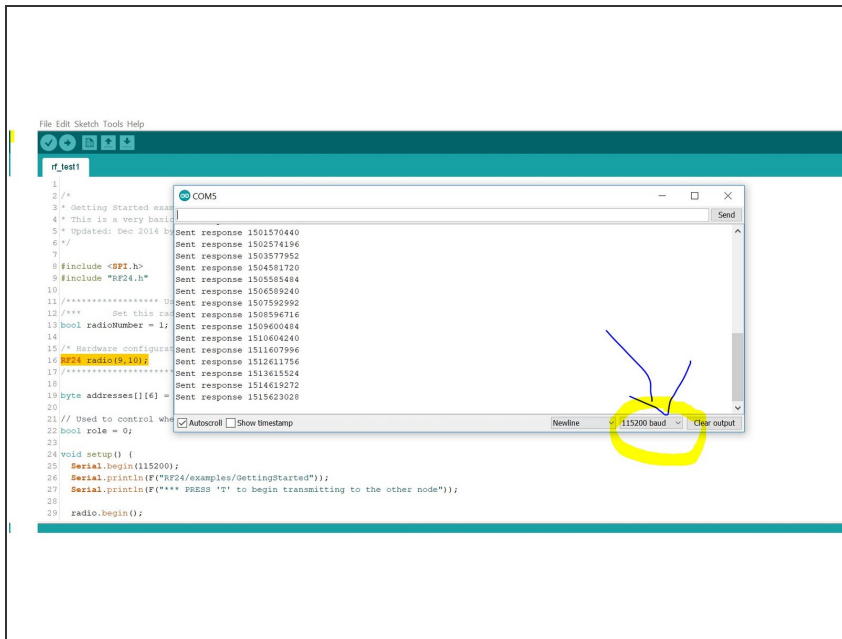
- Open the "GettingStarted" sketch under File > Examples > RF24 (You may have to scroll down a ways).
- Change line 16 so it reads "RF24 radio(9,10);" (9,10 correspond to the orange and white wires respectively, as shown in the diagram, or to pins 3 and 4 on the radio chip).
- If necessary, check "Display Line Numbers" in File > Preferences (which for some stupid reason is not enabled by default).

Step 6



- Find the variable "bool radioNumber = 0" on line 13.
- Change the value on ONE of your programs--either on one of two IDE instances or one of two computers--to 1. (This is the scary unless otherwise noted I was talking about in step 3).

Step 7



- Go to the upper-right hand corner of the IDE and click on the little magnifying glass. This will open a terminal window.
- The terminal is called "Serial Monitor". There is a setting in the lower-right hand corner of this window called "baud" (as shown). This stands for bits per second. (Don't ask me why!)
- Your baud is probably at 9600 now, by default. Whatever it is, change it to 115200.
- If you're curious, watch what happens when you set the baud to something else. It's kind of cool!

Step 8



- Watch the magic happen! Those messages in the terminal are actual information that the Arduinos are sending to each other across the room. For bonus points, try getting them to send text of your own choosing! Useful for sending secret messages to your pals.
- If nothing is working, I can't really help you at this point. Either do your best to troubleshoot or curl into a ball and cry (OR ask for help!!! A frequently overlooked option).