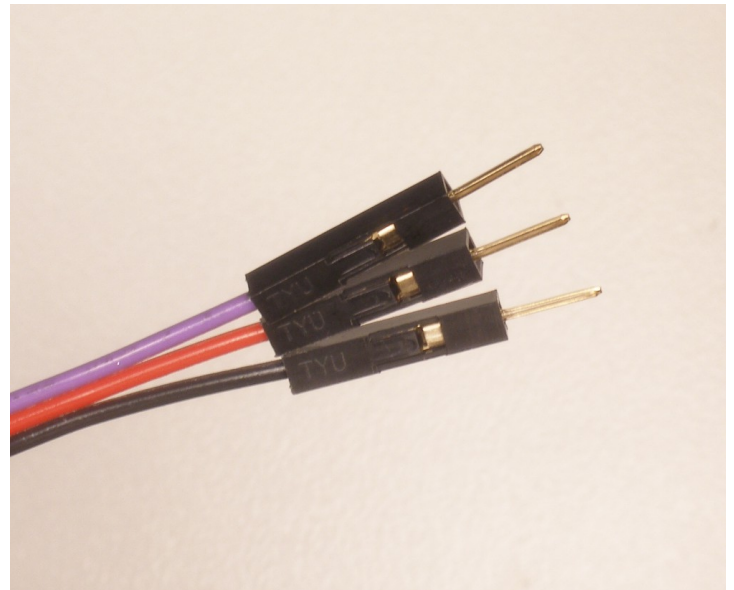


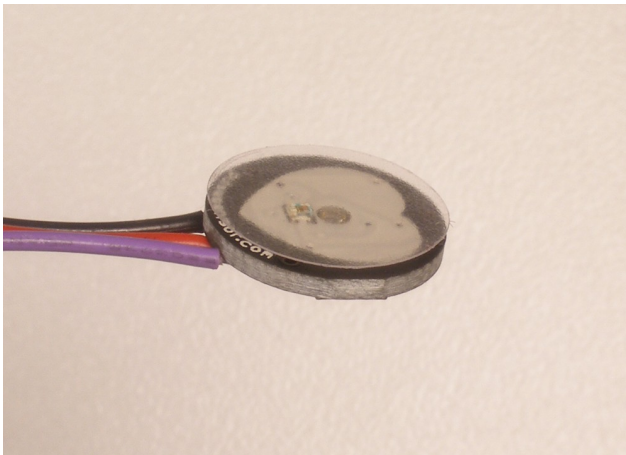
RED wire = +3V to +5V
BLACK wire = GND
PURPLE wire = Signal



The Pulse Sensor can be connected to arduino, or plugged into a breadboard. Before we get it up and running, we need to protect the exposed circuitry so you can get a reliable heart beat signal.

Preparing the Pulse Sensor

Before you really start using the sensor you want to insulate the board from your (naturally) sweaty/oily fingers. The Pulse Sensor is an exposed circuit board, and if you touch the solder points, you could short the board, or introduce unwanted signal noise. We will use a thin film of vinyl to seal the sensor side. Find the small page of four clear round stickers in your kit, and peel one off. Then center it on the Pulse Sensor. It should fit perfectly.



When you are happy with the way it's lined up, squeeze it onto the face all at once! The sticker (made of vinyl) will kind of stretch over the sensor and give it a nice close fit. If you get a wrinkle, don't worry, just press it down really hard and it should stick. We gave you 4, so you can replace it if necessary.

That takes care of the front side. The vinyl sticker offers very good protection for the underlying circuit, and we rate it 'water resistant'. meaning: it can stand to get splashed on, but don't throw it in the pool!

If this is your first time working with Pulse Sensor, you're probably eager to get started, and not sure if you want to use the ear-clip or finger-strap (or other thing). The back of the Pulse Sensor has even more exposed contacts than the front, so you need to make sure that you don't let it touch anything conductive or wet.

Sealing the Back Side of Pulse Sensor

Basic protection for the back of the Pulse Sensor
and prep for attaching Velcro Dot.

It's really important to protect the exposed Pulse Sensor circuitry so the sweat of your fingertips or earlobe (or wherever) doesn't cause signal noise or a short circuit. This How-To uses hot glue, which can be removed easily or re-worked if you want to change where you've stuck your Pulse Sensor. We love hot glue!

The other things you'll need are:

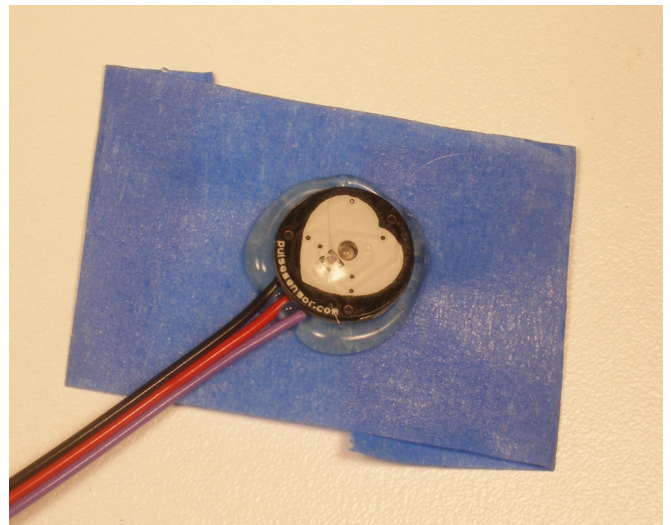
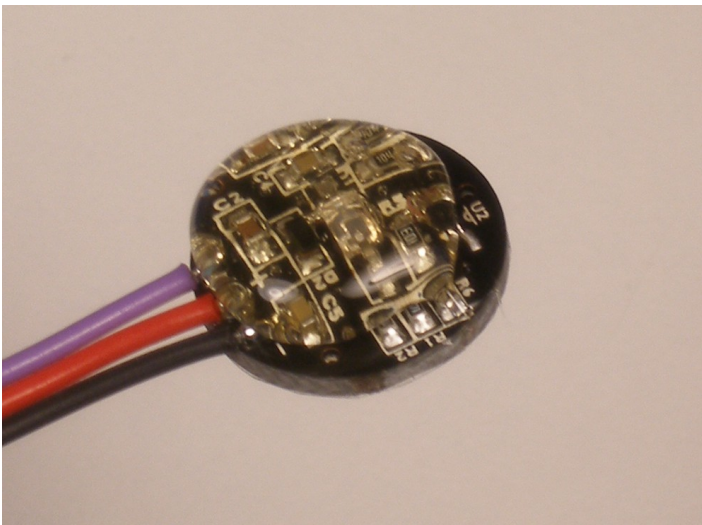
Hot Glue Gun

Blue Tape (any tape should do ok)

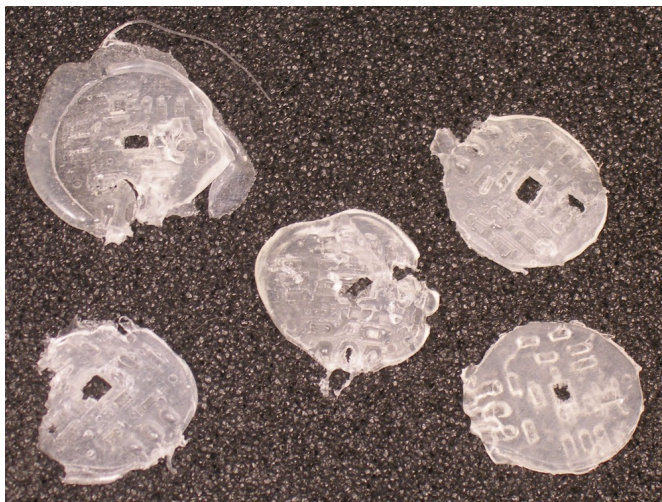
Nail Trimmers (or your favorite trimming device. Flush-cut wire snips work well too)

Read these instructions all the way through before you start!

First, attach the clear vinyl sticker to the front of your Pulse Sensor, as shown above. Then put a blob of hot glue on the back, right over the circuit. Size can be difficult to judge sometimes. What I meant was put a hot glue blob about the size of a kidney bean on the back side of the Pulse Sensor.

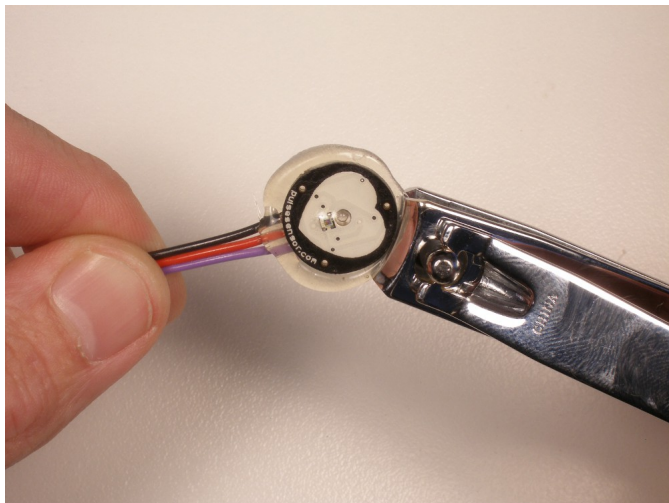
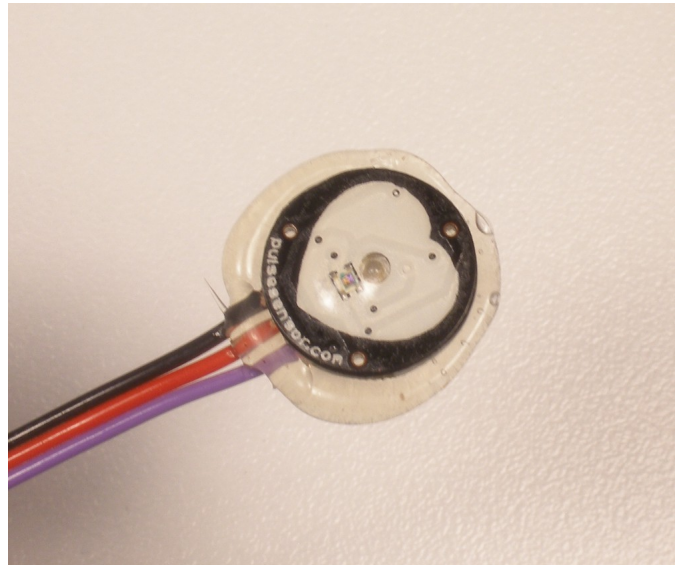
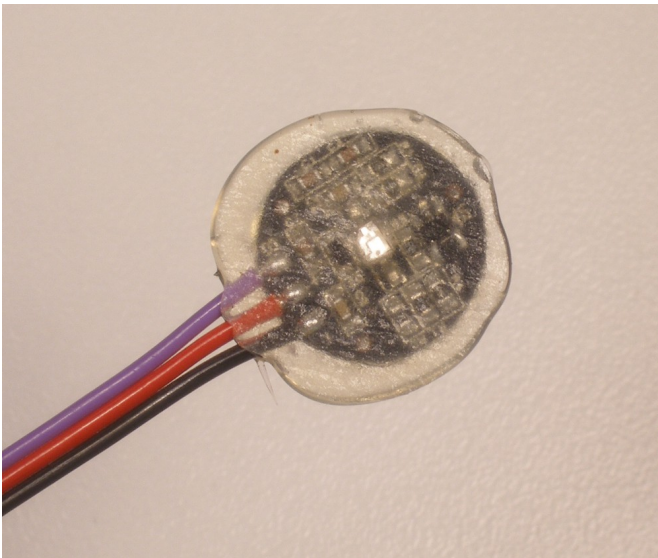
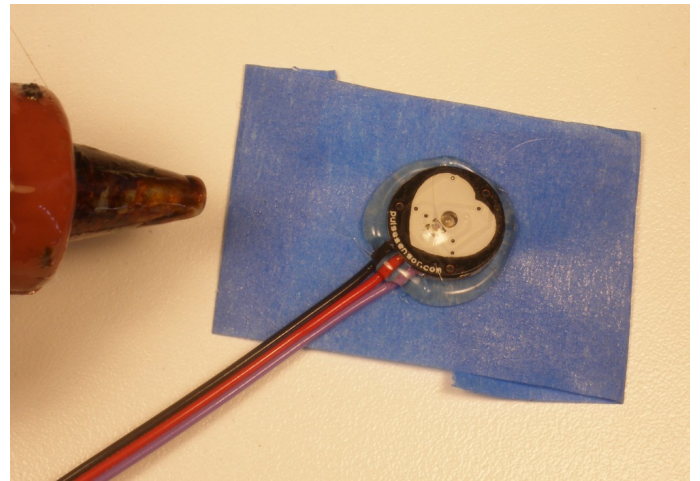


Then, while the glue is still very hot, press the Pulse Sensor glue-side-down onto the sticky side of a piece of blue tape (I believe that blue tape has magical properties, but if you don't have blue tape other kinds of tape will work just as well).

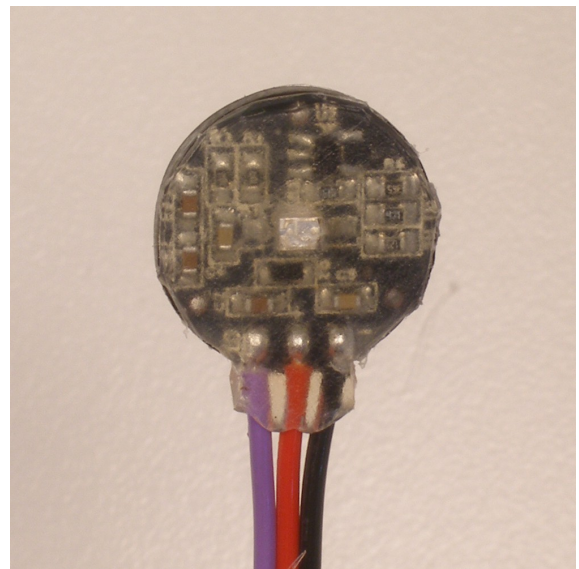


note: The tallest thing on the back of the Pulse Sensor is the green LED housing right in the middle. Use it to make the hot-glue seal thin and strong. When you press evenly until the back of the LED touches, all the conductive parts will be covered with hot glue. If the glue doesn't ooze out all around, let it cool down, then peel it from the Pulse Sensor and try again. Once the glue has cooled down and has some body, you can peel it off easily. Here's some pics of hot glue 'impressions' that I took during the making of this guide.

Next put a small dab of hot glue on the front of the cables, where they attach to the Pulse Sensor circuit board. This will bond to the other glue that's there and act as a strain-relief for the cable connection. This is important because the cable connection can wear out over time.

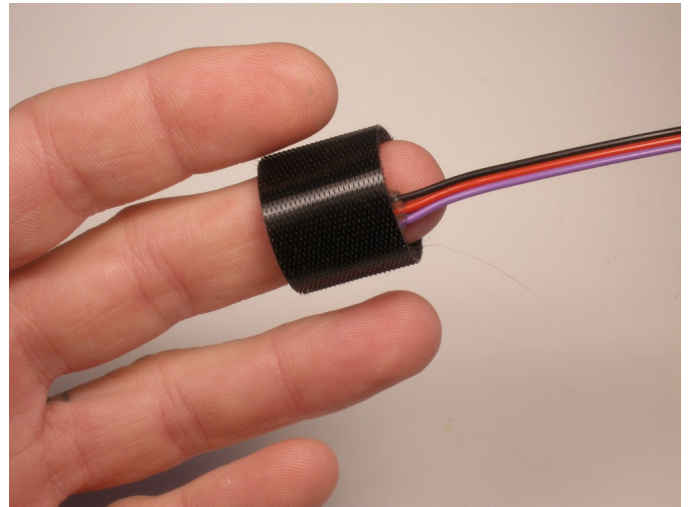
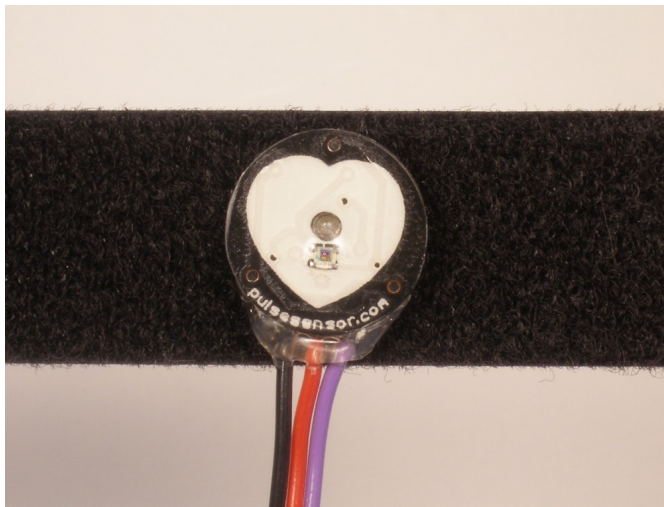


Once the hot glue has cooled (wait for it!) the blue tape will peel off very easily. Check your work to make sure that there are not exposed electrical connections! Next is trimming. I find the easiest way is to use nail clippers. Flush cutting wire snips work too. Take care not to clip the wires!!! And leave enough around the cable to act as a good strain-relief



This is the basic Pulse Sensor Hot Glue Seal, It's also got the clear vinyl sticker on the front face. We're calling this 'Water Resistant', ready to be handled and passed around from fingers to earlobes or whatever. It is not advised to submerge or soak the Pulse Sensor with this basic seal.

Now you can stick on the velcro dot (included) and make a finger strap with the velcro tape (included)!



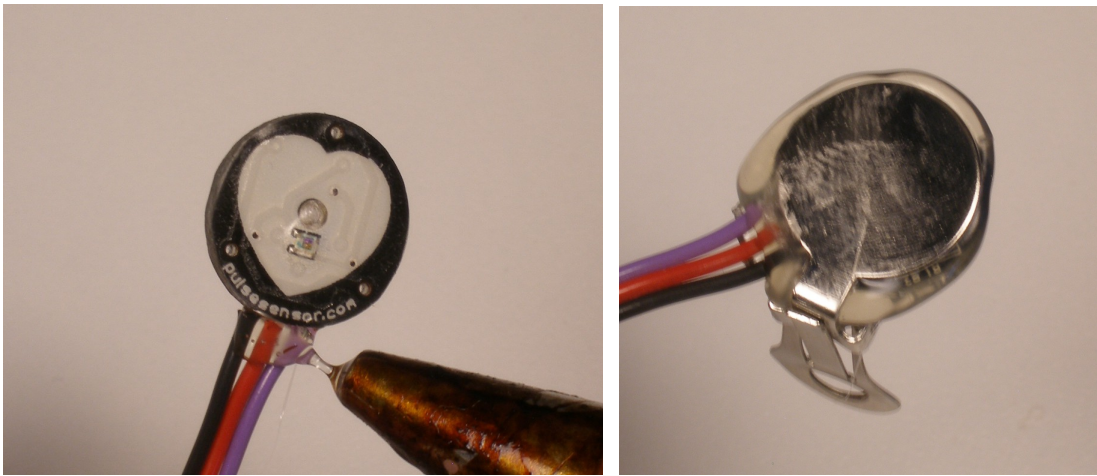
Attaching the Ear Clip

We looked all over, and were lucky enough to find an ear clip that fits the Pulse Sensor perfectly. The earlobe is a great place to attach Pulse Sensor. Here's some instruction on how to do it.

It is important to apply some strain relief to the cable connection where it meets the Pulse Sensor PCB. The little wire connections can wear out and break (or short on something) over time. We can do this with hot glue, like we did in the previous example.

First, attach a clear vinyl sticker to the front of the Pulse Sensor if you have not already. Then, put a small dab of hot glue on the front of the cables right where they meet the PCB. Get some on the edge of the PCB too, that will help. Remember, if you don't like the blob you've made for any reason, it's easy to remove once it cools down.

Next place the Pulse Sensor face down, and put a dab of glue about the size of a kidney bean on the back as illustrated above. Center the round part of the ear clip on the sensor and press it into the hot glue. The tallest component on the back is the plastic body of the reverse mount LED, and if you press it evenly it will help keep the metal of the ear clip from contacting any of the component connections.



Allow the hot glue to ooze out around the ear clip. That will ensure good coverage. Take care not to let the hot glue cover around the ear clip hinge, as that could get in the way of it working. Trimming is easy with nail clippers (as above) or your trimming tool of choice. Don't trim the wires by mistake!!!



Take a good look at your work with a magnifying glass to be sure that you haven't made contact with any of the solder joints, then plug it in and test it. Hot glue is also great because it is easy to remove or re-work if you need to.

Troubleshooting: