



Fire Hoody

by [rabbitcreek](#) on August 26, 2016

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Intro: Fire Hoody

So last year we showed up for burning man with no lights which is the worst mistake you can make there other than not bringing water so.....



Step 1: Gather Materials

This hoody is cool because it broadcasts a pillar of fire outline and has an accelerometer in the headpiece that makes the fire level tip away from the direction you tilt your head and when you shake your head lightning streams out. Plus it has some leather in it which is nice.

Meter of Neopixels--60/meter--Adafruit

Adafruit Metro--or other small Arduino compatible.

3 AA battery holder with switch

9 volt Battery with attachment point to Metro

Leather

Silicon tubing 3/4 inch

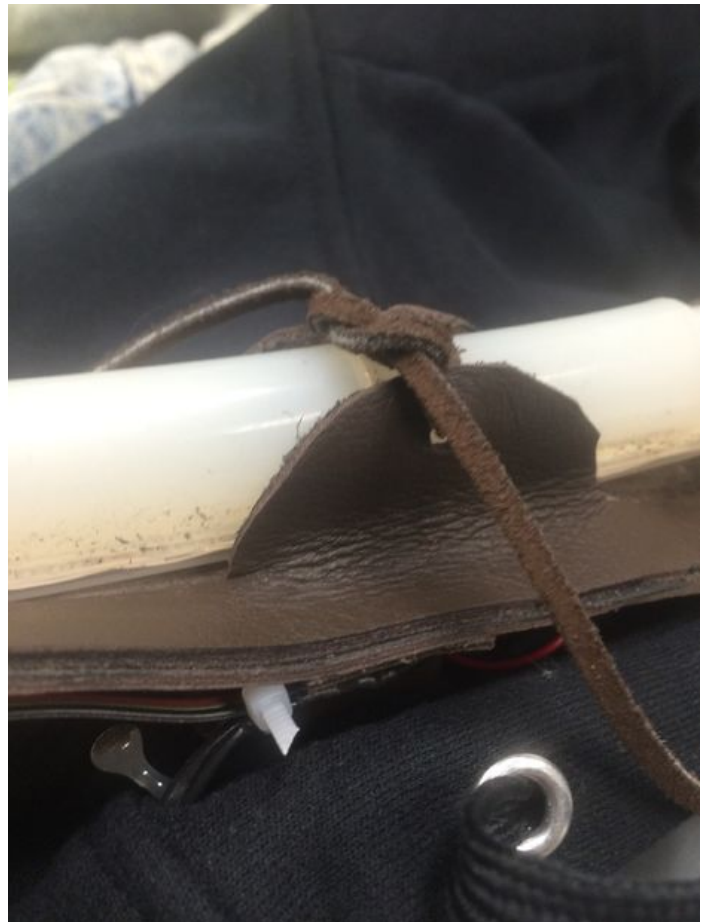
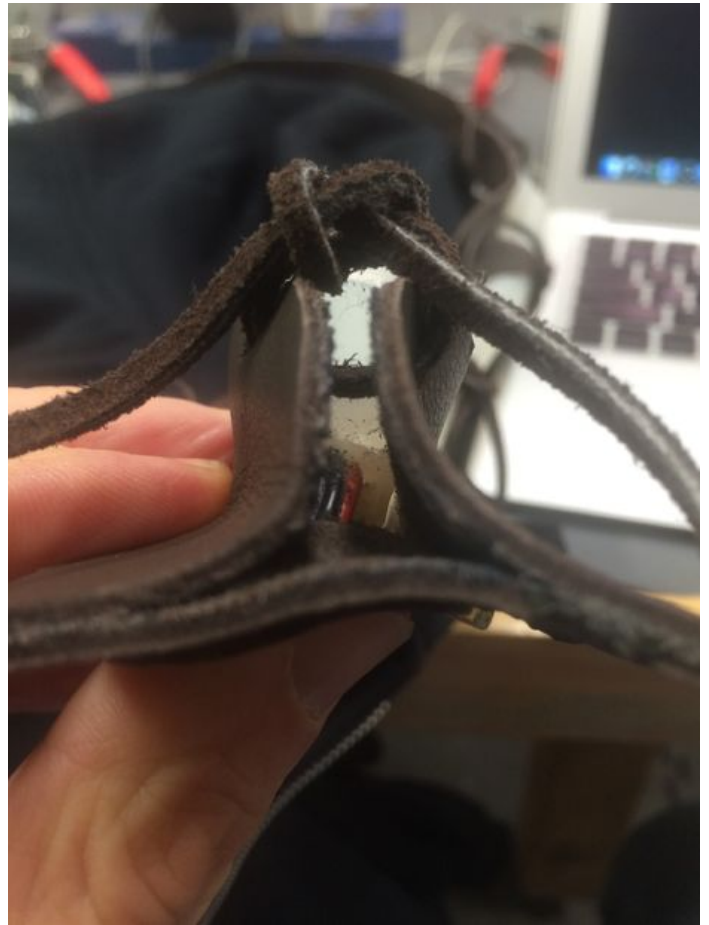
LSM 303 Accelerometer

Step 2: Build Neopixel Tube of Light

Grab a meter of Neopixels in their silicon tube and glue it with silicon glue to the silicon tubing--you don't put the neopixels inside but on the bottom--this provides additional diffusional layer which is the problem with Neopixel animations--they look better through some diffusers. These strips are difficult to glue but the connection to the silicon tubing is robust. I then tangentially slit the silicon tubing so the complex becomes much more flexible. I cut the tubing carefully down to the silicon neopixel level about once every 3 inches.

I then cut a single leather strip that will extend the meter of the neopixel tube. It is wider by about an inch on either side. Two lateral strips of leather are then glued (use contact cement) on either side to make a well in the center for the tube to sit in. Tie over tops are located every 10 inches to hold the tube in place. You can modify this as you want but the trick is to adequately support and project the tube over the top of the hoody. Leather ties hold the tube in place--I also placed some strategic zip ties at a couple other locations.

Hold the mounted leather strip over the hoody and place marks where you want to place snaps to hold it in place. Brass snaps are then installed in the leather/silicon band and matching snaps are installed in small pieces of leather that are then contact cemented to their matching locations on the hoody.

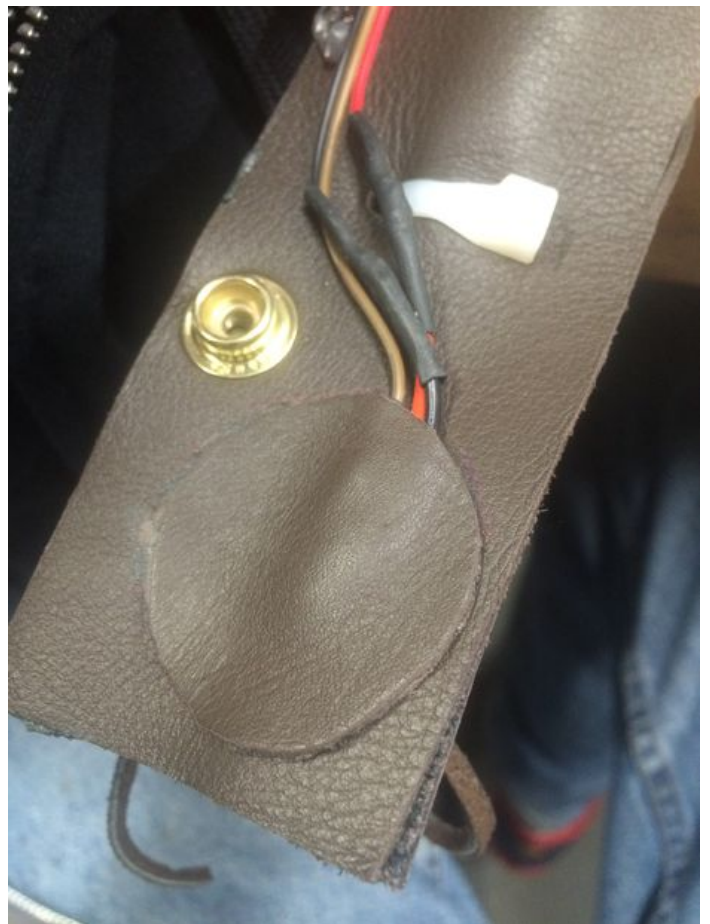




Step 3: Install the computer

The electrical components are then installed on the back of the leather strip. The LSM 303 is a small chip that is mounted where the peak of your head will be. It notices changes in gravitational acceleration relative to x/y/z axis which is stenciled on the chip. The tipping is relative to Y axis so this should be mounted so tilting to right or left is along this axis. Z axis or "head banging" activates lightning. The chip uses I2C protocol for connection so SDA and SCL should be connected to A4 and A5 pins on the Metro. Power and ground for the chip also are wired to the Metro. Contact cement the chip to the leather and cover with a leather patch. The wires are run to the Metro which is contact cemented to the leather and is adjacent to a leather pouch for the nine volt battery. The large battery holder for the three AA's is connected through a long cable that allows you to store it down in the hoody pouch. To turn on the unit just attach the nine volt battery clip which starts the metro and turn on power to the neopixels with the battery holder in your pocket. The data line to the Neopixels goes to pin 6 on the metro and power goes to the 3 AA batteries and the sounds are mingled with the Metro. The nine volt is wired to ground and Bat on the Metro.







Step 4: Software

Just download the software and upload it to the Metro through the micro port. Unplug it and attach the batteries and it should fire up. The software limits the brightness as much as possible so the batteries will last for a few hours at least. If you drop the hood to your shoulders it activates the lightning so you should stay lit for your walks around the playa. Much thanks for the guy who wrote sections of the fire software which I borrowed a long time ago. You can modify any of the code to change the height of the fire or how sensitive it is to the gravity tilt.



File Downloads



Tilt Neopixel.pages (182 KB)

[NOTE: When saving, if you see .tmp as the file ext, rename it to 'Tilt Neopixel.pages']

Related Instructables



Jeans Jacket Electrified Bar Sign by rabbitcreek



NeoPixel LED Heart Sensor Jacket by hartsfw



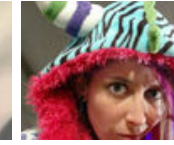
LED Light-up Hoodie by yava9221



Arduino & Neopixel Coke Bottle Party Light by brianfit



Introduction to Neopixels by CitizenScientist



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