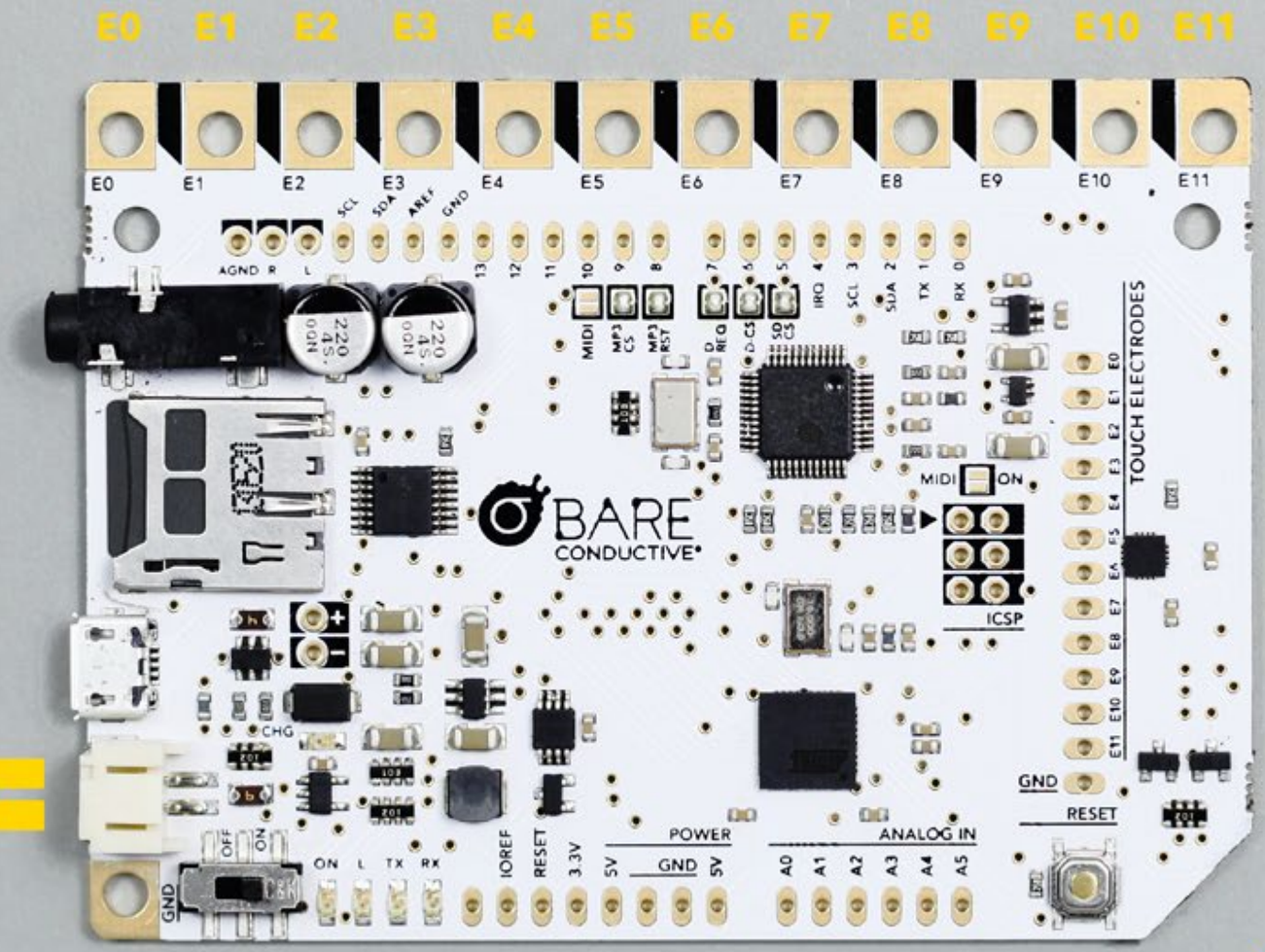
BASIC SKILLS



HELLO

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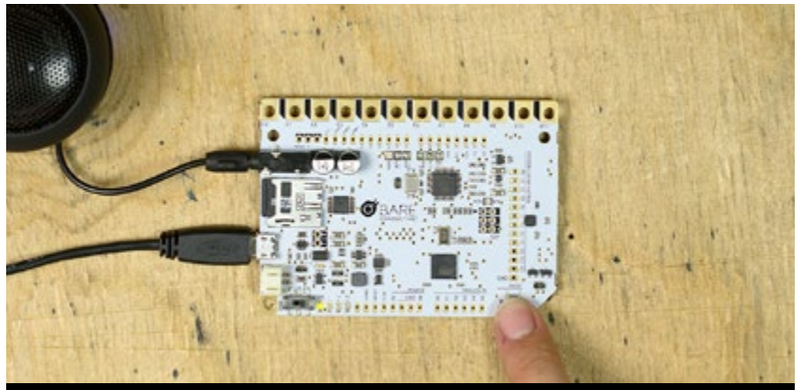

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How to use the pitch stencil to create clean Electric Paint connections to your Touch Board.

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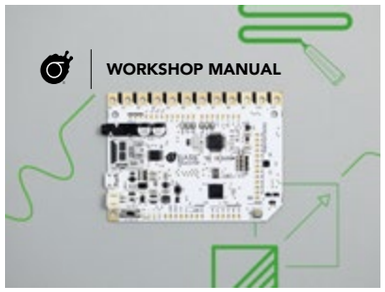
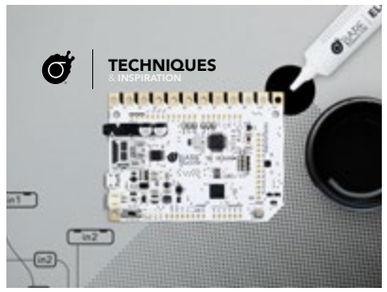
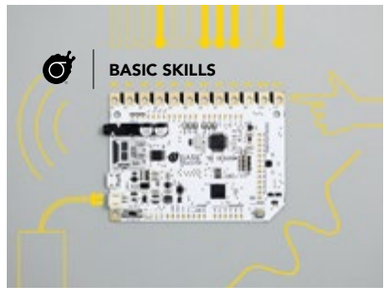
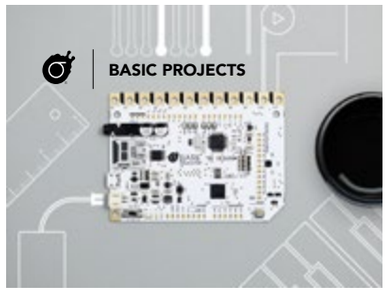
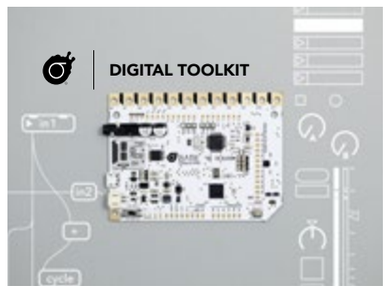
BASIC SKILLS











How to use this document

This document takes you through step-by-step instructions to gain a practical working knowledge of how to use the **Touch Board** and **Electric Paint**. It includes basics such as changing the MP3 sounds on the SD card and connecting the **Touch Board** to **Electric Paint**. Once you have familiarised yourself with all the basics you'll be ready to try out one of the **Basic Projects**, lead a workshop, and start prototyping independently.

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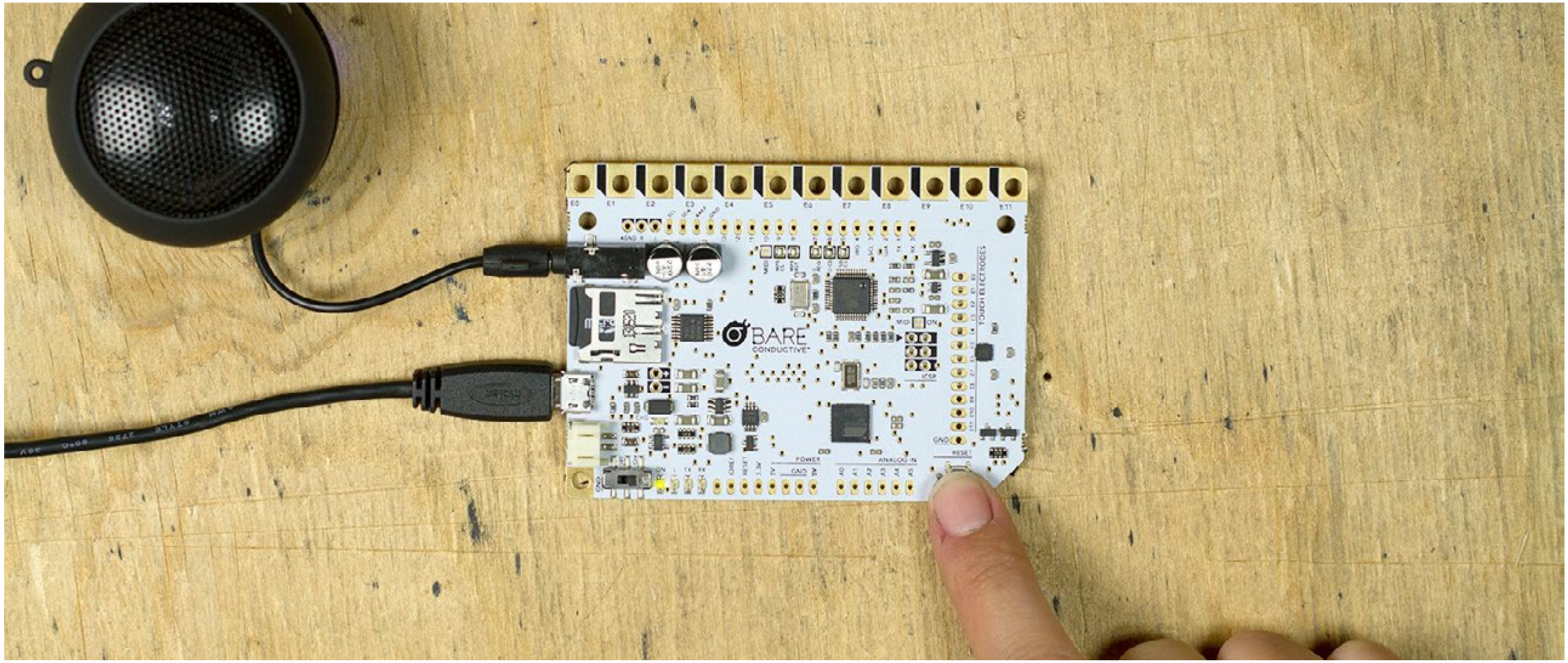

PLUG AND PLAY

This is a basic introduction to the Touch Board and is a great place to start if you're new to electronics or if you want to get acquainted with setting up the board. We will show you how to get power your board and get the touch sensors working.

LEARNING OBJECTIVES

Power and audio
Sensors

LESSON MATERIALS

Touch Board
MicroSD card
Mini speaker or headphones
Micro USB cable

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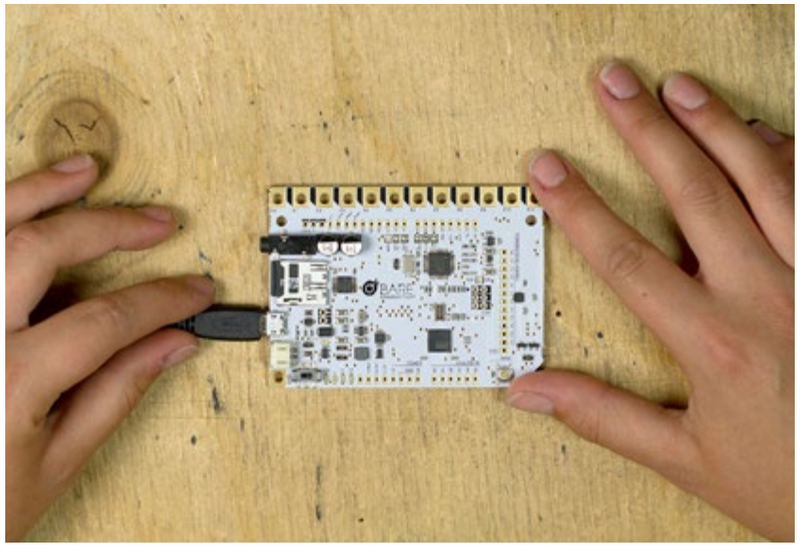
TIPS

Powering
If using something other than a wall socket or computer to power the Touch Board, make sure to check the power rating to make sure you don't kill your board.

Audio Jack
Standard 3.5mm audio jack, compatible with most headphones and speakers.

Sensors
Careful about short circuits



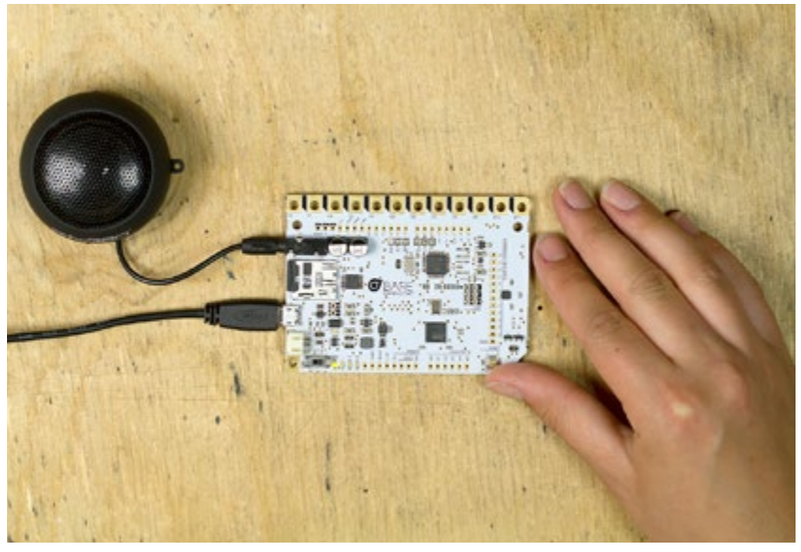
STEP 1
POWER UP

Plug your micro USB cable into the Touch Board.

You can power the board directly from your computer or from a USB charger.

Make sure the on/off switch at the bottom left hand corner of your Touch Board is switched to ON.

You should see the green light next to the on/off switch come on. This means your Touch Board is live.



STEP 2
AUDIO JACK

Plug your speaker (or headphones) into the audio jack on the top left hand corner of your board.

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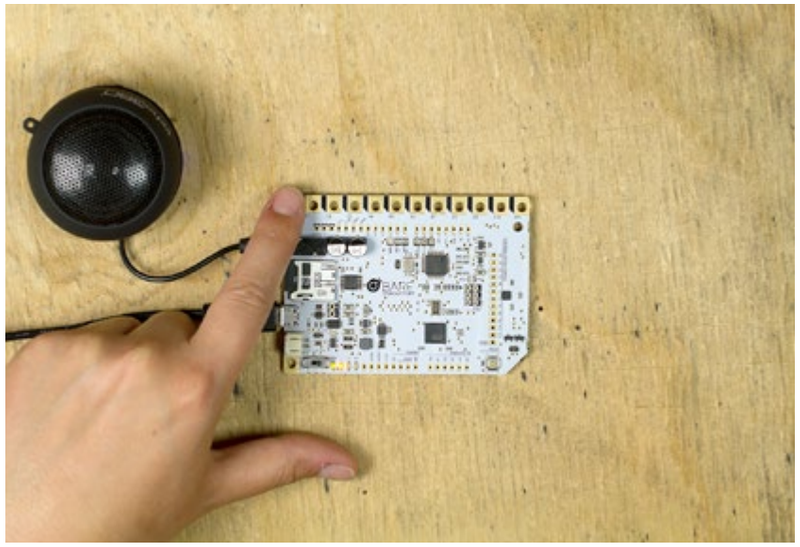
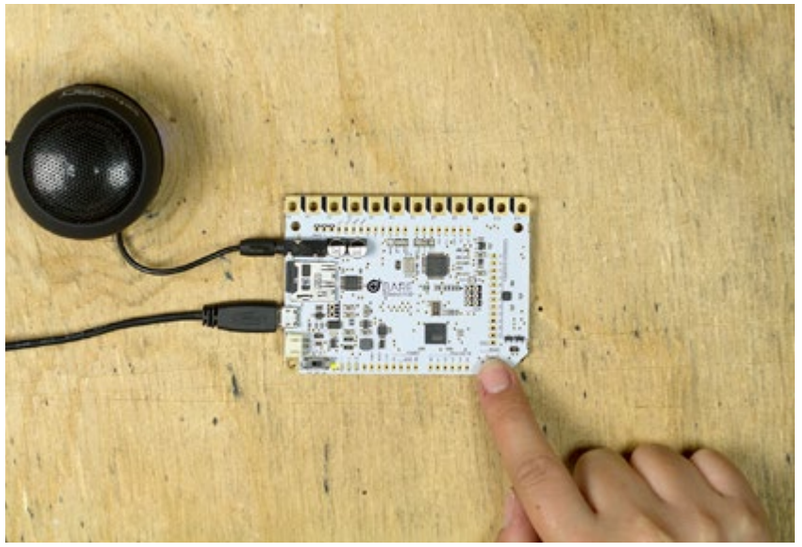


STEP 3
ELECTRODES

Now, touch the electrode on the upper left hand corner of your board. Can you hear Becky's voice?

The electrodes are the twelve golden squares that run along the top edge of your Touch Board. They are numbered E0 to E11.

Listen to the Audio Guide to find out more about the Touch Board and it's different features. Once you've explored it and you're ready to upload your own sounds, just move on to the next tutorial.



STEP 4
RECALIBRATING

If for any reason your electrodes stop working when you're handling the Touch Board, press the "Reset" button on the bottom right hand corner. This will make your electrodes re-calibrate.

The orange light at the bottom left hand corner will flash while your Touch Board is resetting. Wait until it stops flashing to touch the electrodes.

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CHANGE MP3s

The Touch Board comes pre-loaded with an Audio Guide to help familiarise you with all its features. However, we realise you'll soon be an expert on all these and will want to move on to using them to build your own project. One of the first things you may want to do is change the MP3s that the electrodes will trigger.

LEARNING OBJECTIVES

Touch sensing
Naming tracks
Loading sounds on micro SDcard

LESSON MATERIALS

Touch Board
MicroSD card reader
MicroSD card
Mini speaker or headphones
Micro USB cable
PC

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TIPS

Instructions in SD Card

The document titled “README.txt” contains instructions on the Touch Board Audio, as well as the Audio Guide in written form. Don’t delete this document, you may want to review these instructions in future.

Sound Sources

There are many websites where you can download free tracks. Freesound.org is a great resource for sounds and music.

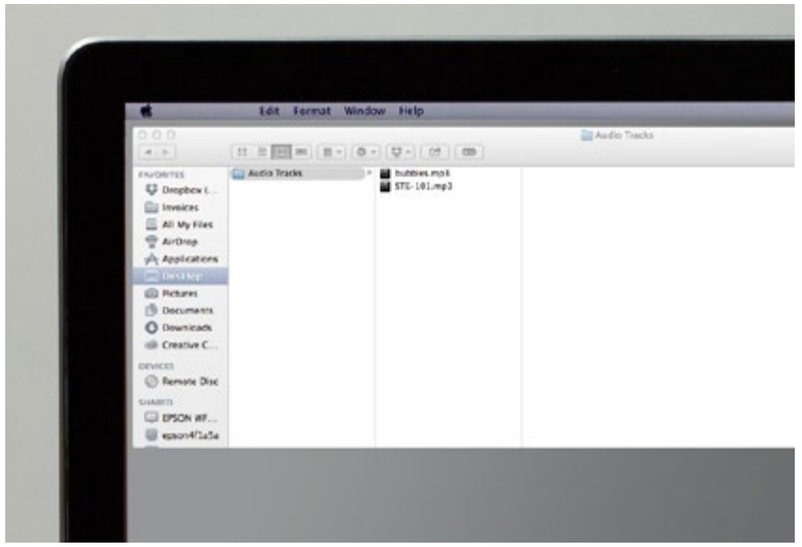
Files on SD card

You can create folders to save your files at the top level of the micro SDcard. But don’t delete the files already there. A lot of these files are related to the workings of the Touch Board, so deleting or moving them may affect your board’s functionality.

Cropping MP3s

If you want to crop your tracks so there’s no delay when you trigger a sound there’s some great free software online that will allow you to do this.

Try Online mp3 Cutter to shorten your audio clips.



STEP 1
MP3 TRACKS

The first step is to select the sounds that you want your Touch Board to play. You may want to record your own sounds, or you may already have a library of audio to choose from. If your tracks are not currently MP3s, you’ll need to convert and crop them.

Freesound.org is also a great resource for sounds and music.

STEP 2
MICRO SD CARD READER

Insert your microSD card reader into the USB on your computer, and then insert the microSD card from your Touch Board.

Your microSD card should show up on your desktop under the name “TB AUDIO”

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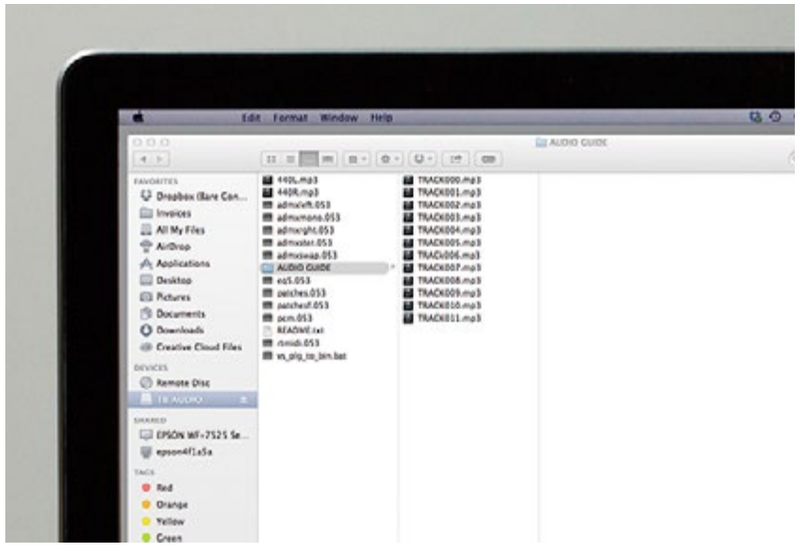
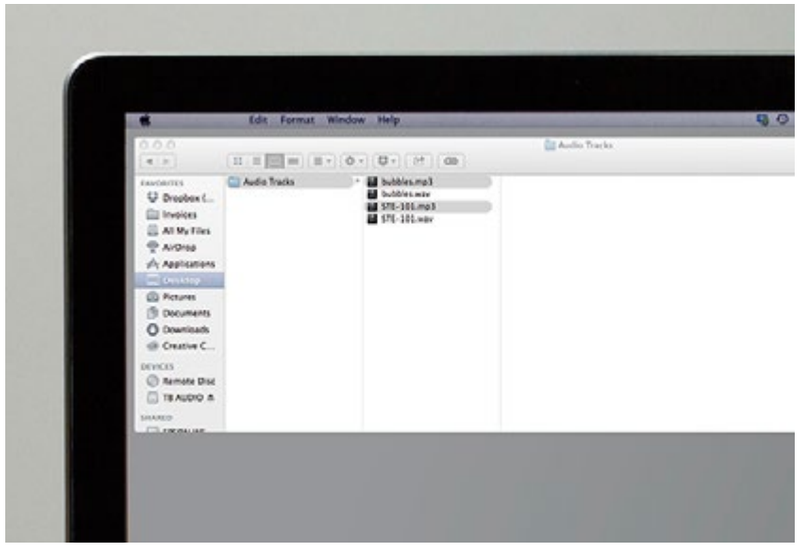


STEP 3
AUDIO TRACKS

At the top level of the card you will see twelve tracks titled:

TRACK000.mp3
TRACK001.mp3
TRACK002.mp3
...up to TRACK011.mp3

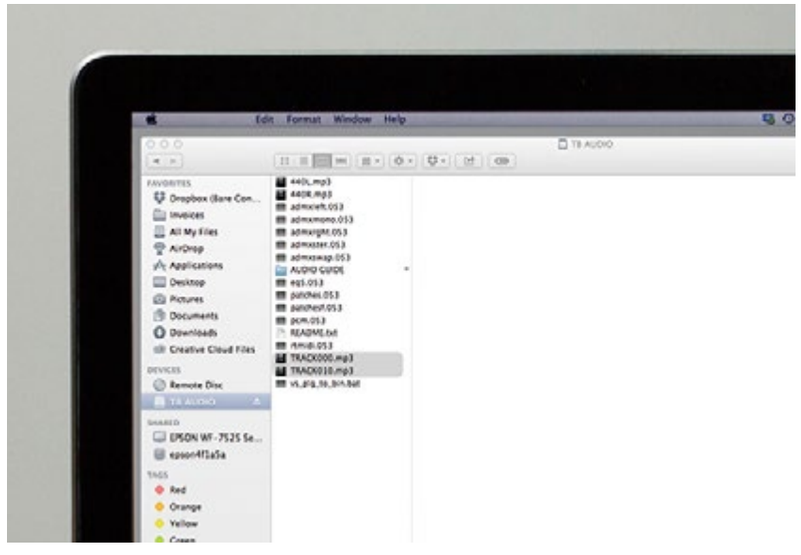
These are audio tracks the Touch Board is playing so you need to replace them with your own audio. Don't delete the files, instead create a folder titled "AUDIO GUIDE" to save them in case you need them for future reference.



STEP 4
REPLACING AUDIO TRACKS

Select the MP3 files that you want to put on the board, and drop them in the top level of your micro SDcard. Make sure you've already moved the Audio Guide tracks to another folder. In order for your Touch Board to read the audio tracks, these need to be named:

TRACK000.mp3
TRACK001.mp3
TRACK002.mp3
…up to TRACK011.mp3



STEP 5
NAMING YOUR TRACKS

Each track will relate to one sensor as listed below:

TRACK000.mp3 will be for E0
TRACK001.mp3 will be for E1
TRACK002.mp3 will be for E2

and so on….

You don't need to load all 12 tracks. Any remaining electrodes will not produce any sound.

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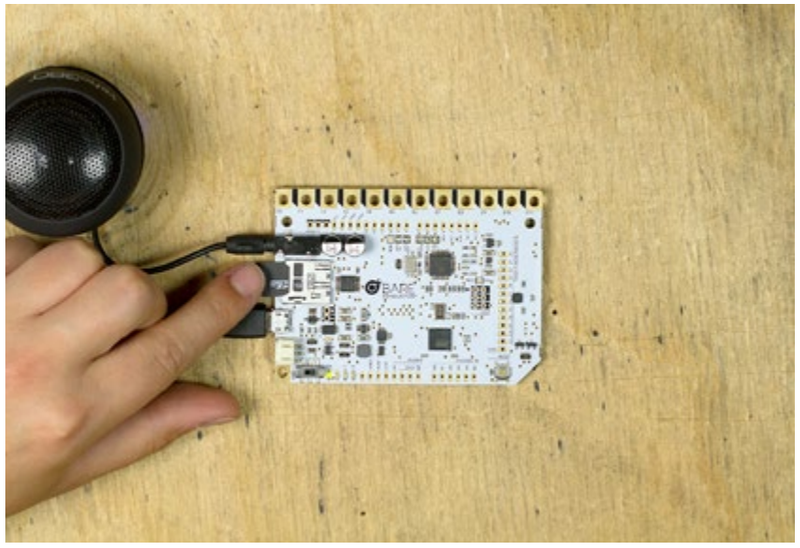
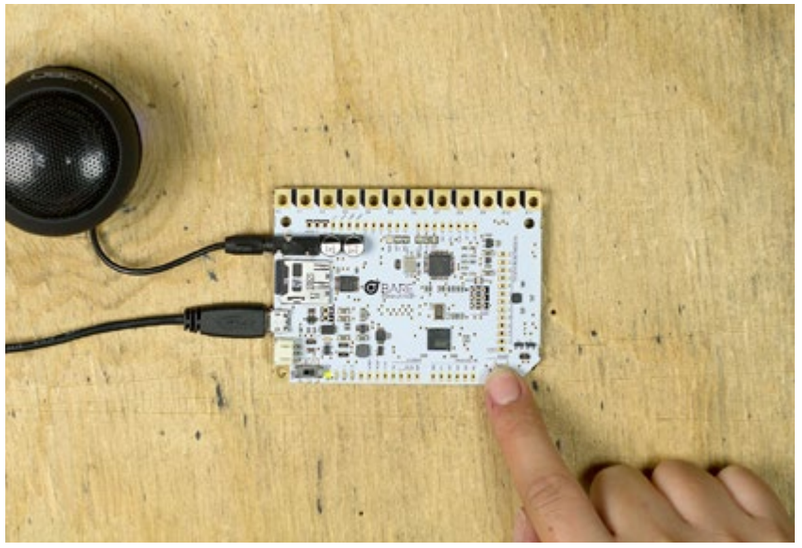


STEP 6
RE-INSERT YOUR MICRO SD CARD

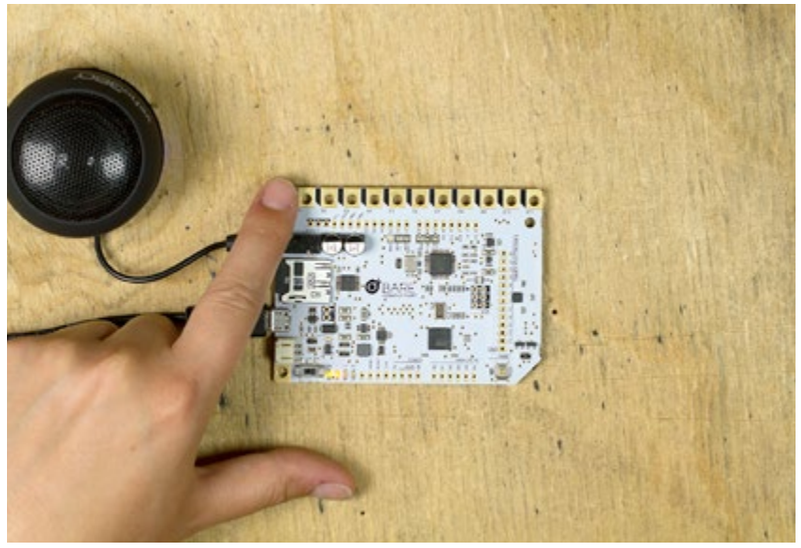
Once you've re-named all your MP3 files according to the system above, you can eject your microSD card from the computer, and slide it back into your Touch Board.



STEP 7
RESET YOUR TOUCH BOARD

Once your card is back in your board, press the "Reset" button on the bottom right hand corner. This will recalibrate the electrodes.

The orange light at the bottom left hand corner will flash while your Touch Board is resetting. Once it stops flashing you can touch any of the electrodes you've created track for, and hear the sounds you've uploaded.



STEP 5
TOUCH AND PLAY

Test one of the sensors. Touch your finger to one of the electrodes you've created a track for and wait to hear the sound.

If it doesn't work, double check that you've named and matched the tracks and electrodes appropriately.

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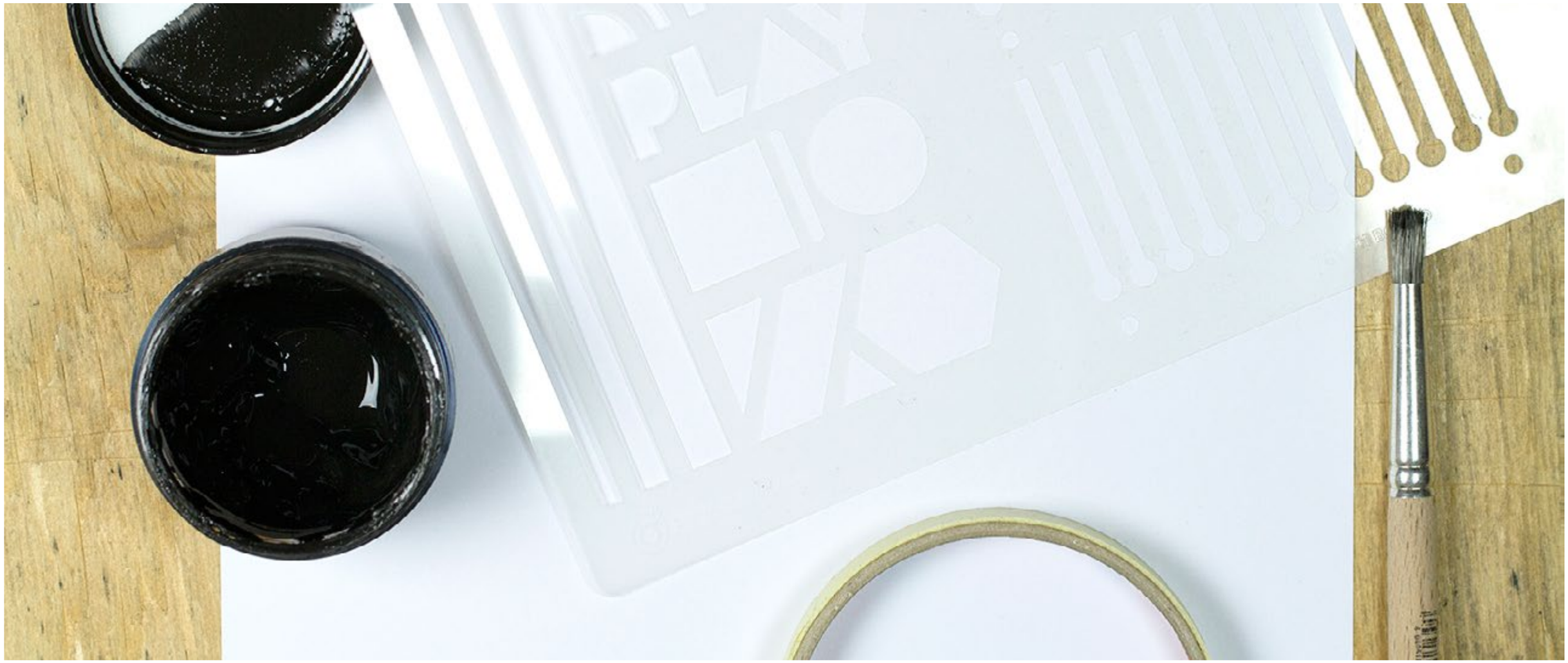

PITCH STENCIL

If you have one of our stencils, creating the grid to connect to your Touch Board will be easy. In the following steps we'll give you a quick explanation on how you can stencil a perfect grid for your Touch Board with Electric Paint.

LEARNING OBJECTIVES

Stencilling and Blotting

LESSON MATERIALS

Electric Paint
Paper
Stencil
Masking tape
Stencilling brush

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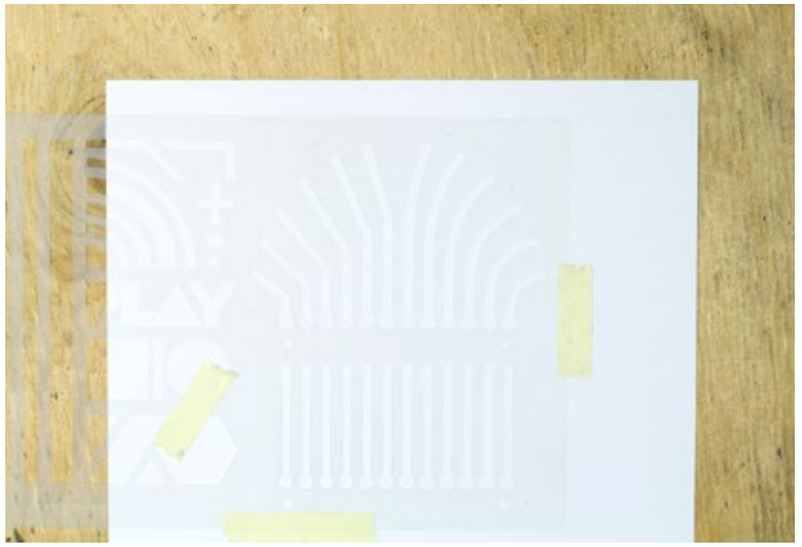
TIPS

Offloading

If your brush has too much paint it will pull the stencil and smudge your graphic. Before you apply brush to paper, make sure to offload on a separate surface so that your brush is not overloaded with paint.

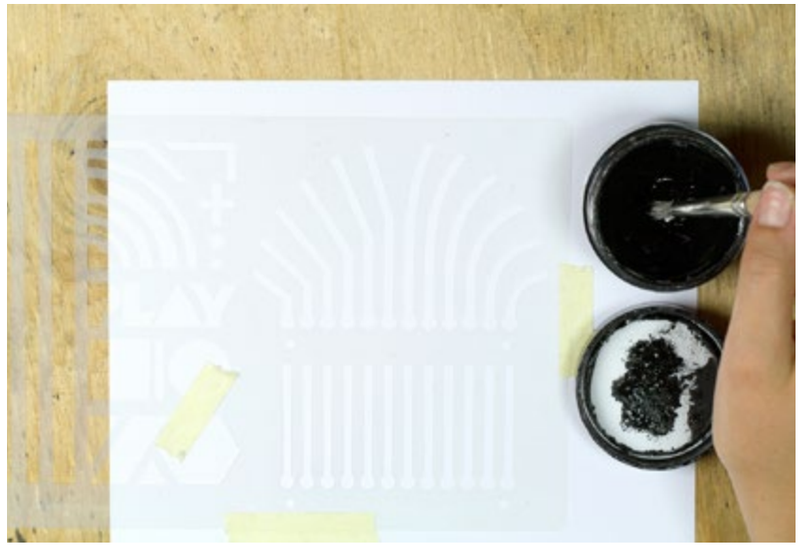
Blot

Stencilling is different form painting. Instead of sliding a brush across a surface, you dab it at a 90˚ angle. This prevents the paint from smudging beneath the plastic.



STEP 1
PREPARE YOUR STENCIL

If you're using paper, first take some masking tape and fluff it on your jeans or t-shirt, this will make the tape slightly less sticky and will ensure you don't rip the paper when you remove it. Tape down the stencil on the surface you've selected for your project.



STEP 2
PREP YOUR BRUSH

Next, open your Jar of Electric Paint, and using a stencilling brush, dab some paint on the jar's cap.

You want to tap the brush a few times to ensure it has an even distribution of paint across its surface.

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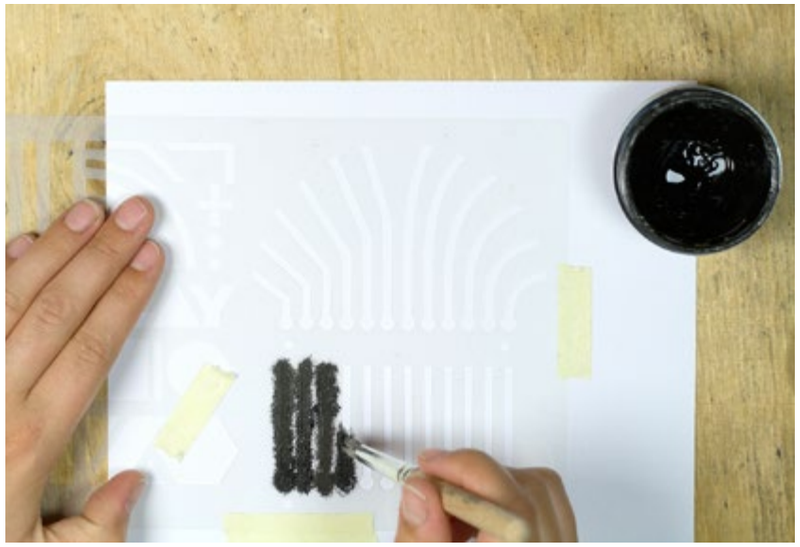

STEP 3
STENCIL OR BLOT

Hold your brush at a 90˚angle to the paper. Dab the paint on the stencil repeatedly to get an even cover of paint. Make sure not to use too much paint in one go as this may make your stencil stick to the brush and it may lift.

You can make several passes to sure you have a healthy cover of paint on the paper.

STEP 4
REMOVE STENCIL

Once you've finished applying the paint you can remove your stencil. Do so carefully to make sure you don't smudge the paint.

It's best to remove the stencil while the paint is slightly wet so that it doesn't adhere to the plastic and rip off your work.

Leave the paint to dry for 5-10 minutes.

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COLD SOLDER

In this tutorial we'll show you how to cold solder your Touch Board onto paper using an Electric Paint Tube. This is only one example of the multitude of ways and materials you could attach your Touch Board to. You can use this same technique to attach your board to cardboard, acrylic, wood, a wall, or almost any other surface you can think of.

LEARNING OBJECTIVES

Cold solder
Attaching the Touch Board

LESSON MATERIALS

Electric Paint
Touch Board
Paper

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TIPS

Short Circuit

It's very important to make sure the paint between your electrodes doesn't smudge. If these lines make any contact they will create a short circuit. This won't break the board, but it will mean that the linked electrodes won't trigger sound, so be careful not to apply too much paint beneath the electrodes.

Connection

Make sure there are no breaks in the connection between your Electric Paint graphic and the Touch Board. If any cracks appear on the traces, just top them up with a bit of paint to bridge the connection.

The thinner the paint cover, the less likely it is to crack.

STEP 1
COLD SOLDER

Very carefully squeeze a small droplet of paint onto each of the circles at the bottom of your grid. We are using the paint as a cold solder to ensure contact between our Touch Board's electrodes and the conductive paint, so make sure no paint bridges between the black lines. This will cause a short circuit.

STEP 2
DROPLETS

There should be no paint smudging or leaking between the electrodes to ensure no short circuits.

Remember, if your droplets are too large, the paint will bleed out when you put the Touch Board on top, so make sure your droplets aren't too big.

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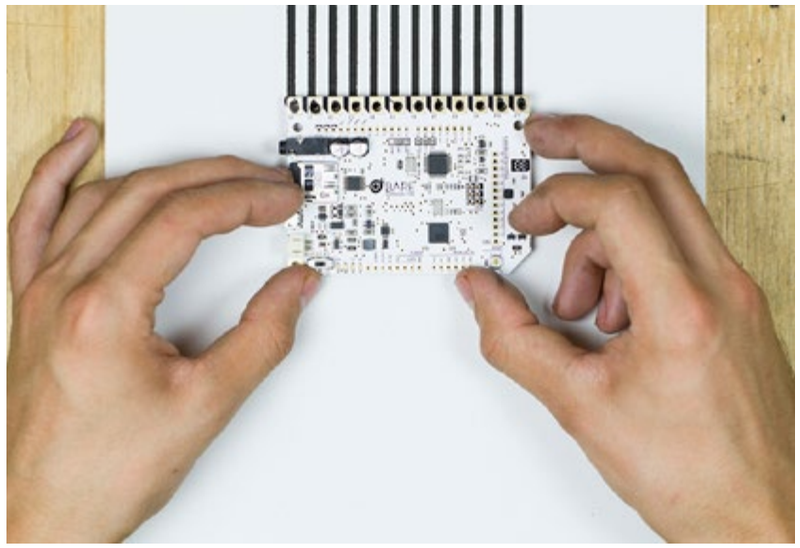
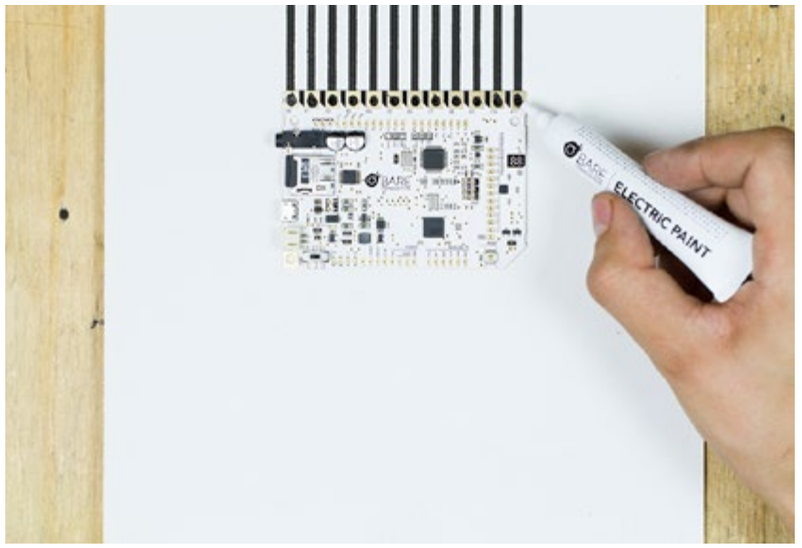


STEP 3
ATTACHING THE TOUCH BOARD

Once you've prepared all the traces you want to use, carefully centre the Touch Board over your grid, and place it down so that each electrode makes contact with the droplet below. Each droplet should align to the hole in the electrode.

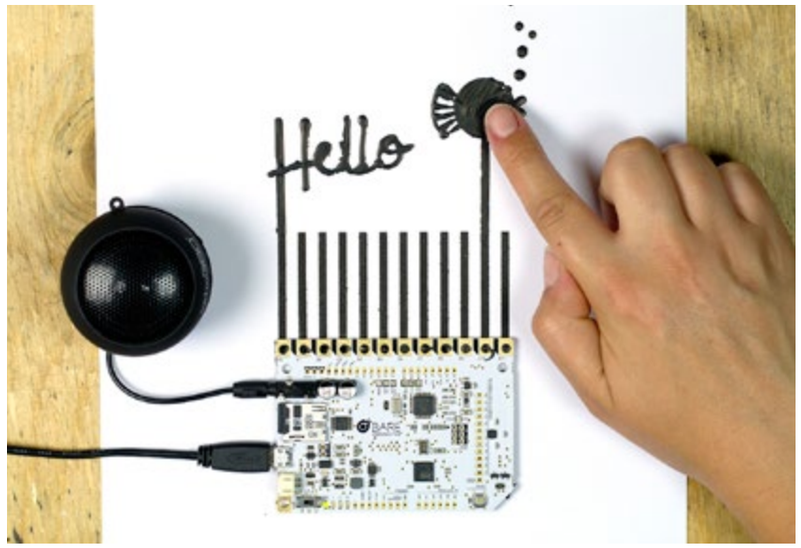
If you want your Touch Board connection to be robust, you can put some double sided tape on the bottom of the board so it doesn't slide around.



STEP 4
TOP UP

Using your Electric Paint Tube, squeeze a second set of droplets on the top of your electrodes. You don't need to cover them, only to connect to the paint beneath. A medium sized droplet should make contact with both the paint and the electrode.

Ensure a good connection to the board.



STEP 5
LET IT DRY AND TEST THE SENSORS

Once you've topped up your electrodes, set your paper and board aside to dry.

Wait 5 – 10 minutes to make sure the board won't slide and smudge.

Once the paint has dried, you can power up your Touch Board, press the recalibrate button, and test one of the sensors.

If it doesn't work, make sure the connection is sound and that there are no short circuits underneath the board.

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MAKE

If you found these tutorials useful, you may want to visit the **MAKE** page on the bareconductive.com website. Here you will find lots more tutorials, projects and resources uploaded by both Bare Conductive and by members of our community. The **MAKE** page is a great resource for information, inspiration, and step-by-step tutorials. You can also share your projects so they can be featured on the site. Just email your images, copy and video to **info@bareconductive.com**

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@ bareconductive | #ElectricPaint | #TouchBoard