# WELCOME TO QUIRKBOT ONBOARDING

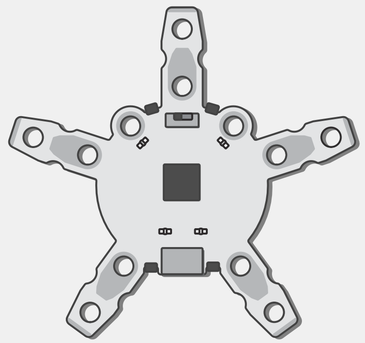
## You will learn how to:

- Download CODE app
- Name the Quirkbot parts
- Connect the Quirkbot to a computer
- Reset to the Factory Program
- Use motors with Quirkbot
- Use Quirkbot's circuit touch
- Attach LEDs to Quirkbot
- Use coding cards
- Upload your own program to Quirkbot

## You will need:

Internet connection to download the app

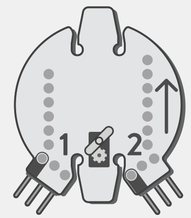
A computer with MacOS or Windows 7 or newer



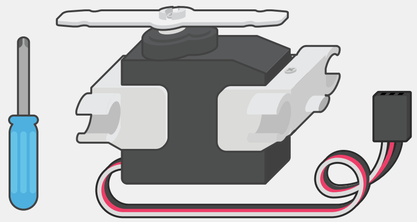
Quirkbot



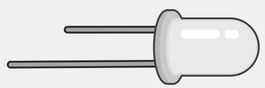
USB cable




Motor backpack



Servo motor, horn, mount and screwdriver



Dual color LEDs

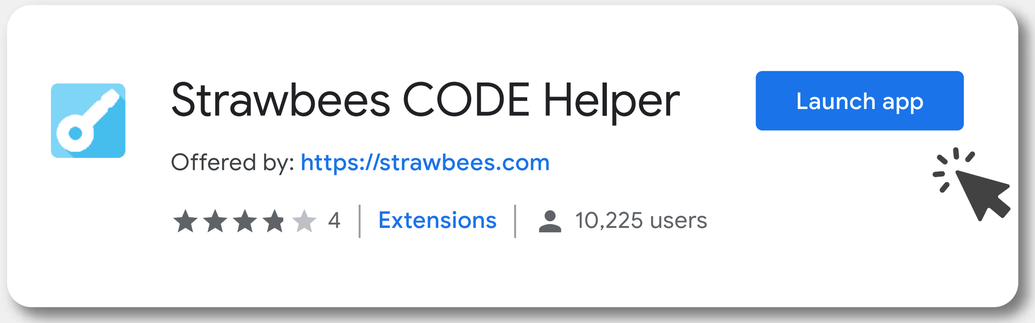
# DOWNLOAD APP



## For **chromebook** user:

Download chrome app for your platform.

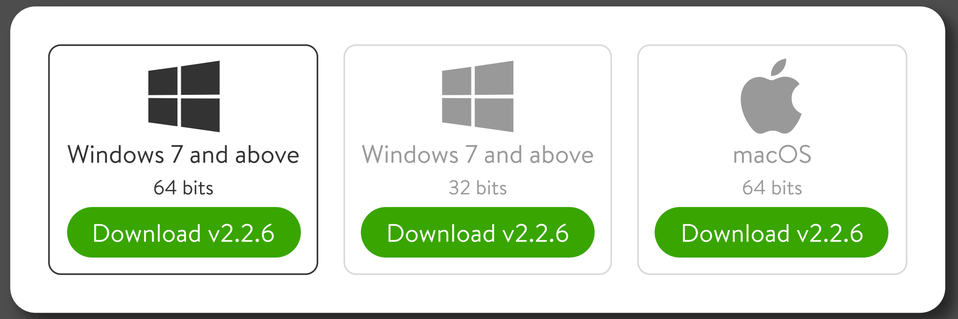
chrome web store




https://chrome.google.com/webstore/detail/strawbees-code-helper/ackaalhbfjagidmjlhlokoblhbnahegd

## For **Windows and Mac** user:

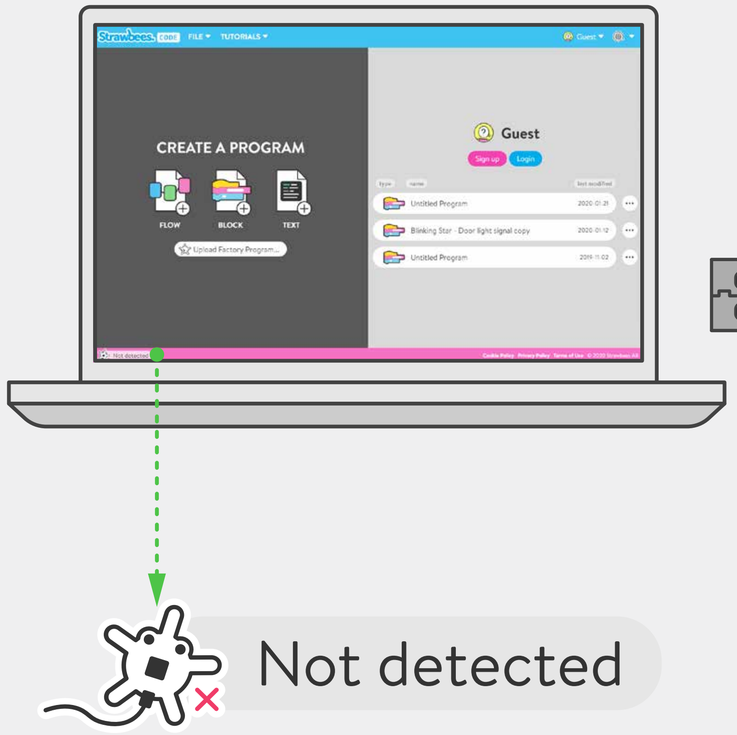
Go to **code.strawbees.com/download**
Download CODE for your platform.




Work offline! Once you have CODE installed you don’t need internet anymore!

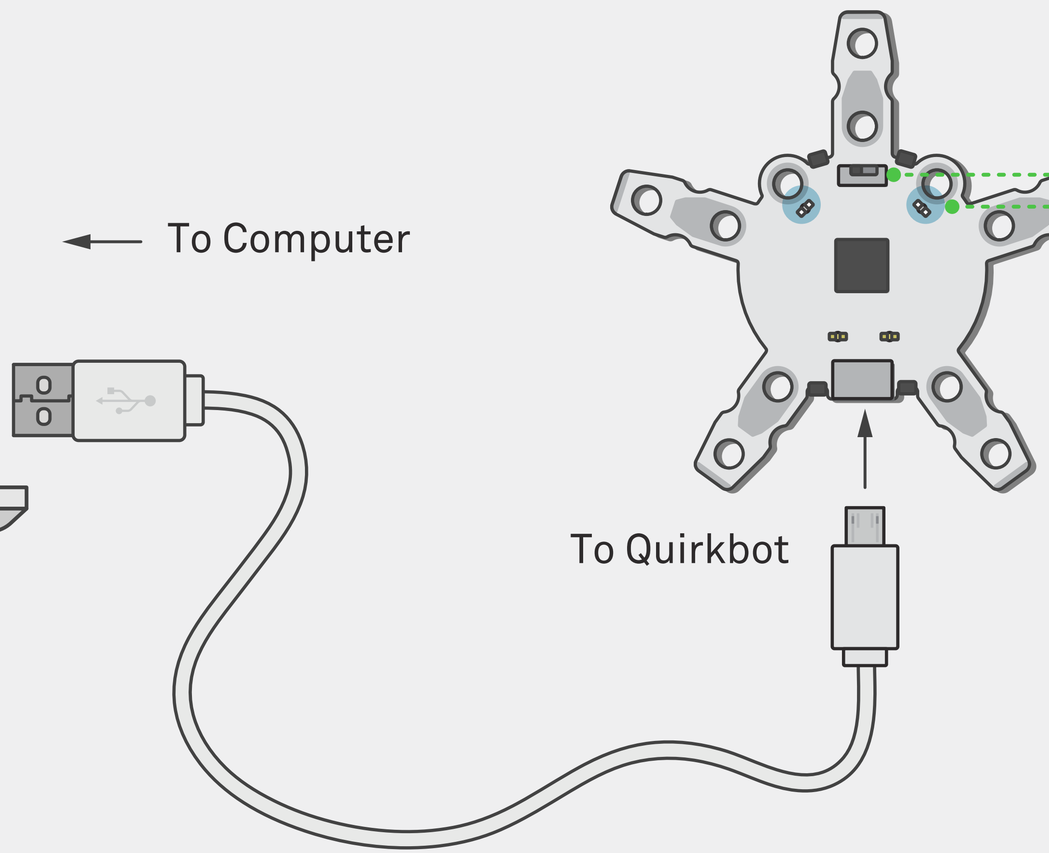
# HOW TO CONNECT

## 1 Open the APP

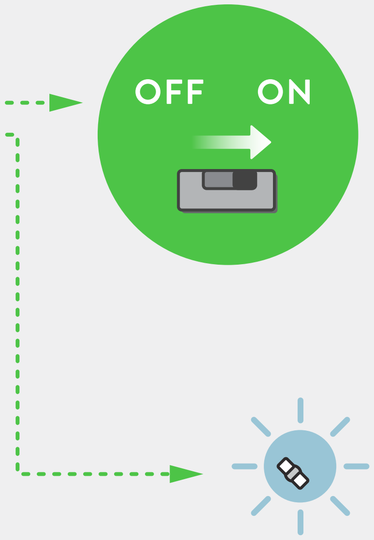



Not detected

## 2 Connect USB cable




## 3 Turn on Quirkbot



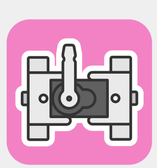

Ready

# WHAT IS THE FACTORY PROGRAM

Factory program is a program made to demonstrate some of the Quirkbot features:

Two blue eyes that can blink in different speeds

Circuit touch on the horn



Two motor movements that are in sync with the blinking eyes

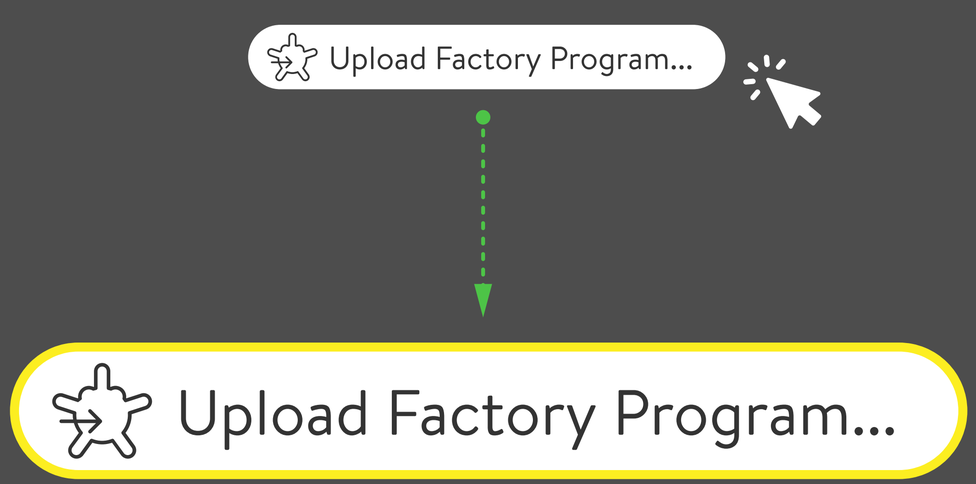
Legs and arms that accept LEDs to be connected

You can use the Factory program to start building without having to learn how to code it first. By playing with the Factory code, you can learn what is possible and by describing what's happening you gain vocabulary that will be useful to learn how to code.

# HOW TO INSTALL FACTORY PROGRAM

1

## CREATE A PROGRAM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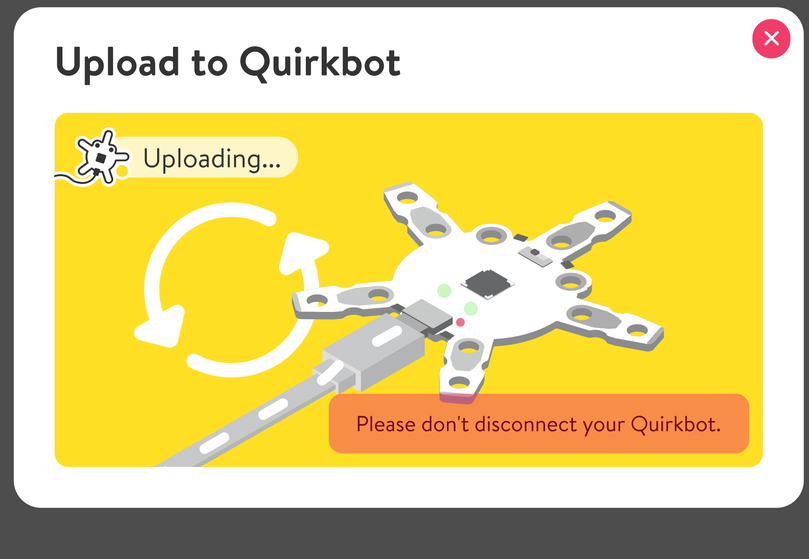


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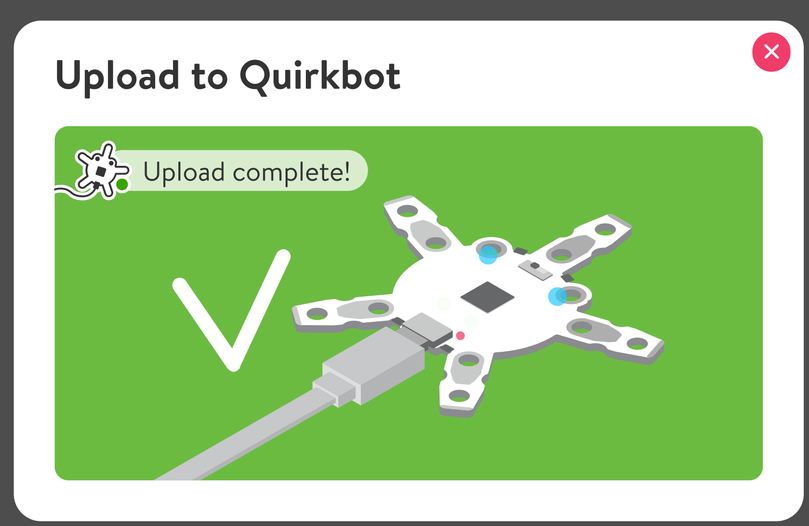
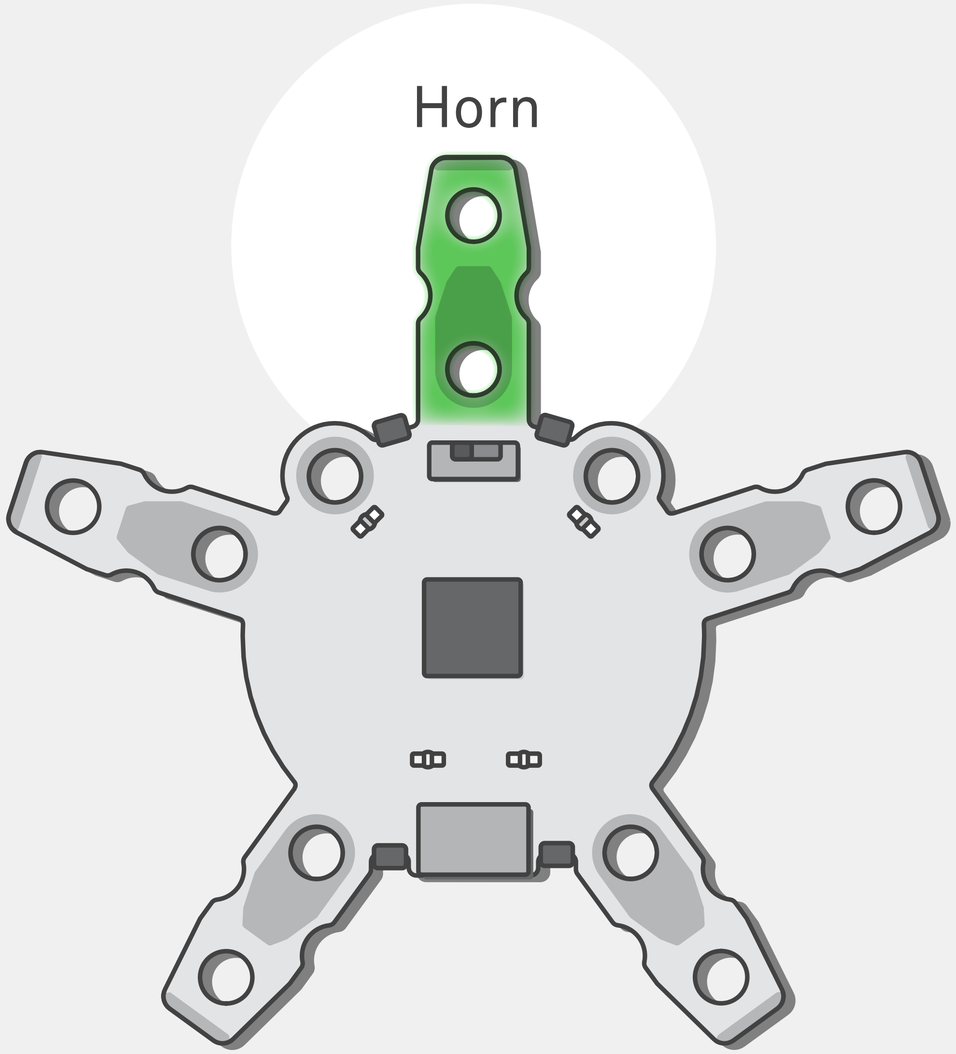
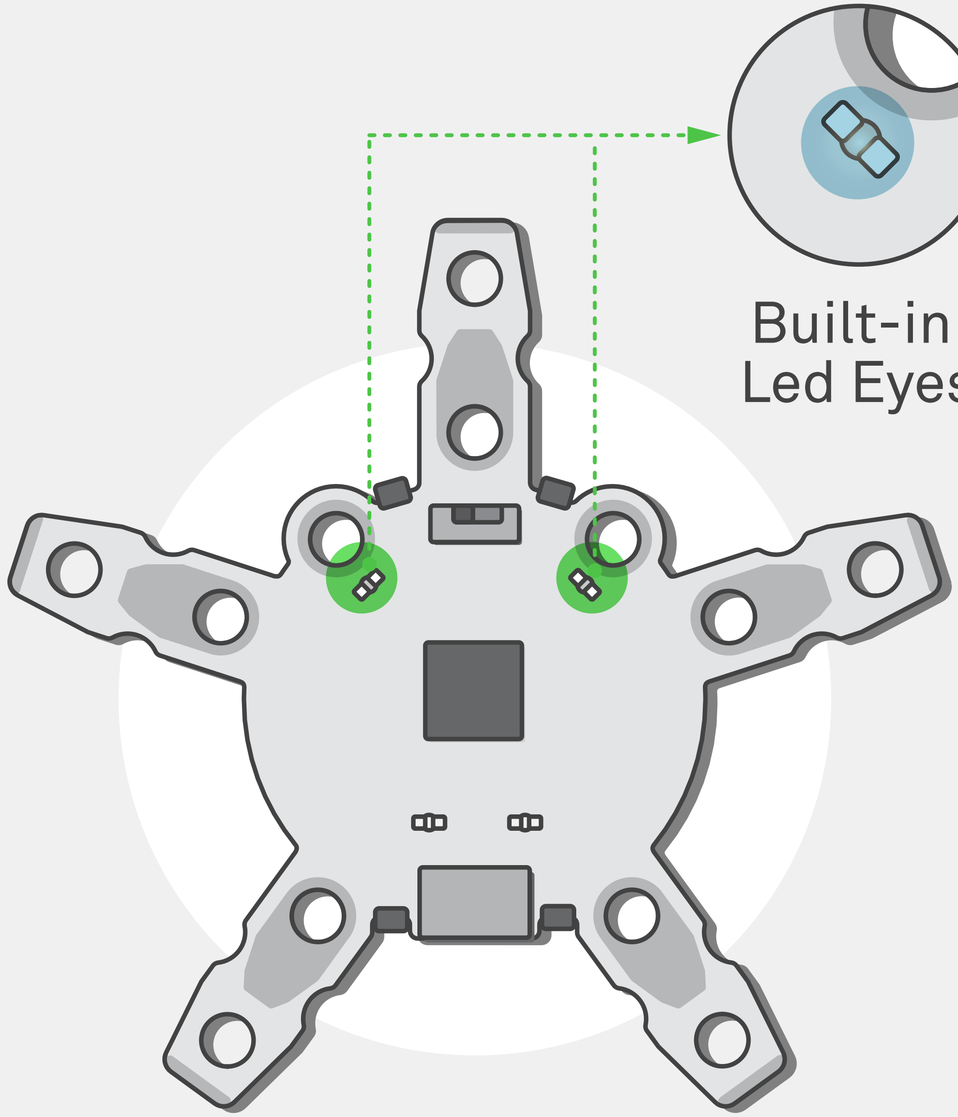


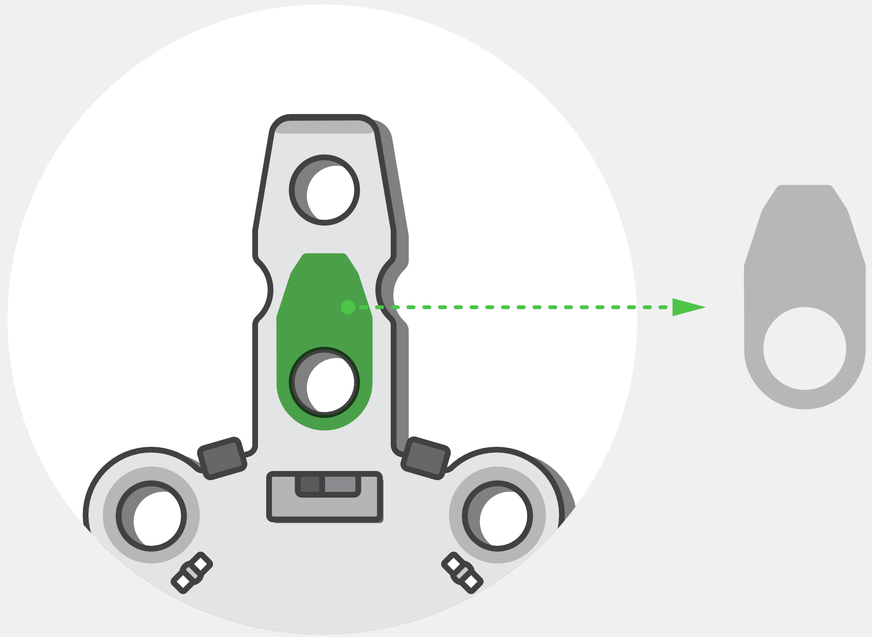
# QUICK ANATOMY: HORN AND EYES



# FRONT AND BACK PADS

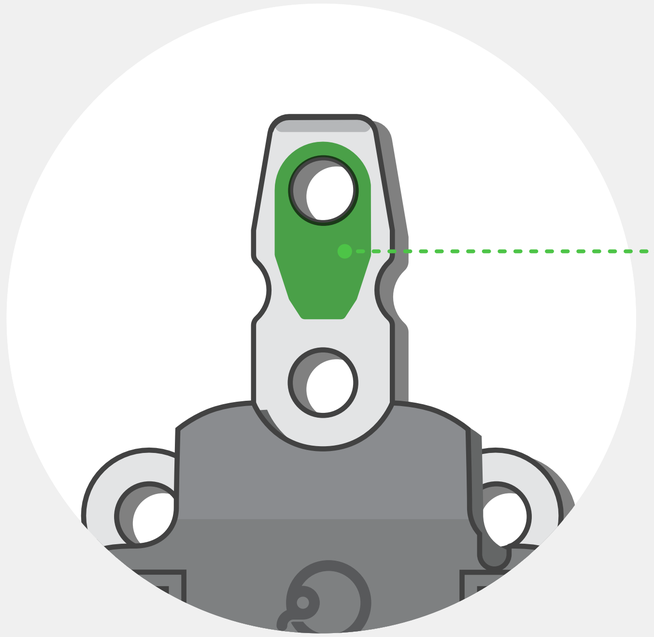
The horn, arms and legs have 2 holes, each one connected with a metal “blob”.





## Front Pad

The bottom hole is connected to a blob on the front of the Quirkbot



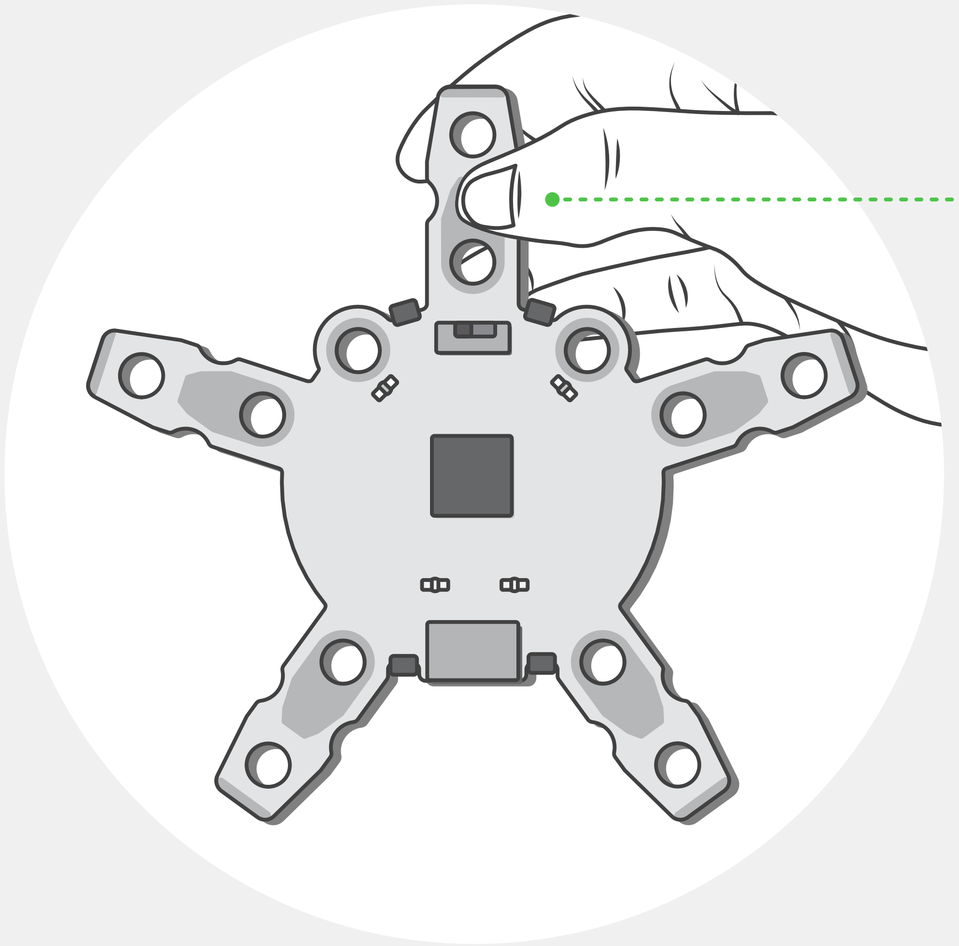
## Back Pad

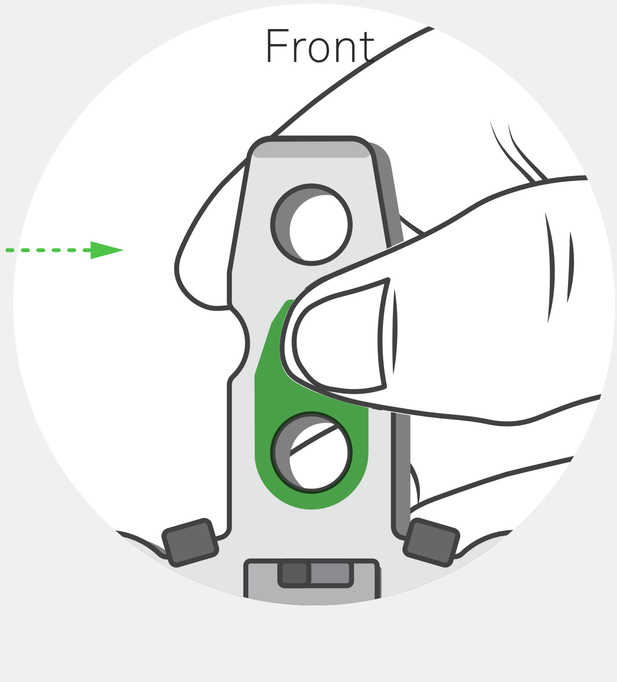
The upper hole is connected to a block on the back of the Quirkbot

# HOW TO TOUCH WITH YOUR HANDS

In order to **close the circuit** and perform a **circuit touch** your hand must be touching at the same time the front and back of the Quirkbot horn.

Make sure your hand is touching the metal blobs on both side.







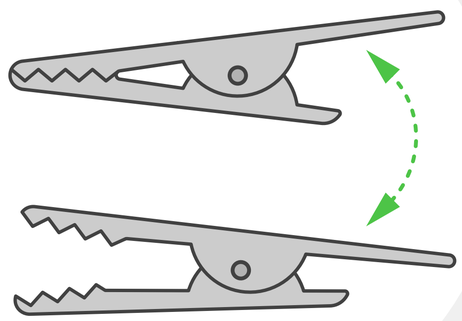
# CAN YOU TELL THE DIFFERENCE ON THE EYES WHEN YOU TOUCH THE HORN?

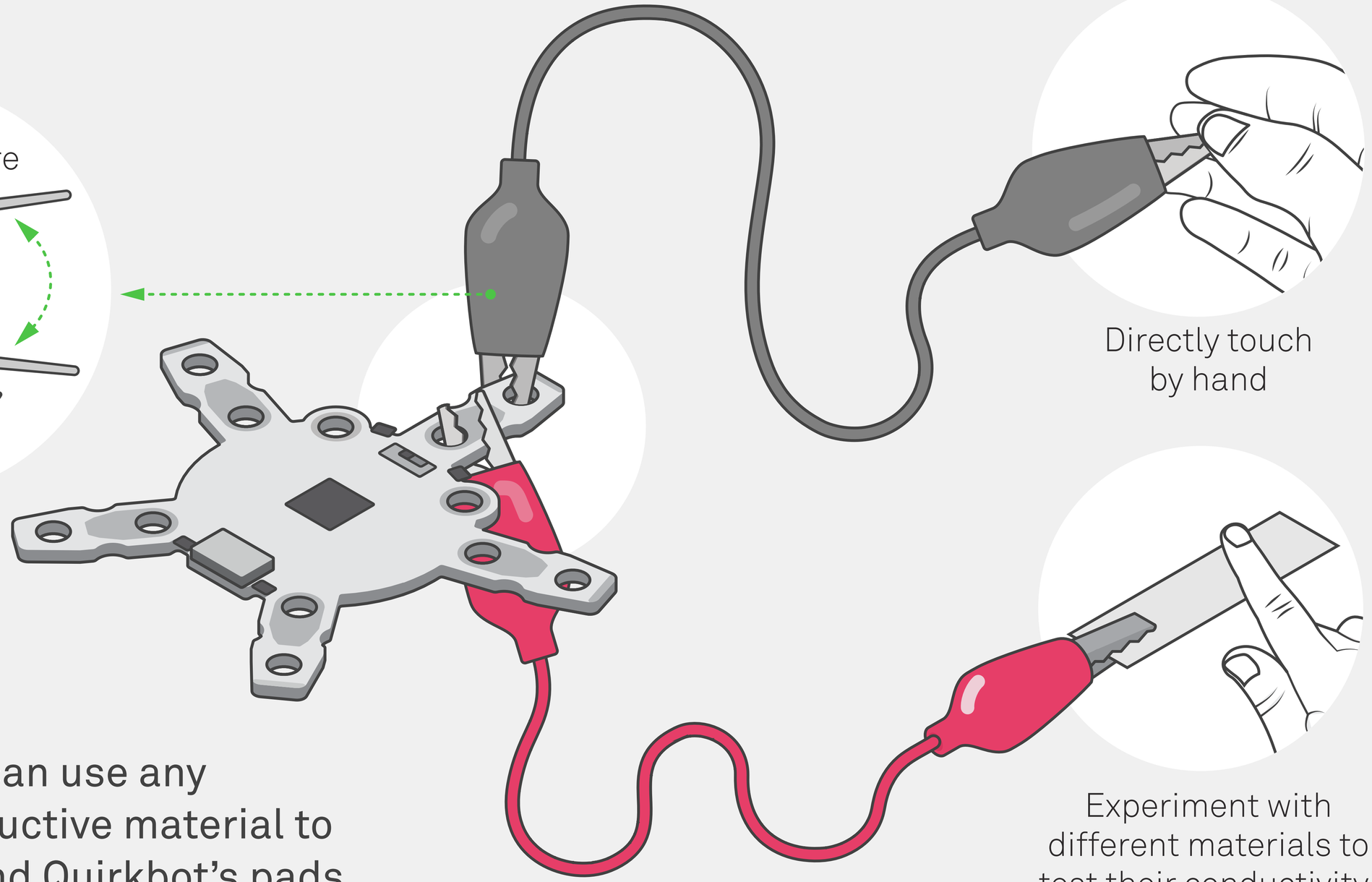
After flashing the Factory code on your Quirkbot, touch the horn and observe what happens with the eyes.

Can you describe what is the difference?

# HOW TO TOUCH WITH ALLIGATOR CLIPS

Inner Structure





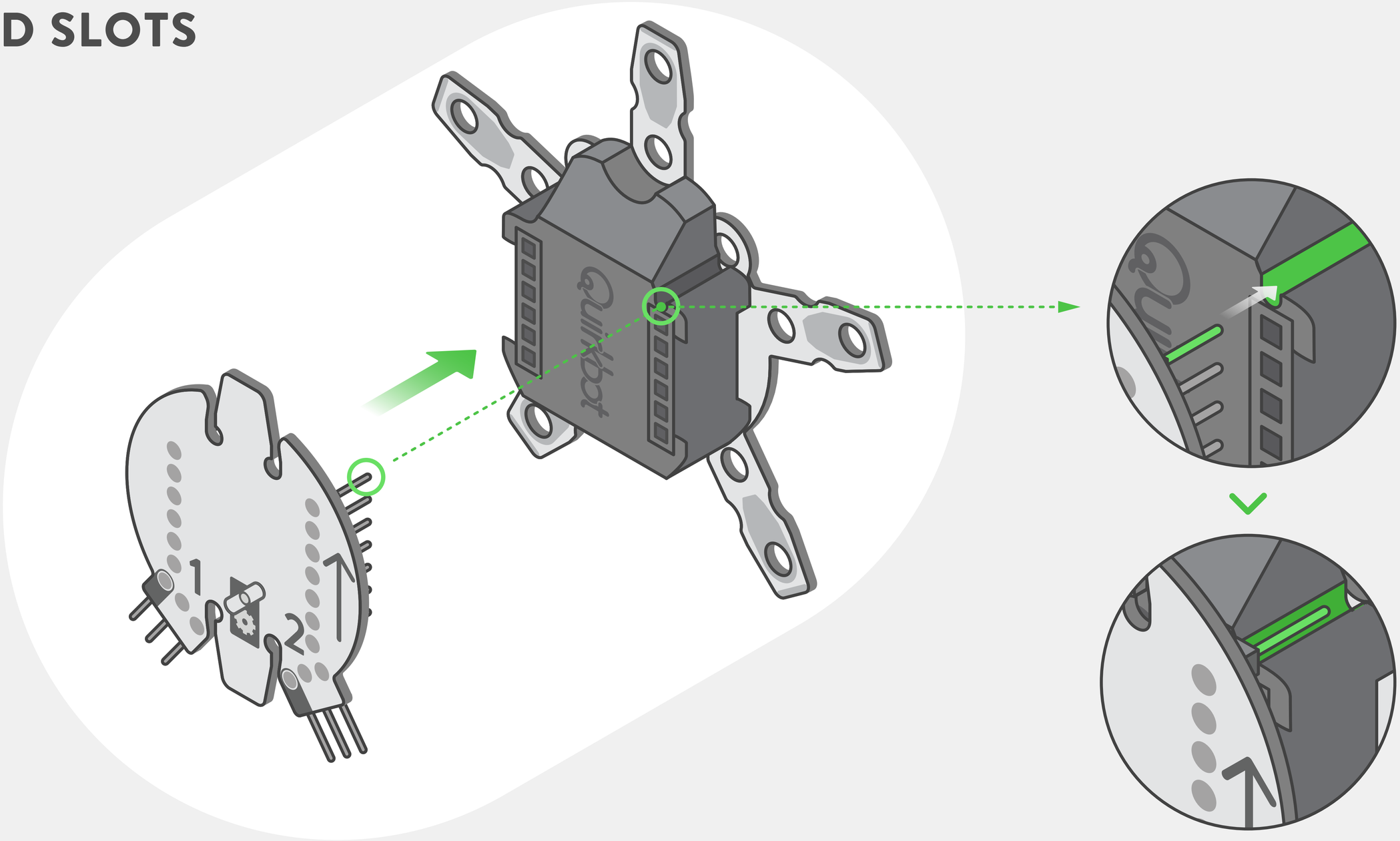
Directly touch
by hand



Experiment with
different materials to
test their conductivity!

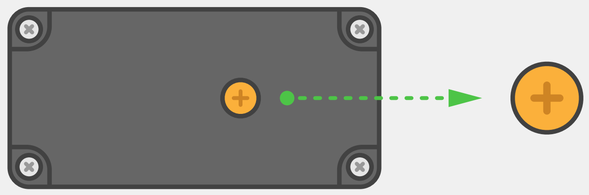
You can use any
conductive material to
extend Quirkbot’s pads.

# MOTOR BACKPACK AND SLOTS



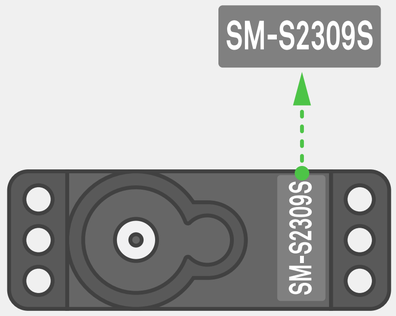
# IDENTIFYING A SERVO MOTOR

## A. Find the screw



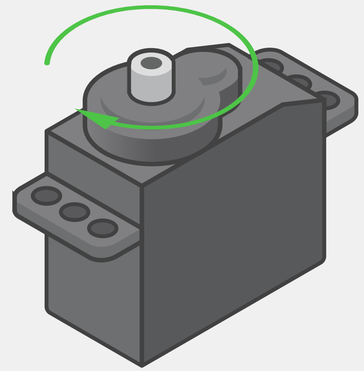
Continuous servo motors usually have a mechanism to calibrate their movement. It often appears as a small screw.

## B. Check the label



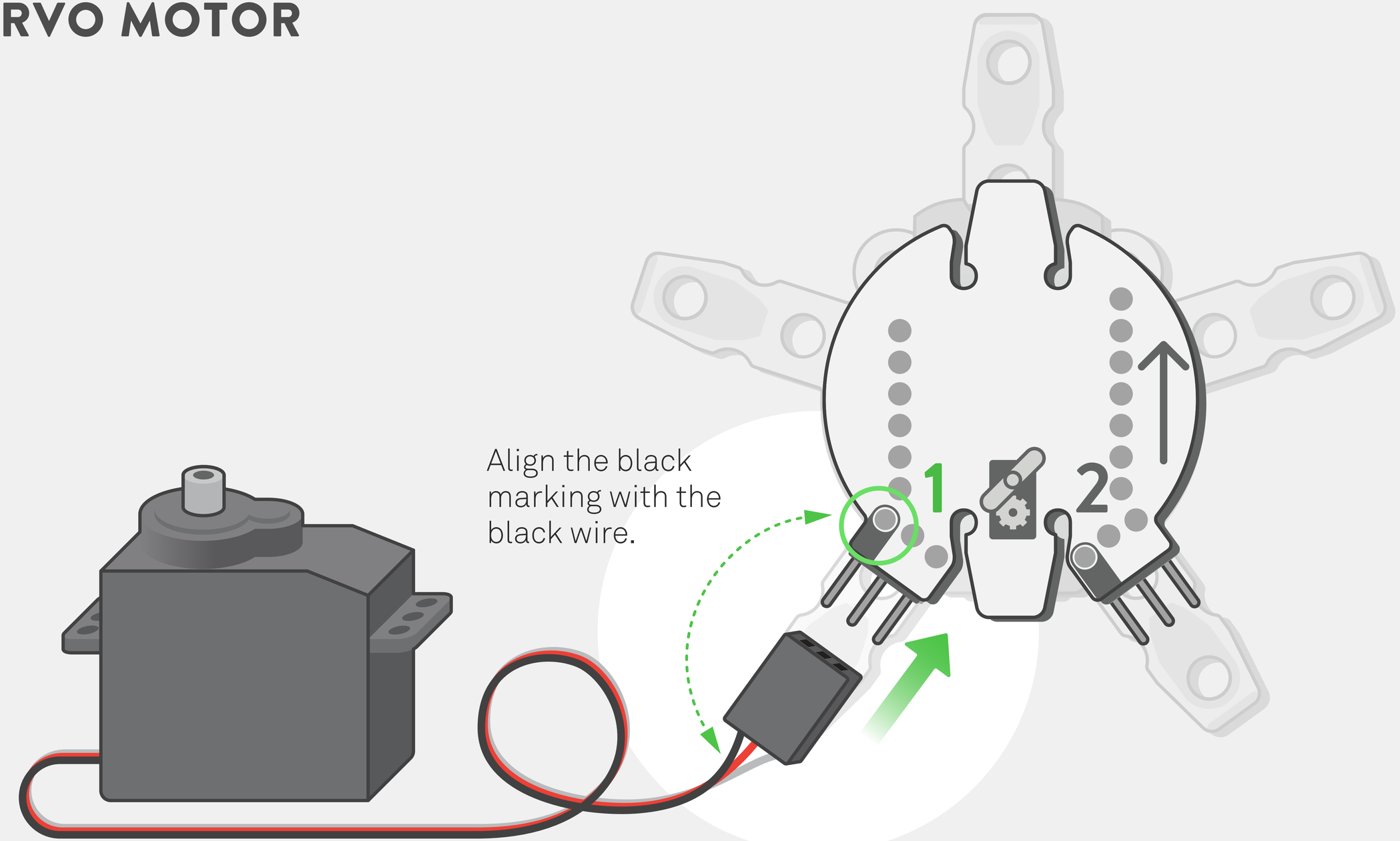

Our servos have a **white** label for continuous servos and a **black** one for regular servos.

## C. Test with code



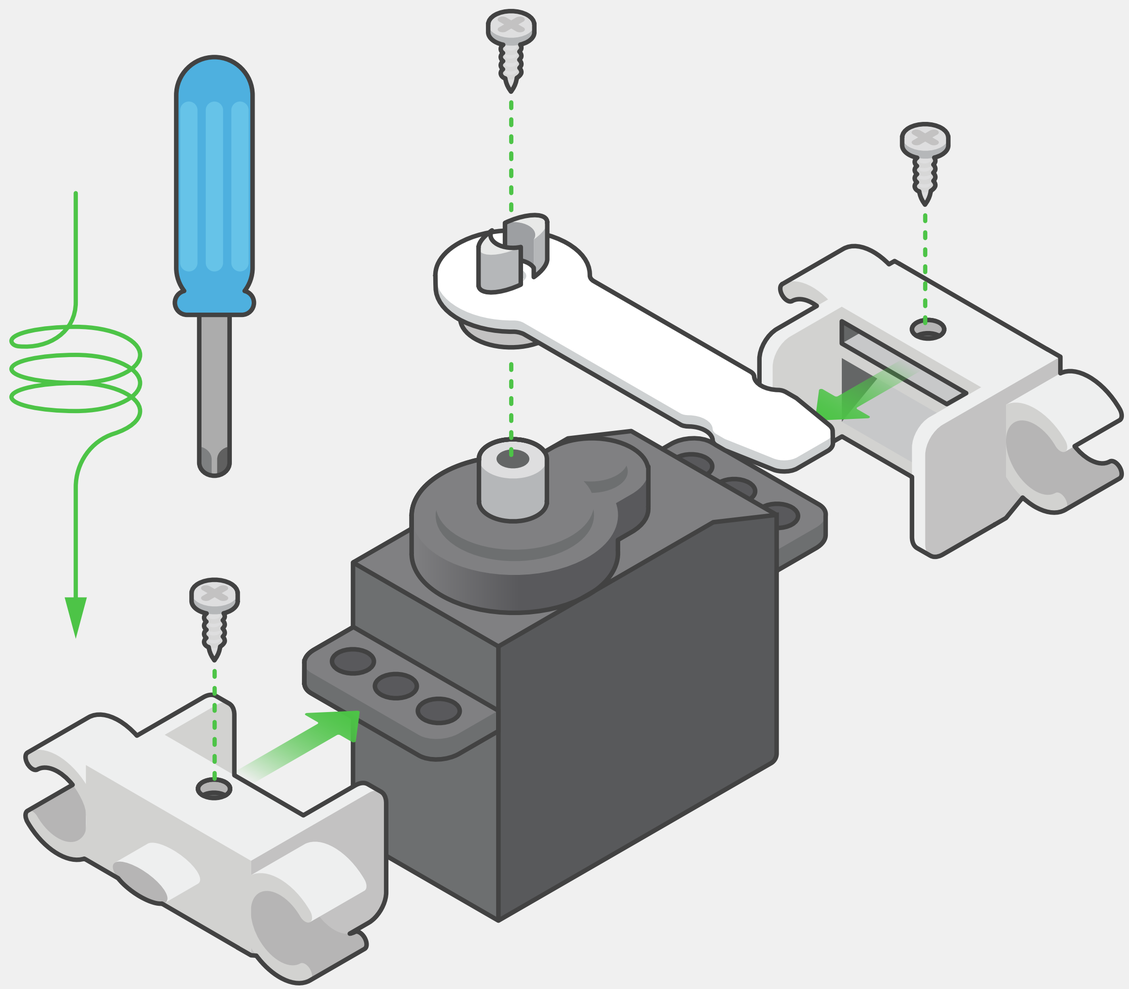
The safest and most efficient way to test a motor is running code made for continuous motors and see what happens.

# HOW TO CONNECT SERVO MOTOR



# HOW TO ATTACH SERVO HORN AND MOUNT

1



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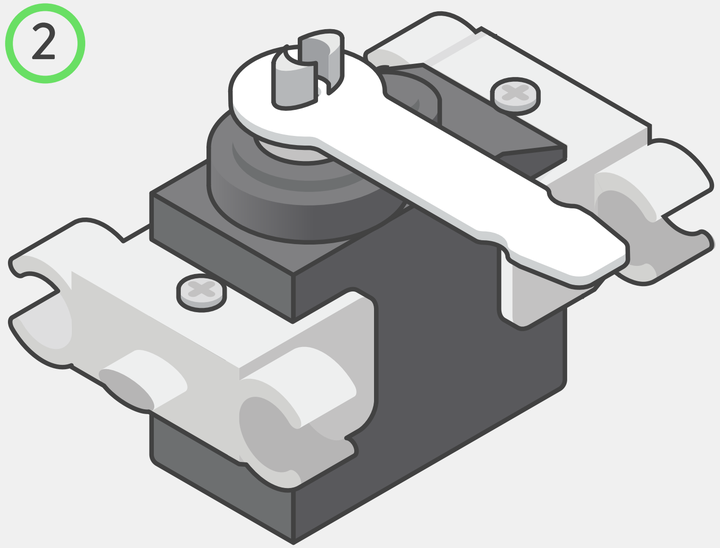
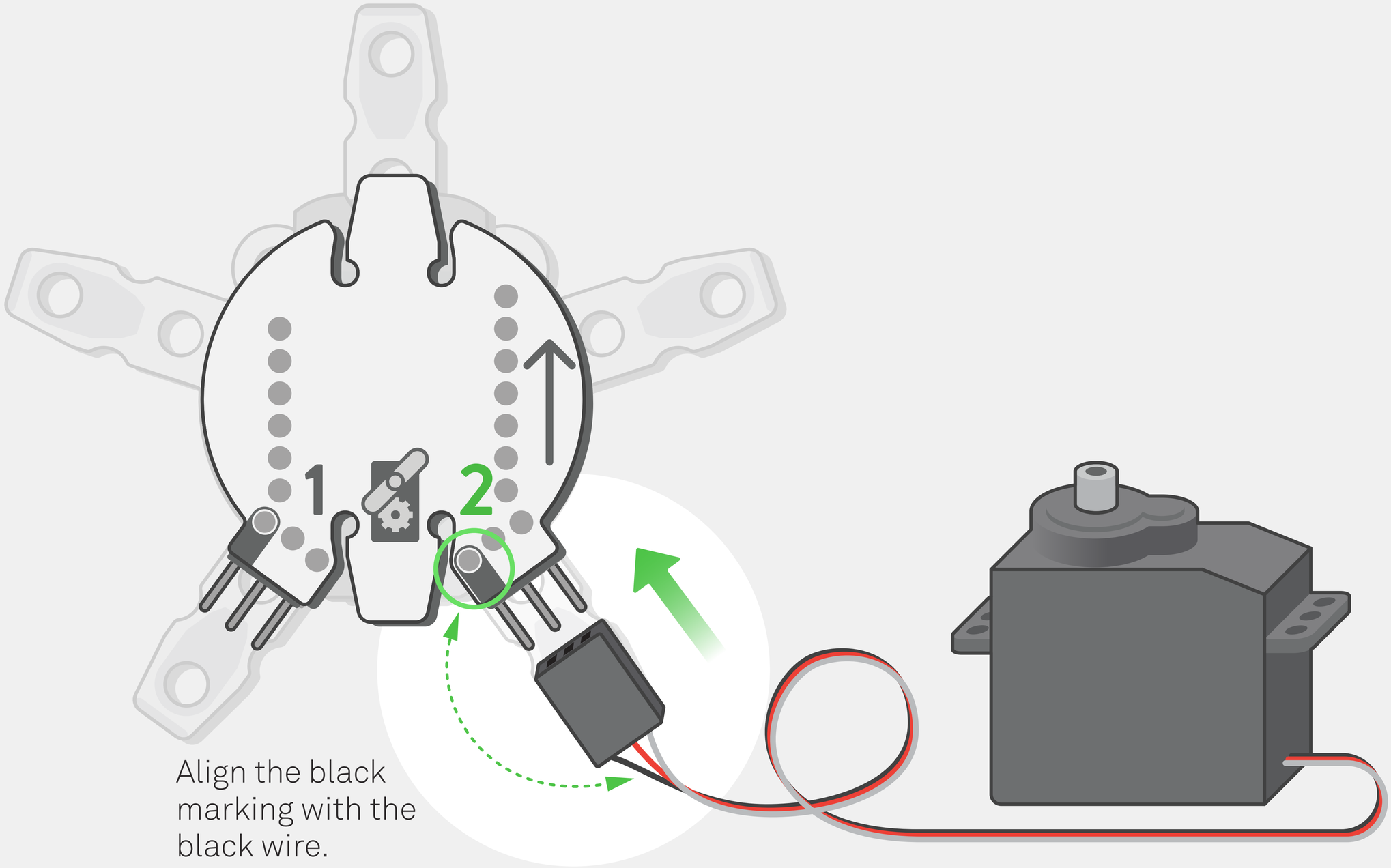


# SWITCH MOTOR SLOTS



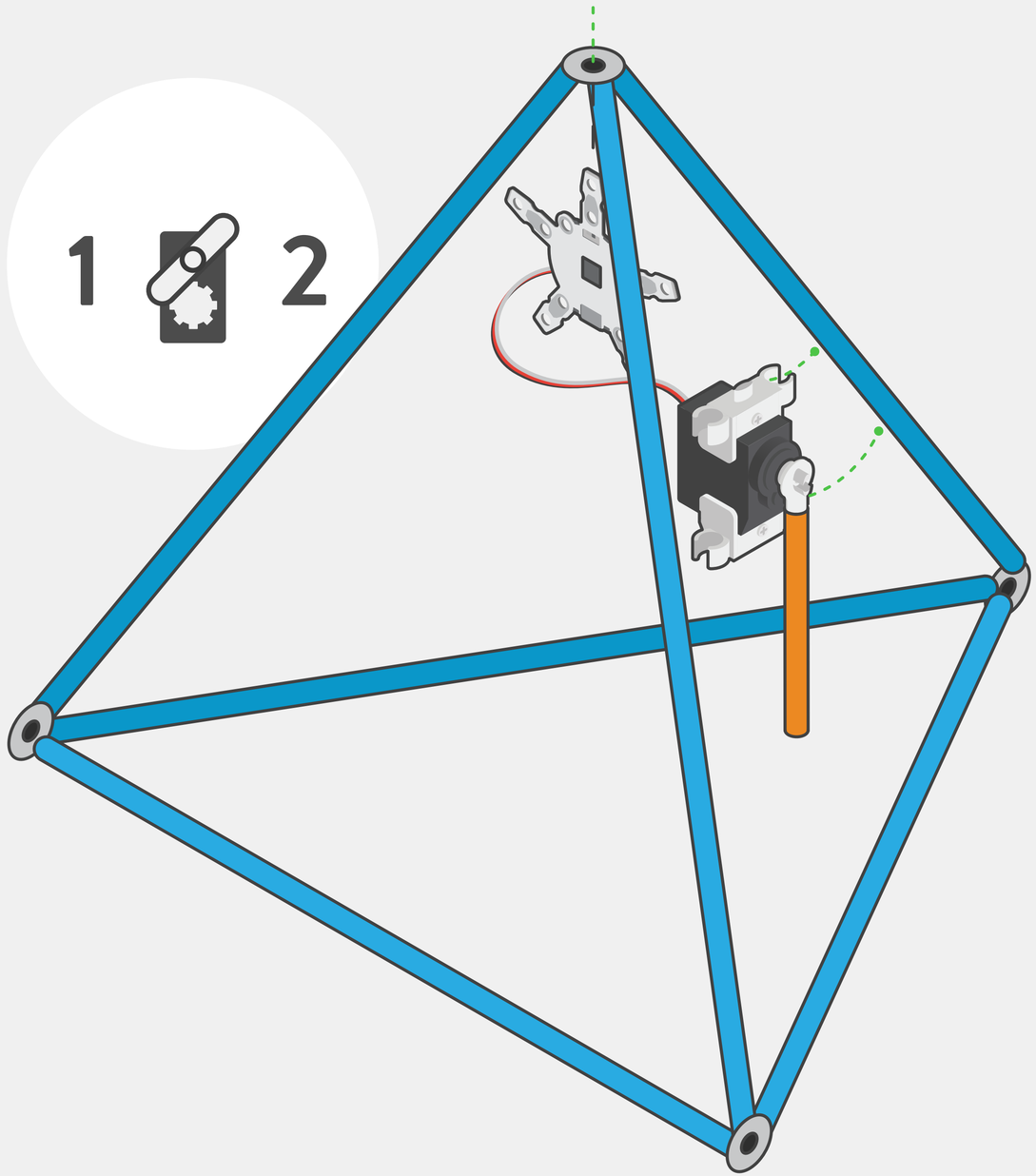

Align the black marking with the black wire.

# CAN YOU TELL WHAT HAPPENS TO THE MOTOR WHEN YOU SWITCH THE SLOTS?

On the Quirkbot's Factory program the two motor slots not only have two different speeds but their range is also different.

This can look like a simple detail but it will make a all the difference when attached to one of your creations.

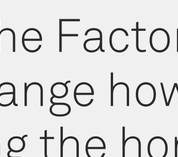
The Robot Racer is an excellent example of that.



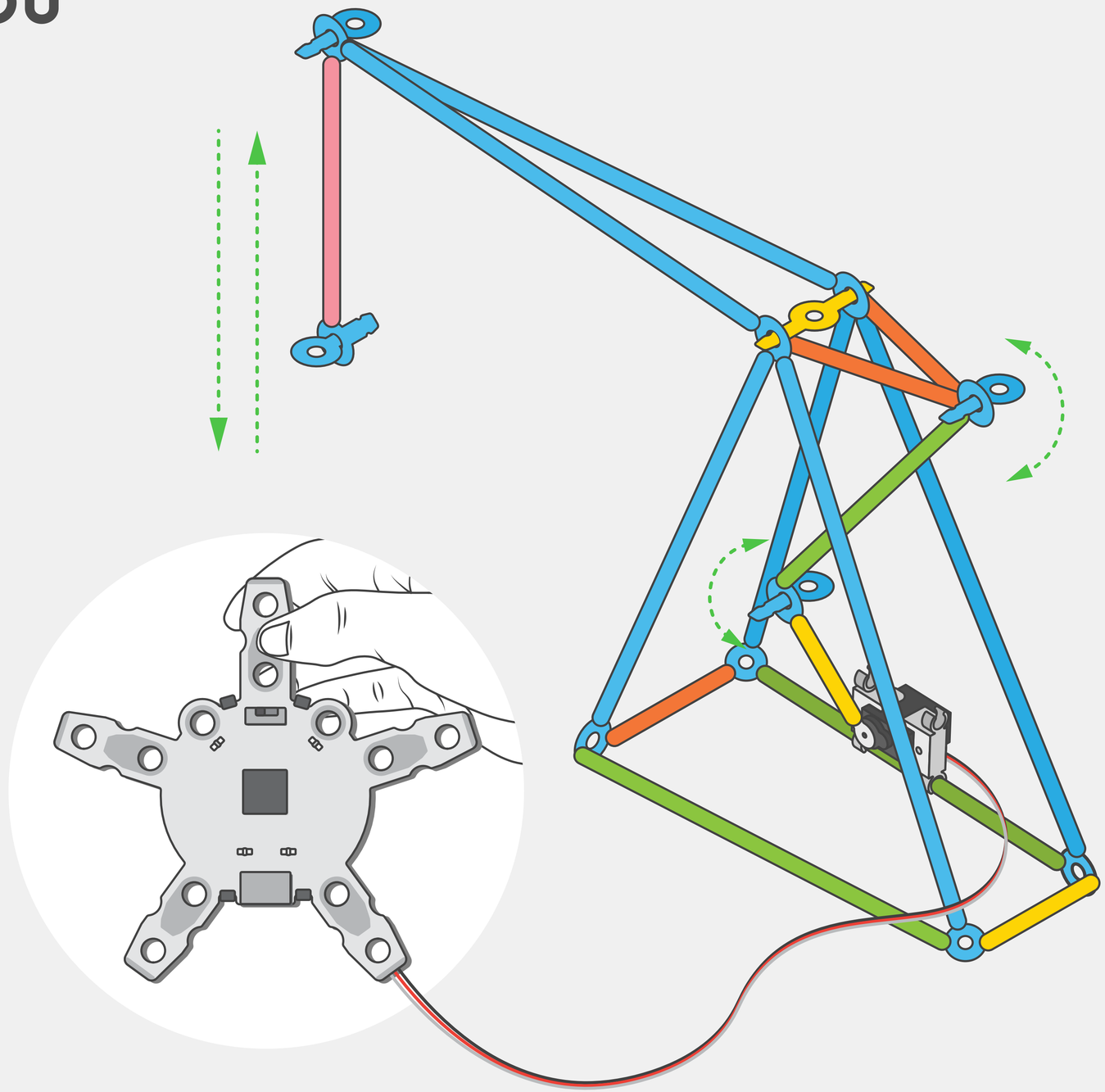
# CAN YOU TELL WHAT HAPPENS TO THE MOTOR WHEN YOU TOUCH THE HORN?

Using the Factory program you can also change how the motor moves by touching the horn.

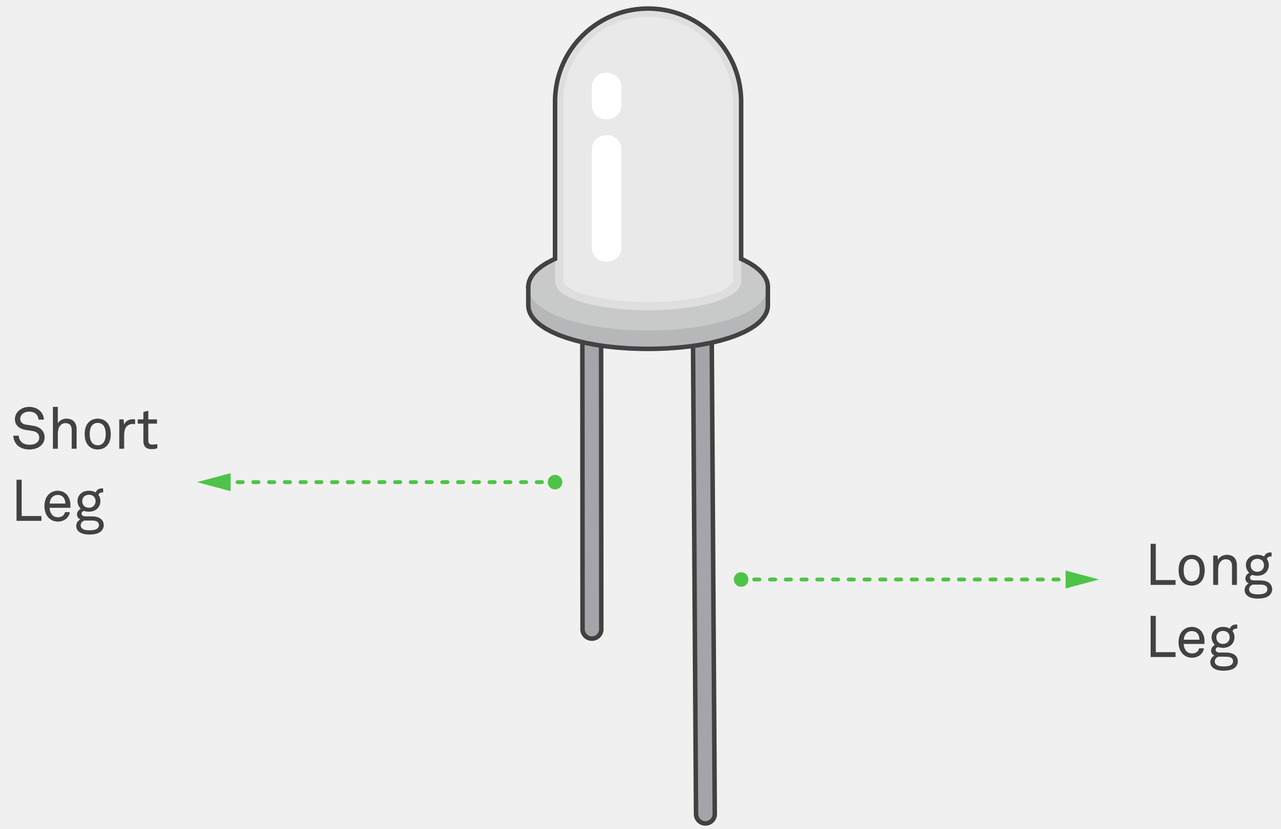
This is a very basic interaction but build vocabulary to talk about conditions and events.



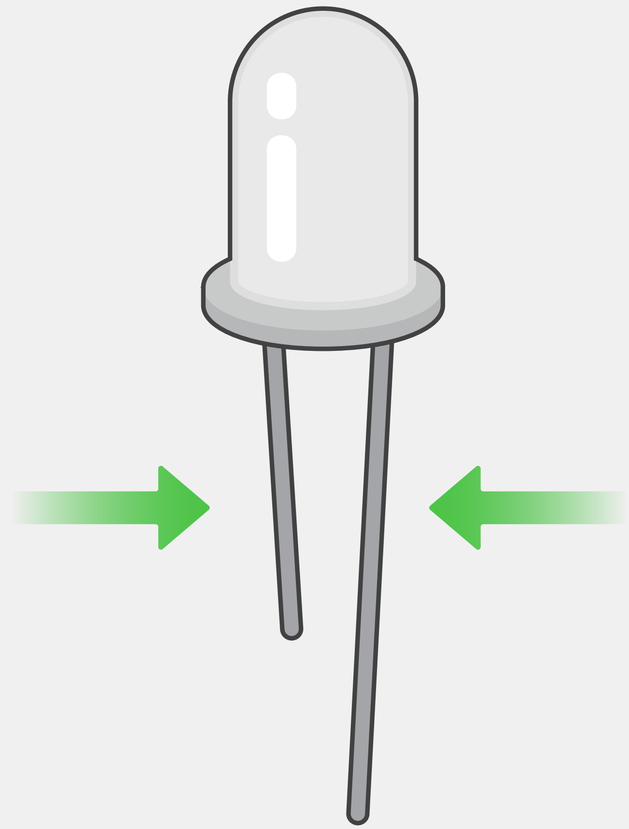




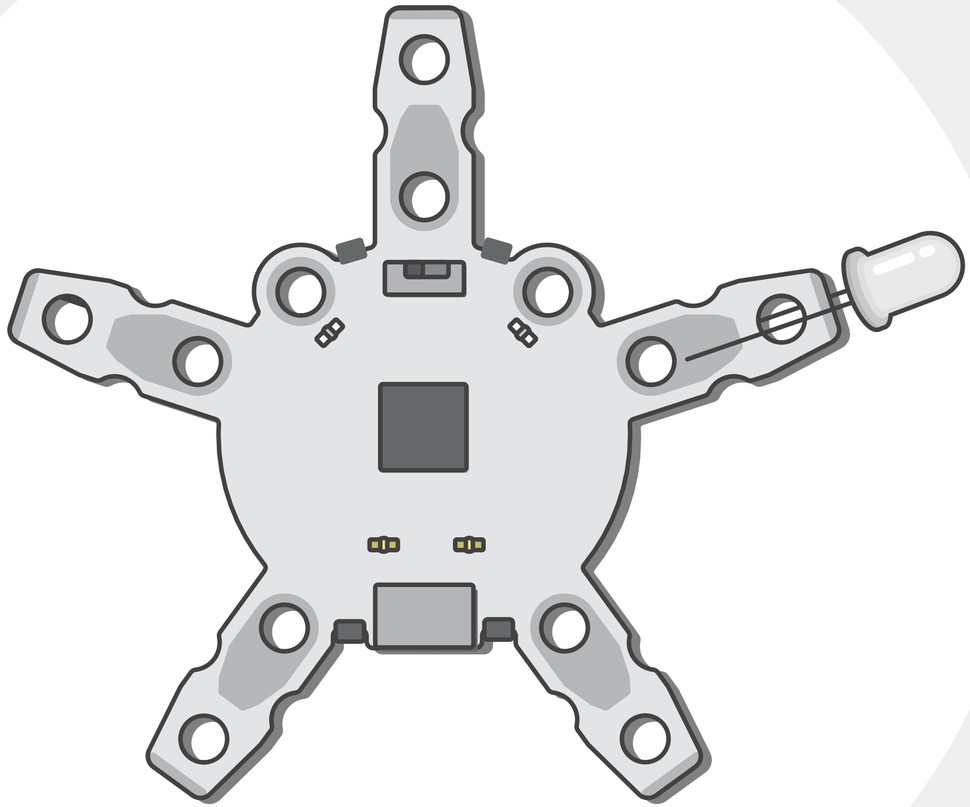
# LED LONG AND SHORT LEGS

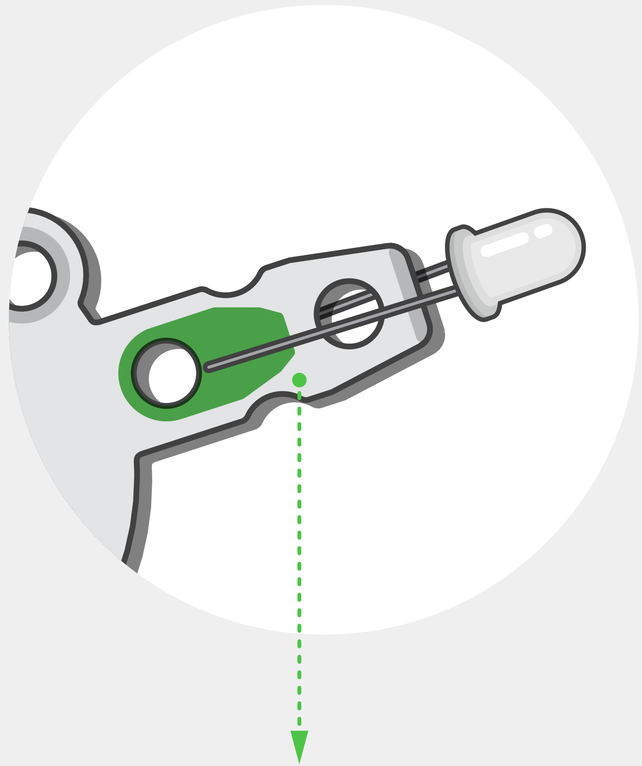


# SQUEEZE LEGS TO CONNECT



# LONG LEG IN FRONT

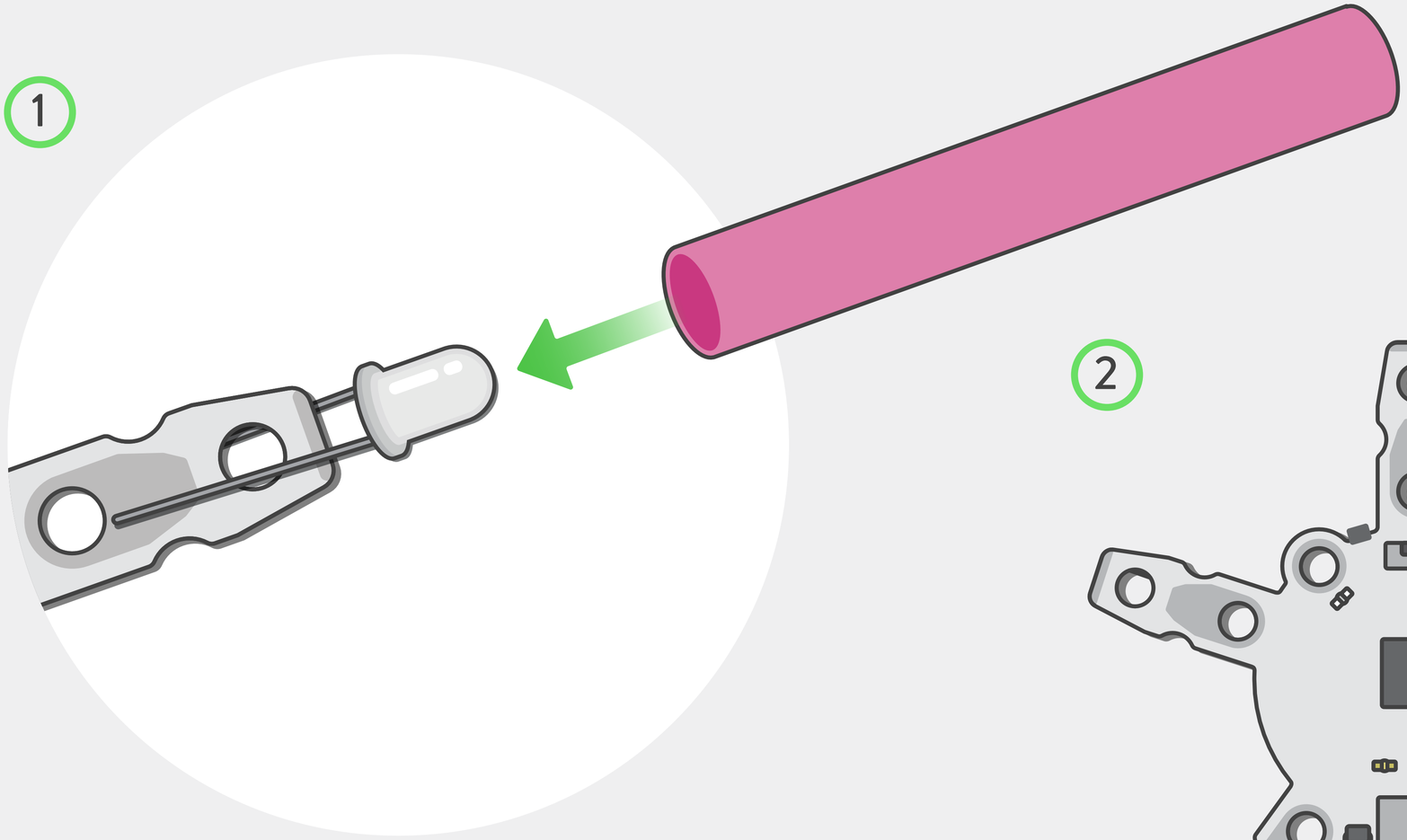




Long leg on
the front pad

# PROTECT WITH STRAW

1



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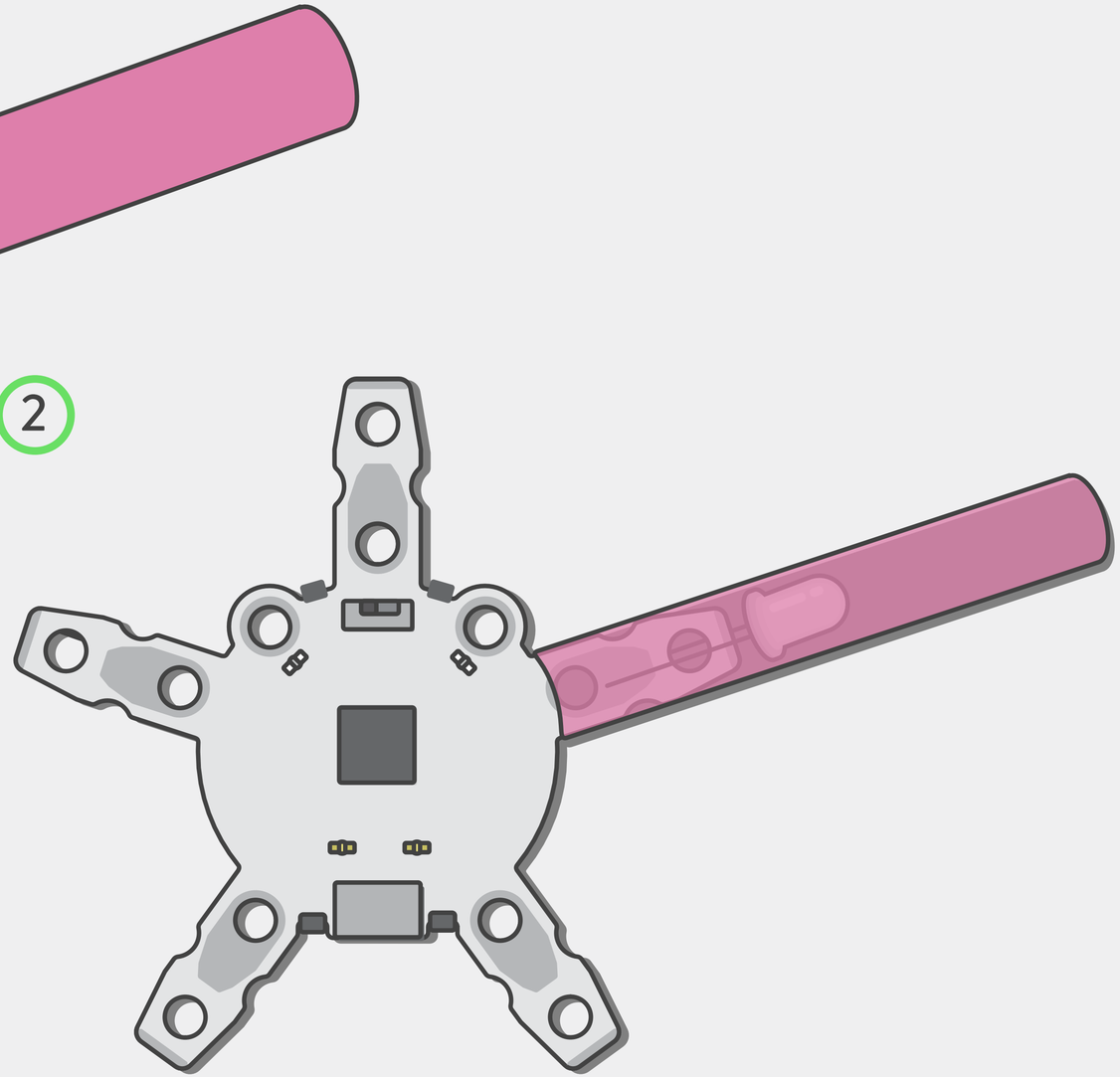
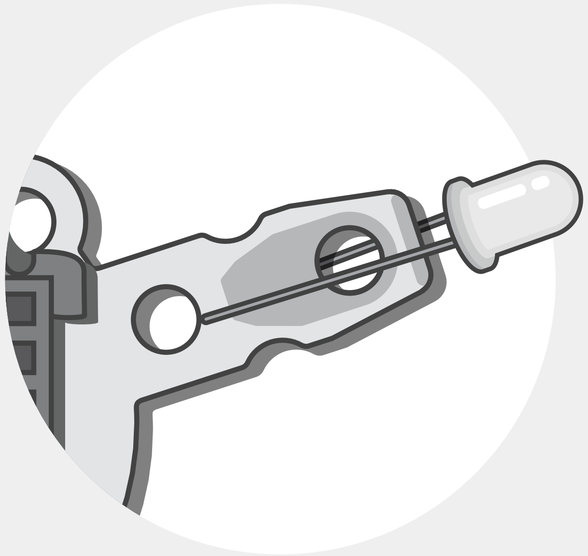


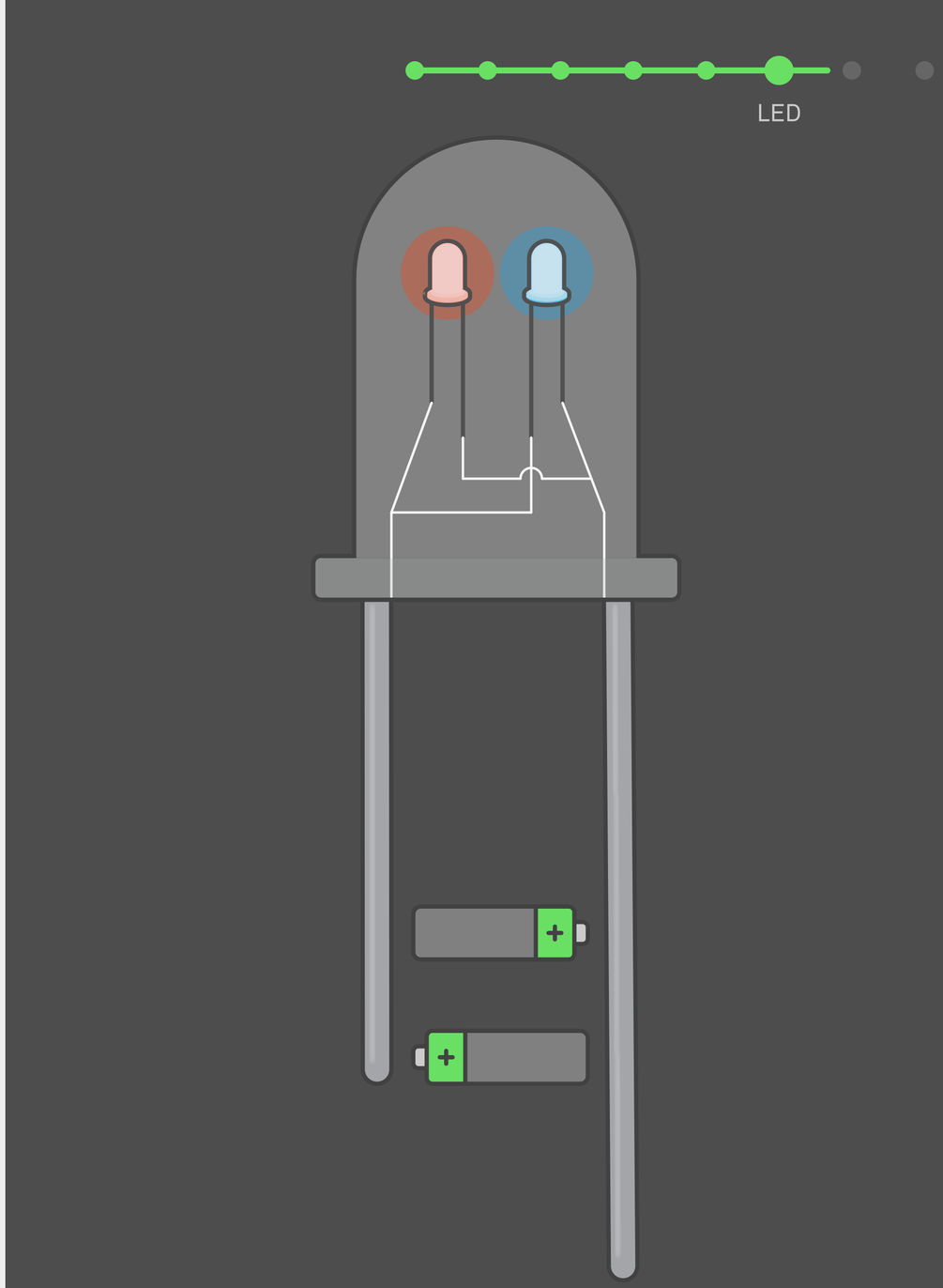
# CAN YOU TELL THE DIFFERENCE BETWEEN THE COLOR WHEN THE LONG LEG IS ON THE BACK?



The color will change but this is something that will **only occur with Strawbees dual color LEDs**.

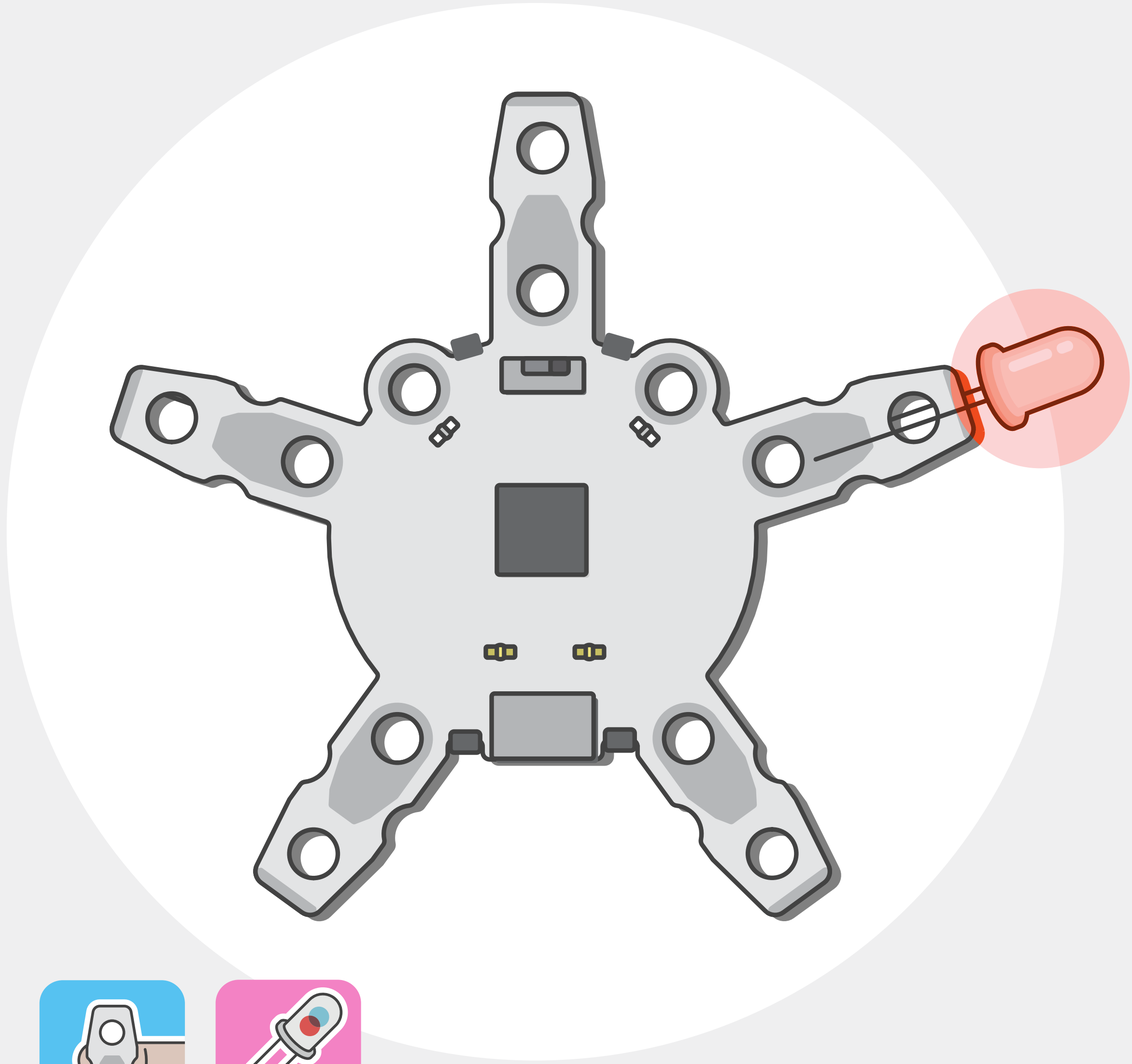
A regular LED will only shine if current is flowing in a specific direction, if you invert it, it will stop glowing. This is a property of diodes and LED means Light Emitting Diode!

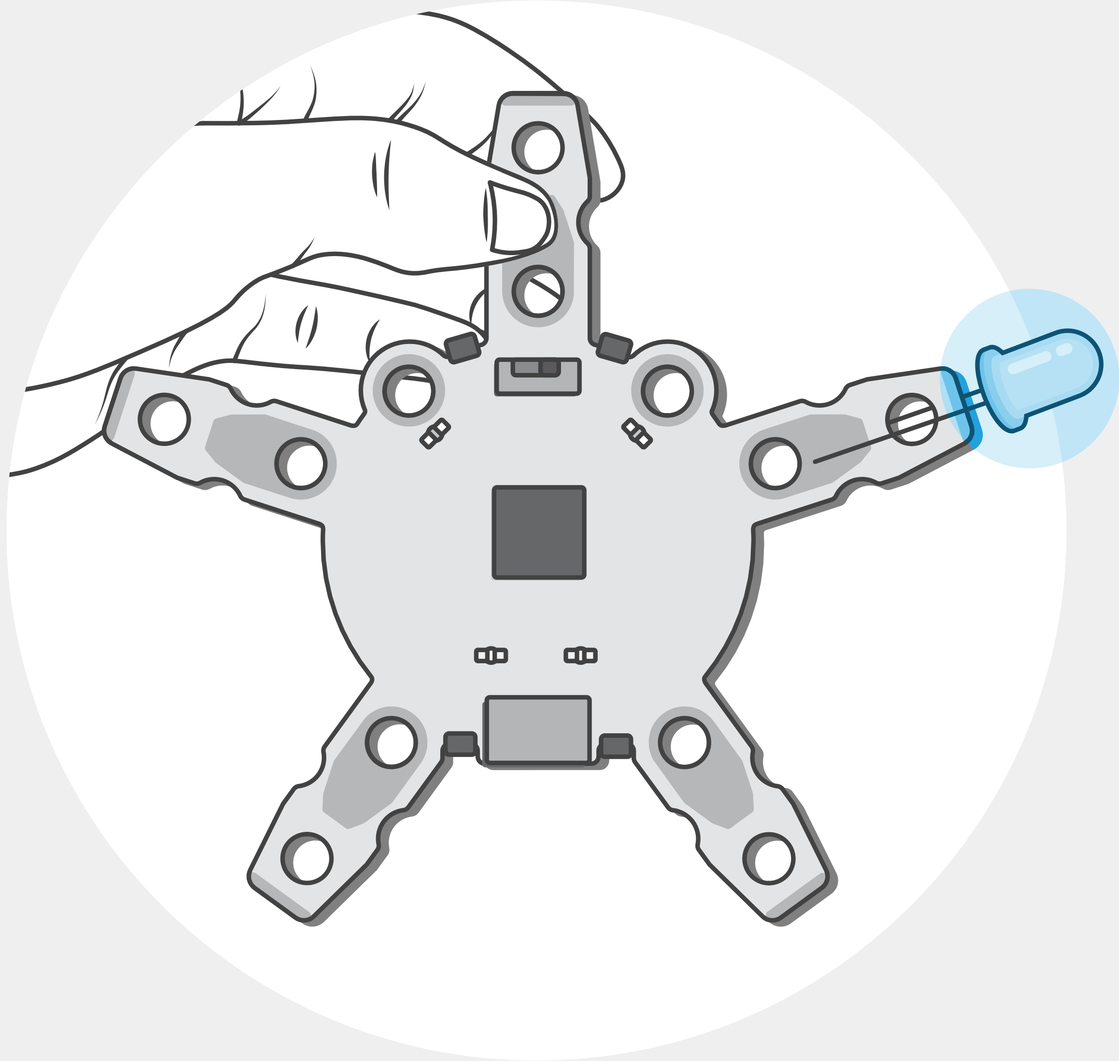
Strawbees dual color LEDs are just 2 LEDs packed into one. You can achieve the same effect combining 2 LEDs you may have around and make your own color combination.



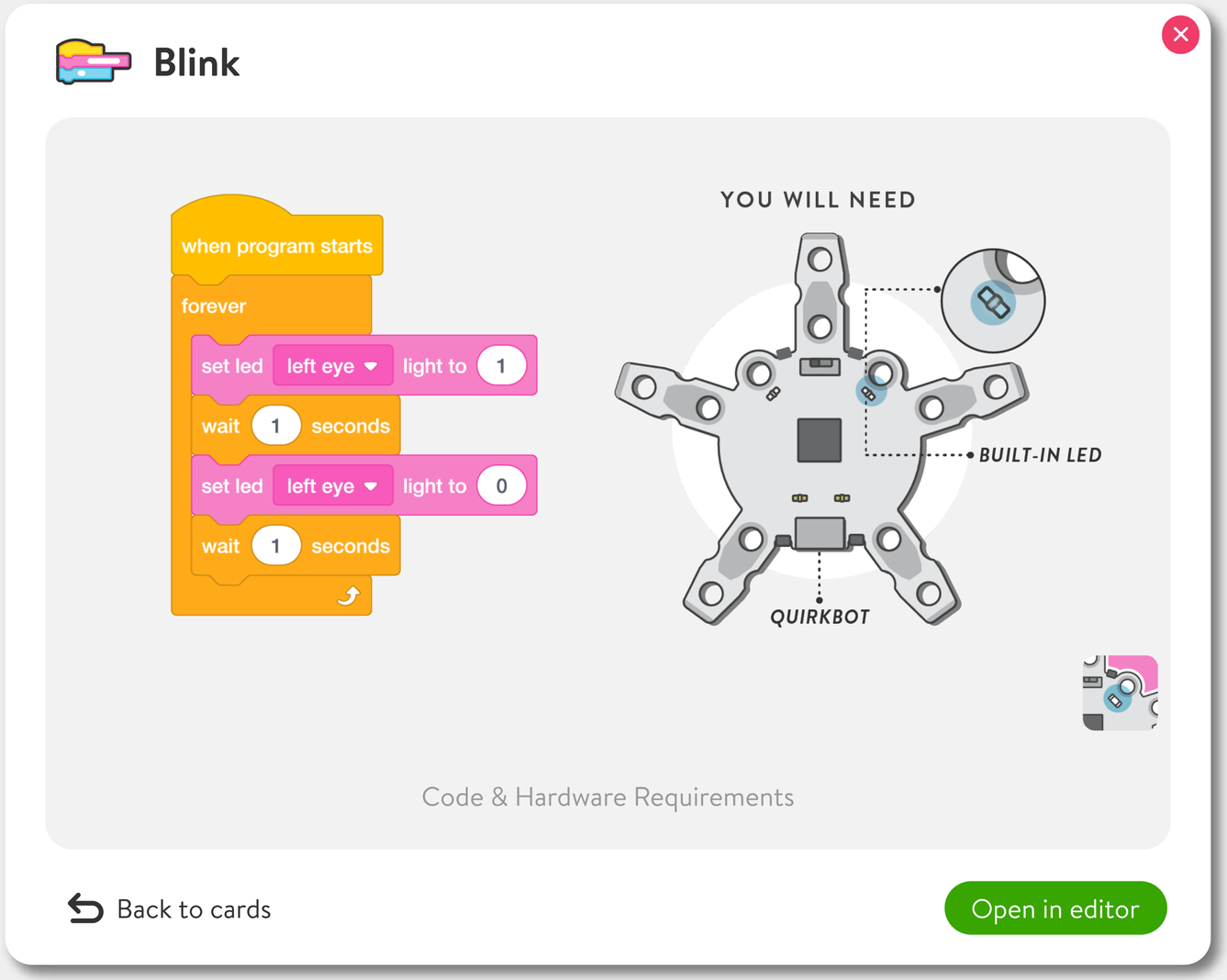

**Strawbees Dual Color LED:**
Switching direction of the current will change the color

# CAN YOU TELL WHAT HAPPENS TO THE LED WHEN YOU TOUCH THE HORN?





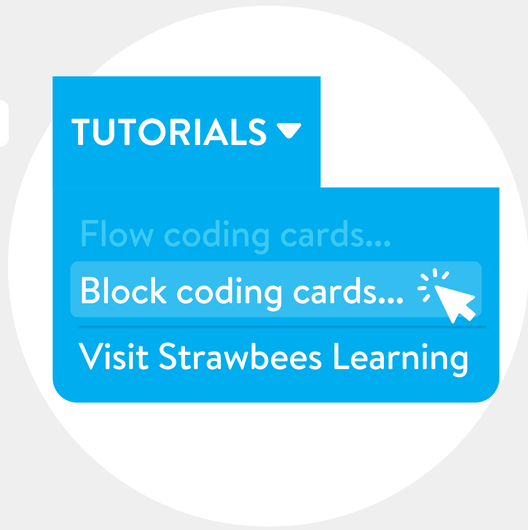
# WHAT ARE CODING CARDS?




Coding cards are small snippets of code that can be used to explore different concepts.

They are not meant to be used as they are but for you to tweak the numbers and combine the cards to get the expected result.

You can find the coding cards on the Learning Platform and CODE.



# WHAT ARE CODING CARDS CATEGORIES?

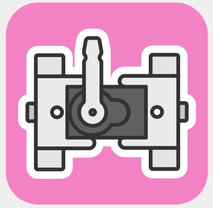
Coding cards are grouped by hardware in use.

Circuit Touch

Light Sensor

Built-in LED

Dual color LED

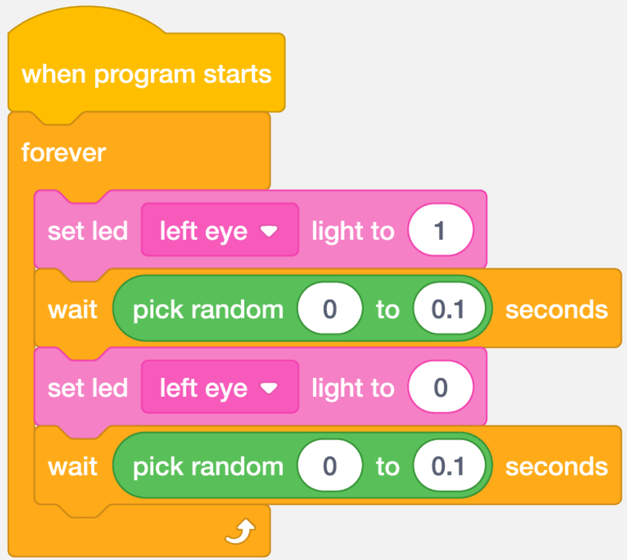


Servo Motor

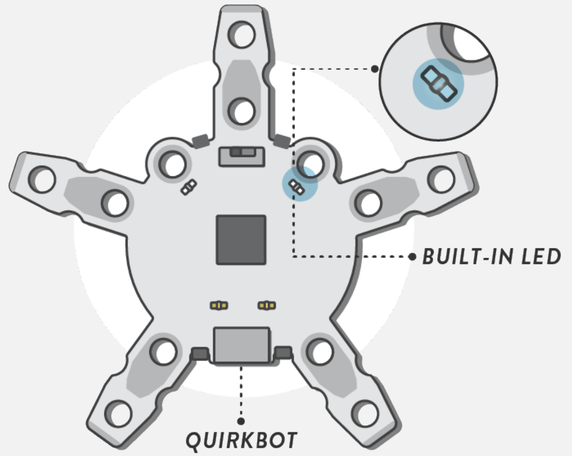

Key Press

# CODING CARD A

## Flicker




YOU WILL NEED



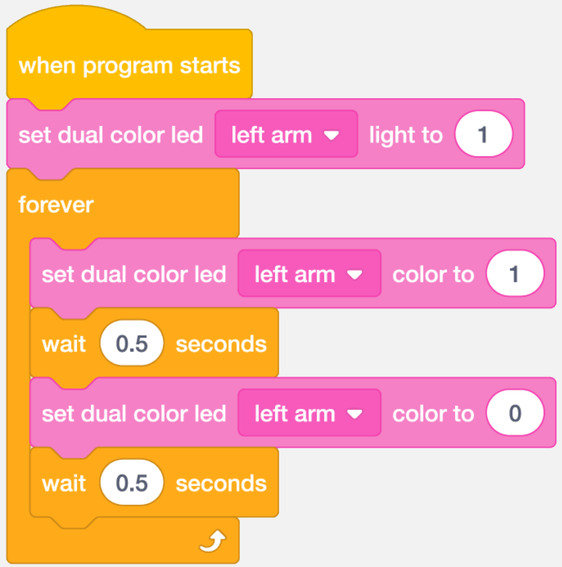

Code & Hardware Requirements

Back to cards

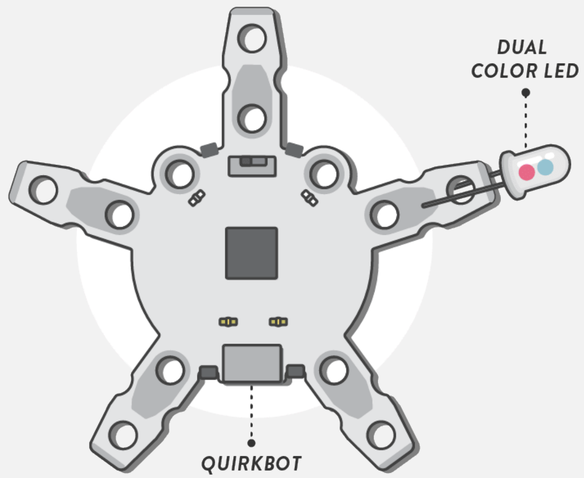
Open in editor

# CODING CARD B

## Switching colors




YOU WILL NEED



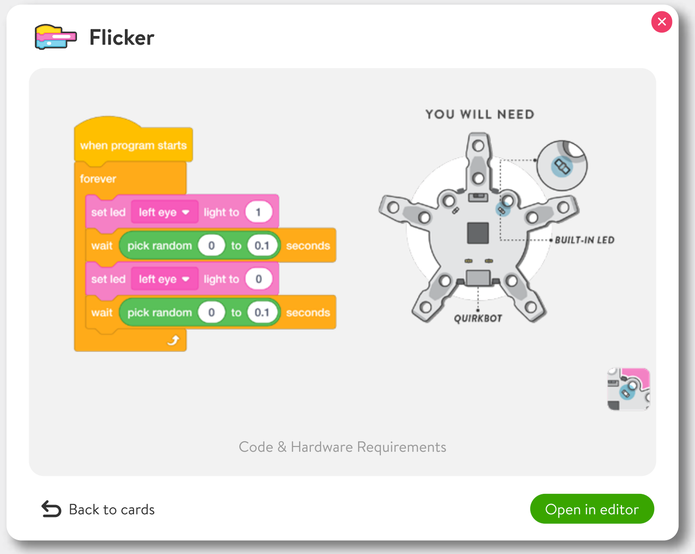

Code & Hardware Requirements

Back to cards

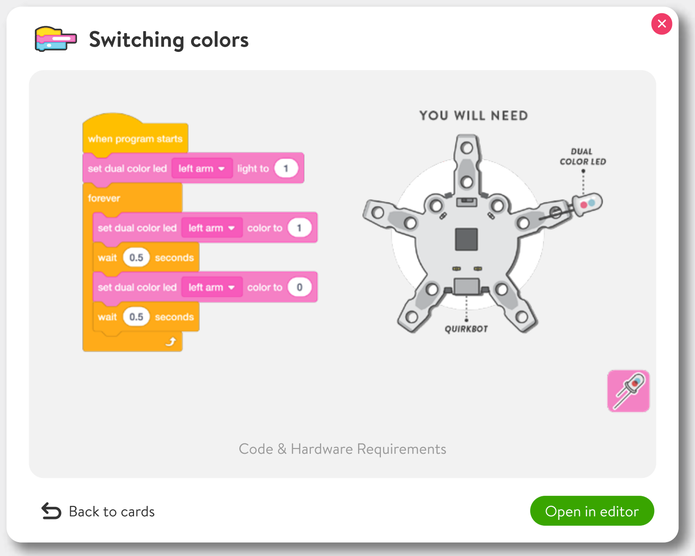
Open in editor

# CODING CARD A + B

## CODING CARD A




## CODING CARD B




## How would you name this card?

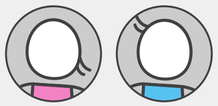
# GRADUATED!

## Now you know how to:

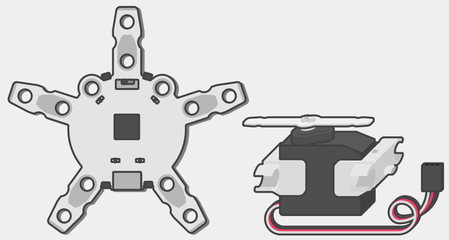
- Download CODE app
- Name the Quirkbot parts
- Connect the Quirkbot to a computer
- Reset to the Factory Program
- Use motors with Quirkbot
- Use Quirkbot's circuit touch
- Attach LEDs to Quirkbot
- Use coding cards
- Upload your own program to Quirkbot

## Next steps:


Pick an Activity from the Learning Platform to build



Pair with a friend to program a complex project



Use 2 motors or 2 Quirkbots

Use the light sensor

# TROUBLESHOOT CONNECTION

Sometimes a bit flips to the wrong direction inside Quirkbot and things stop working for a moment. If Quirkbot is acting up not being recognized by the computer we suggest the following:

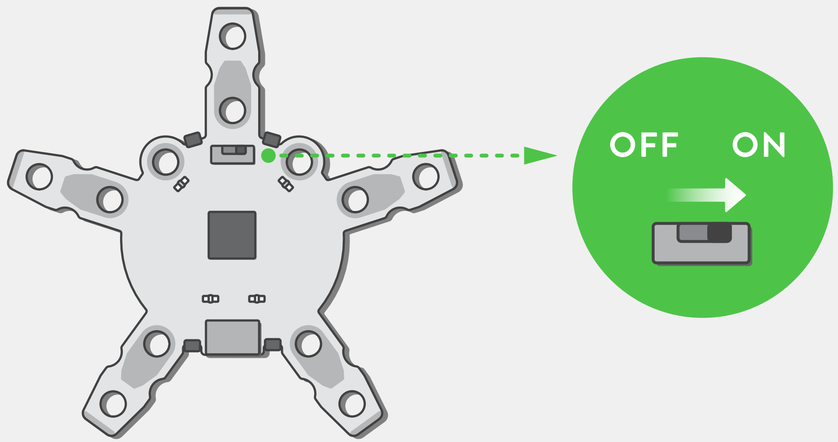
- Make sure your Quirkbot is on and charged
- Verify if your USB is charging only. In order to detect the Quirkbot it must be a “data cable”. All cables that comes with Quirkbot are “data cables”
- **Try Recovery Mode***
- Restart app

If you are on Windows 7 and it’s the first time you use Quirkbot it might take up to 2 minutes for it to be recognized.

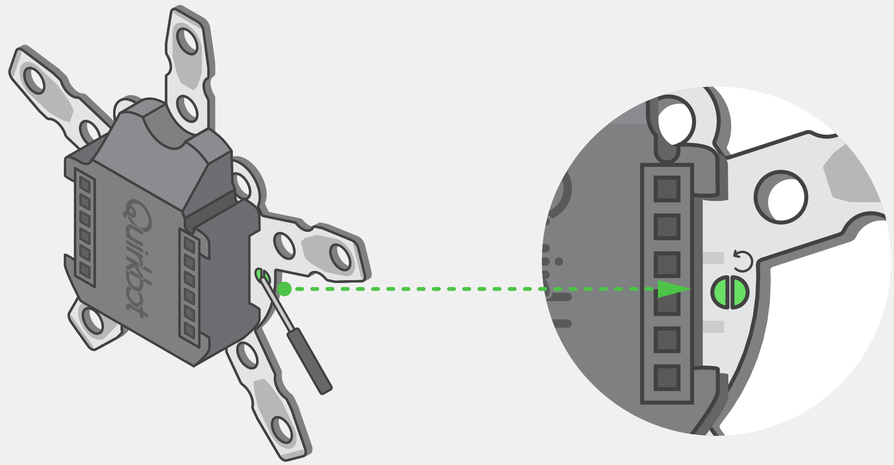
If the problem persists, write us at **support@strawbees.com**

# RECOVERY MODE

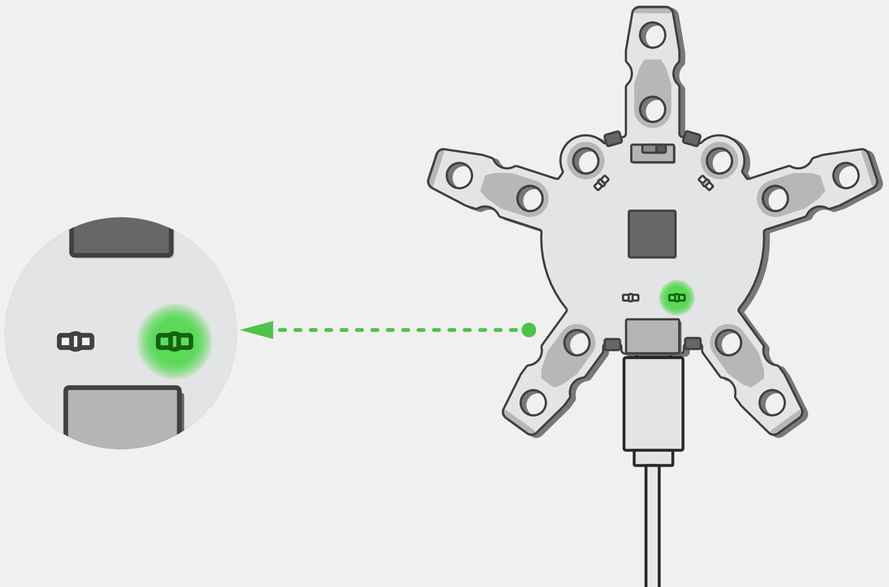
1 Turn on Quirkbot




2 Use a metal object to touch both blobs on the right side of the battery. There is a reset icon next to it.




3 Verify that it worked by observing the blinking of the two green LEDs



4 Connect to the computer and check the status on the app
It can take up to 30 seconds for the result to appear