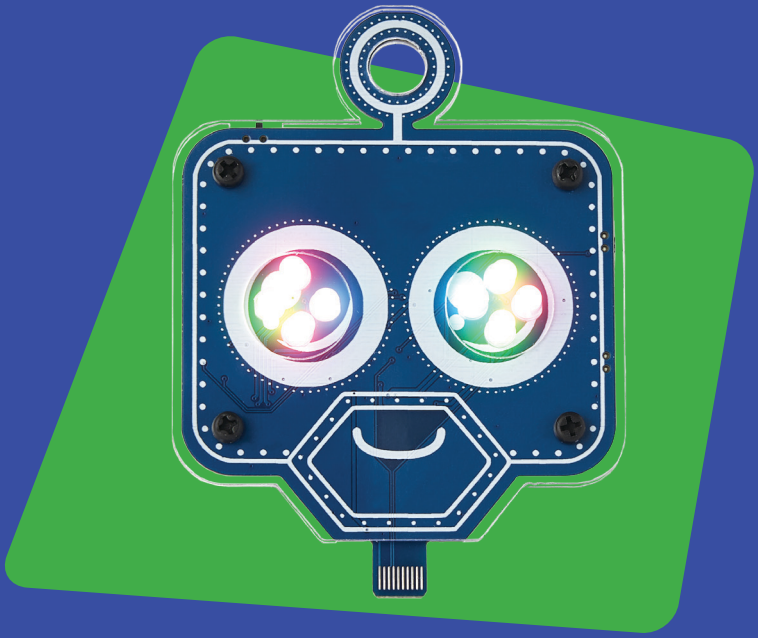
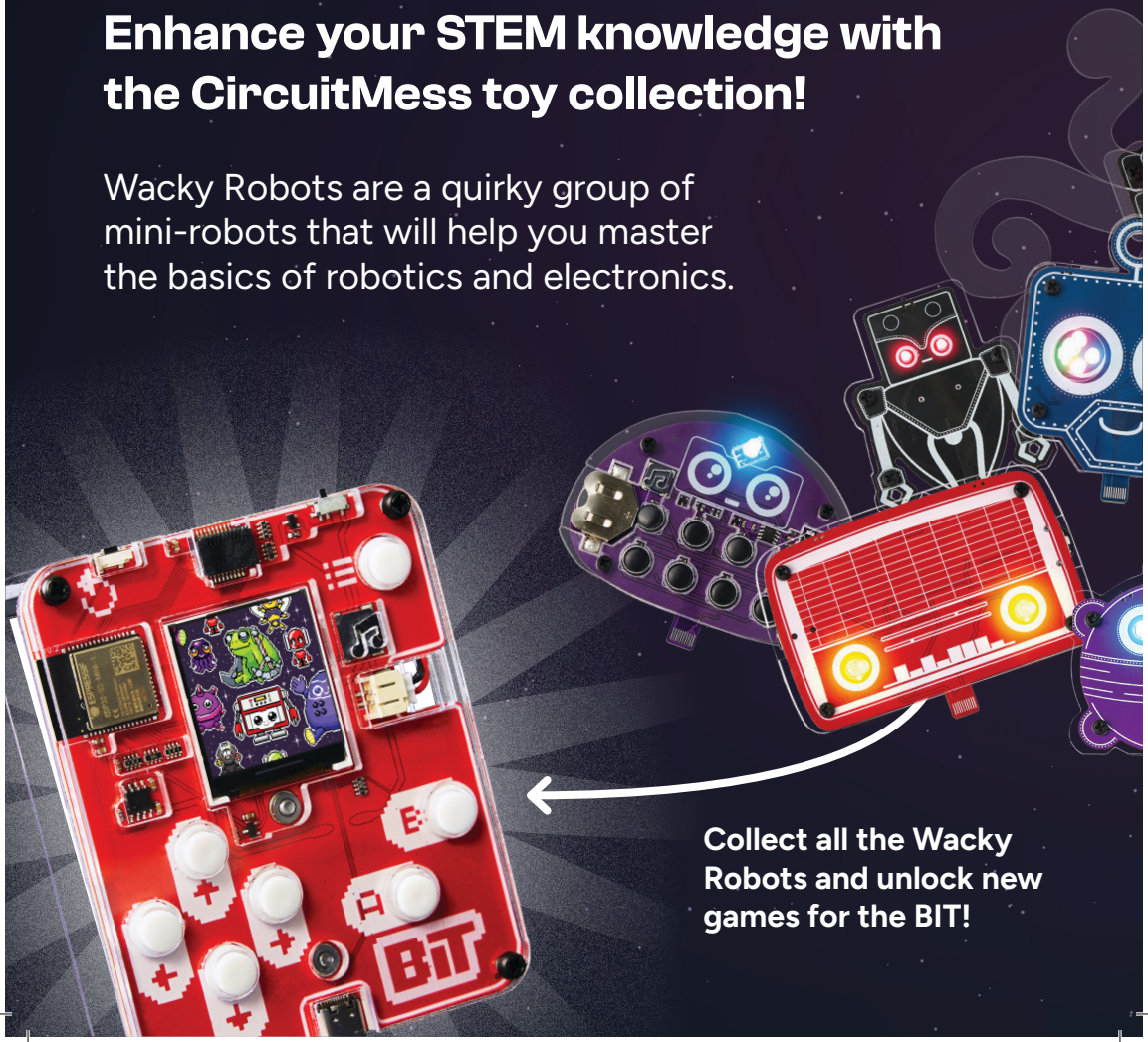
CREATOR'S BOOKLET



CircuitMess

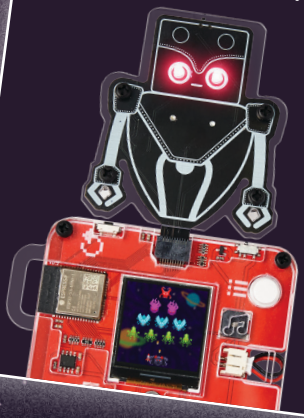
Enhance your STEM knowledge with the CircuitMess toy collection!

Wacky Robots are a quirky group of mini-robots that will help you master the basics of robotics and electronics.



Collect all the Wacky Robots and unlock new games for the BIT!

Insert the Wacky Robots into the BIT game console.



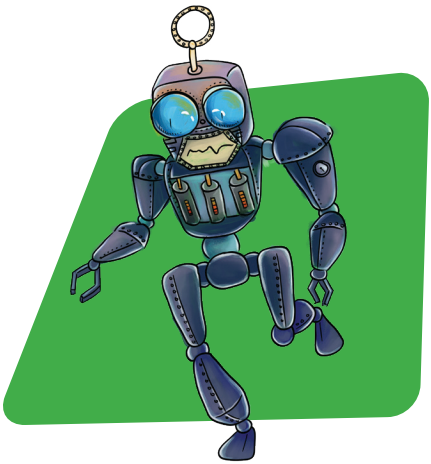
Connect your robots to Sparkly, a robot car that follows the source of light.

Sparkly, BIT, and Wacky Robots are sold separately.

Meet Marv

Introducing Marv, a DIY Wacky Robot that will introduce you to the exciting world of robotics and STEM.

With Marv, you'll learn about different electronic components and how the decade counter and pushbuttons work. Finally, you'll have a cool robot that lights up.



How does it work?

- Assemble your Wacky Robot
- Learn about LEDs and decade counters
- Play with your new Wacky Robot

What is CircuitMess?

CircuitMess started in 2016 when Albert (our CEO) was 17.

Albert loved tinkering with electronics, and one of his first projects was a DIY game console.

People liked the idea, so he launched it on **Kickstarter**, which raised $100,745!

After that, CircuitMess was born. We are a small and fast–growing team of tech lovers who wish to share our love of creating new technology with the rest of the world!

Albert

All of our kits are developed, manufactured, and packed in Croatia!

Behind the name

Circuit **Mess**

electronic circuits

creative mess in our heads

The mission

Everybody knows how important technology is, but less than 1% of the population knows

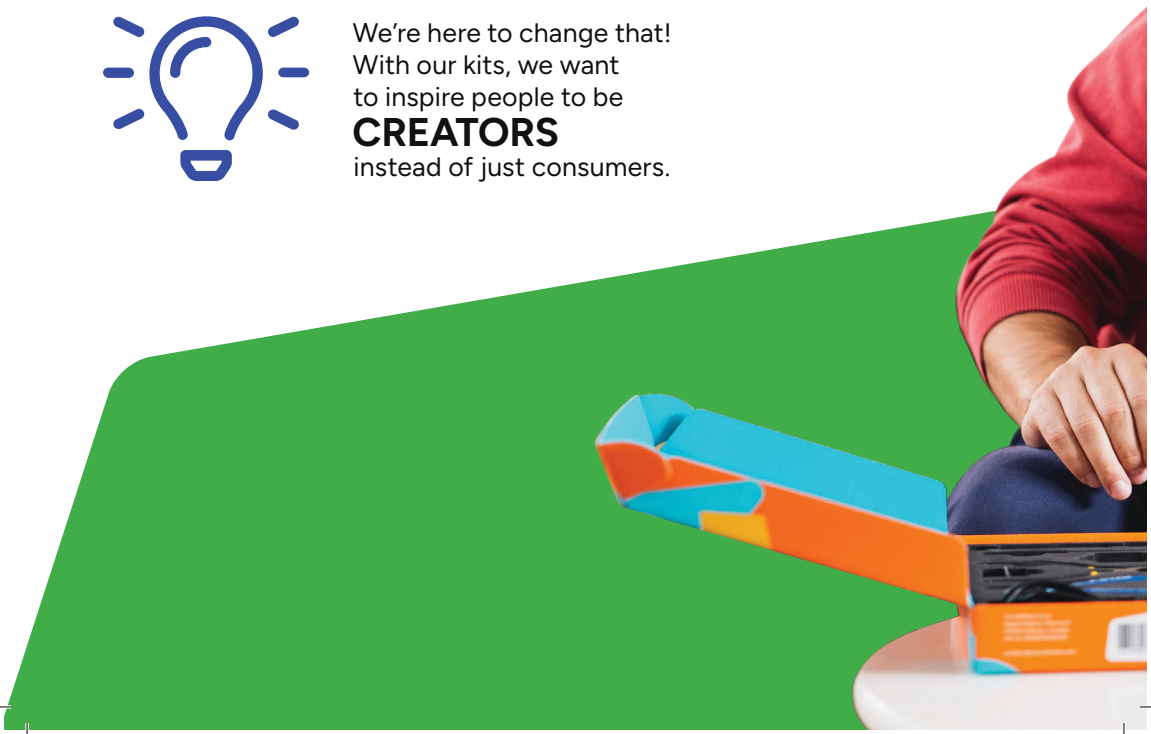
HOW TO MAKE

new technology.

We're here to change that! With our kits, we want to inspire people to be

CREATORS

instead of just consumers.



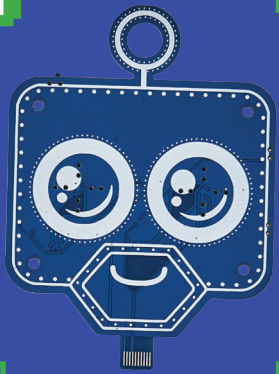
What's inside the box?

1. PCB
2. Screwdriver
3. Coin battery
4. Acrylic casings
5. LEDs
6. Plastic bolts
7. Plastic standoffs

You'll learn about:

- Electronics and different electronic components
- Capacitors
- LEDs

1



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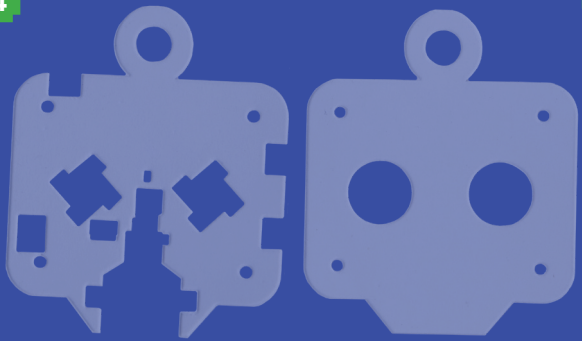

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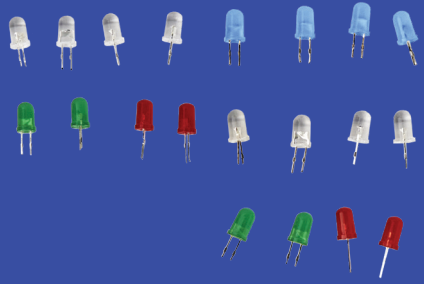

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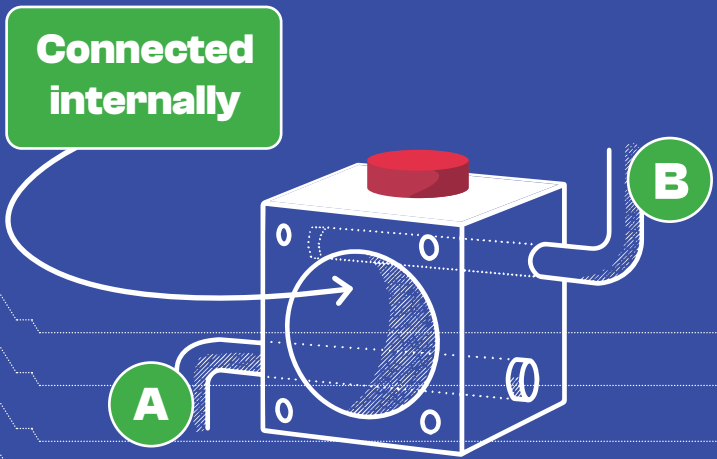
From click to the current

Join Marv on a journey of discovery as you learn about the **difference between pushbuttons and switches**. When you assemble the robot and turn it on using the switch, you'll see that the LEDs are turned on.

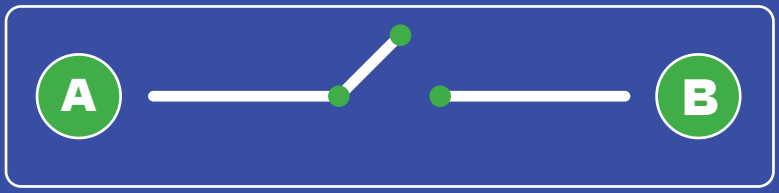
To turn the LEDs on using the pushbuttons, you have to press the pushbutton. If you release it, they will turn off.



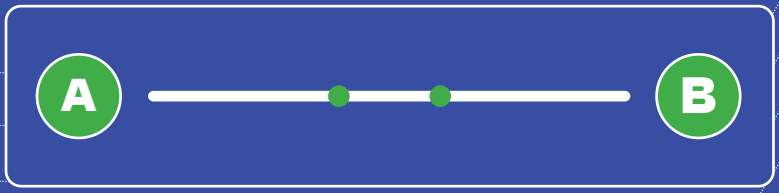
Because the internal contact within the pushbutton connects while the button is pressed, the electrical circuit is closed, and current can flow. When we release the pushbutton, the electrical circuit opens, and the current no longer flows.

The circuit is open with a switch until we manually close it by turning off the device.

Released – no contact



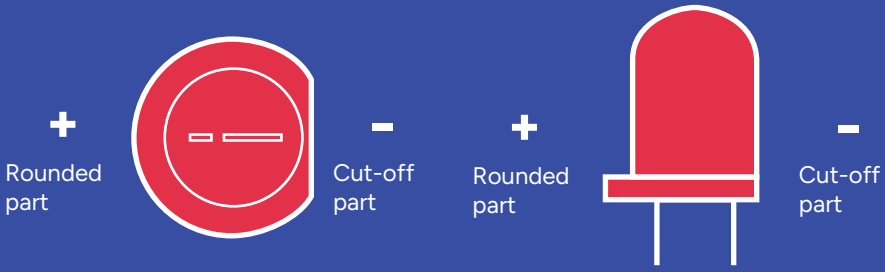
Pressed – contact



From the invisible spectrum to the Eiffel Tower

LEDs are semiconductor electronic components that convert an electrical signal into light.

LEDs are **polarized**, so we must be cautious about how we place them. Current flows in only one direction, so if you place them in the opposite direction, the diode won't function.



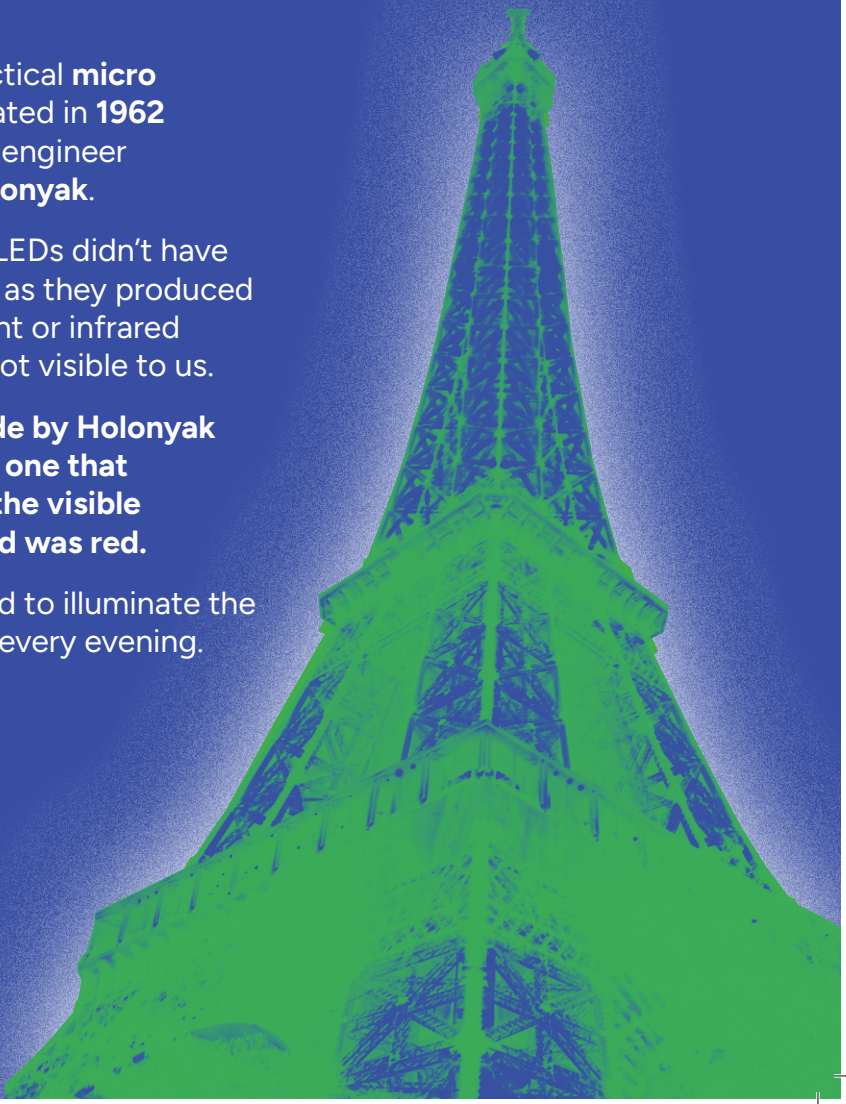
You can recognize the polarity by the shapes of the sides of the diode. The positive side is rounded and called the **anode**, while the negative side is flat and called the **cathode**. Electrical energy always travels from the anode to the cathode, never vice versa.

The first practical **micro LED** was created in **1962** by American engineer **Nicholas Holonyak**.

Before that, LEDs didn't have practical use as they produced unreliable light or infrared light that is not visible to us.

The LED made by Holonyak was the first one that operated in the visible spectrum and was red.

LEDs are used to illuminate the **Eiffel Tower** every evening.

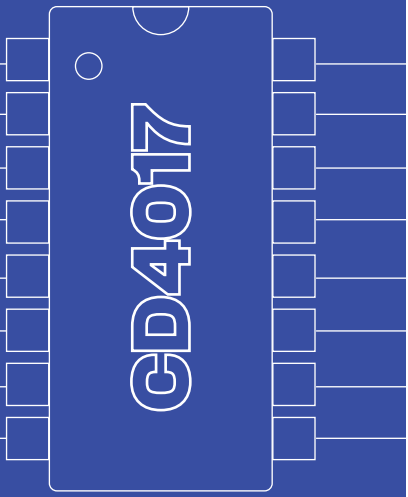


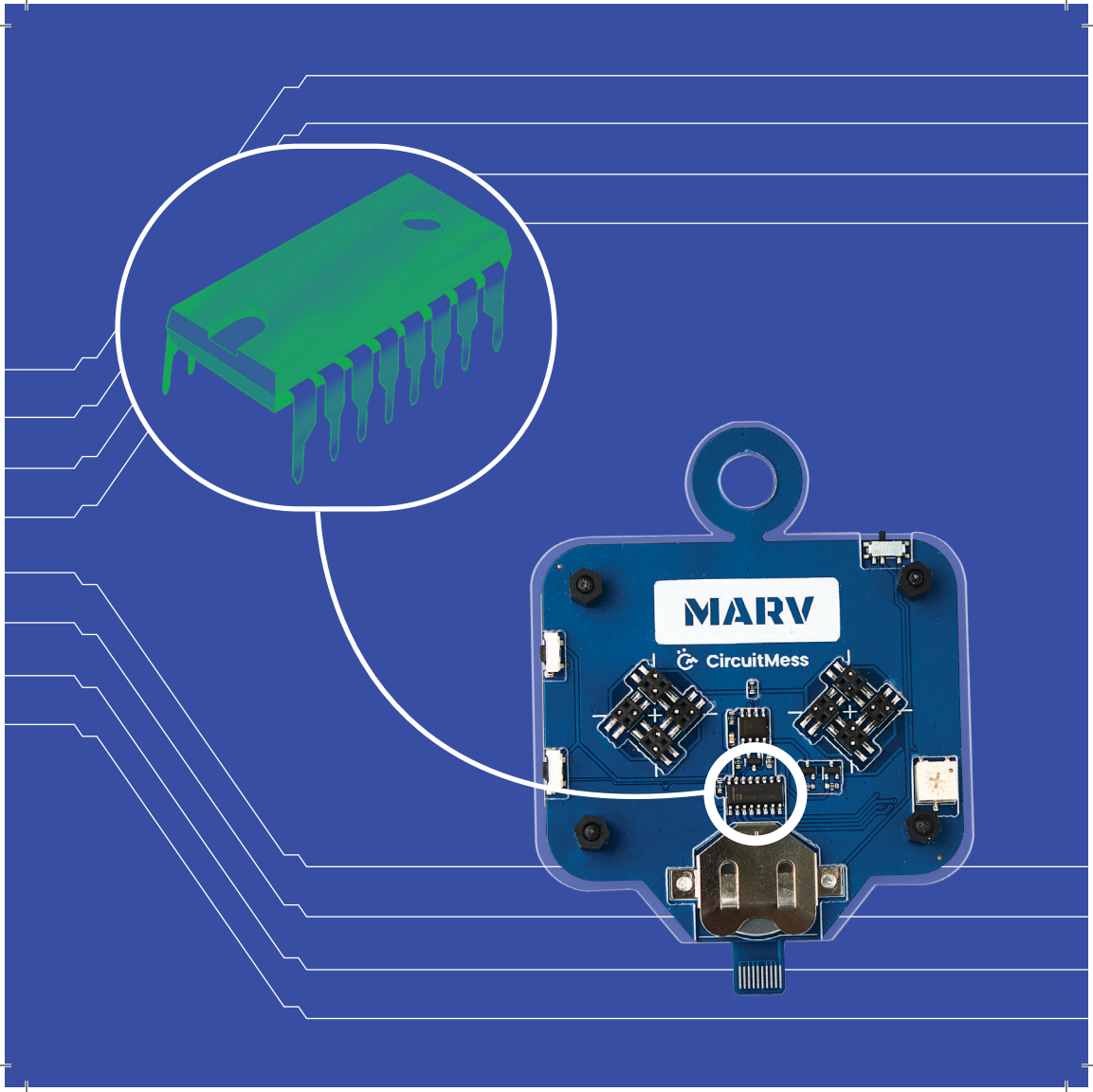
What is a decade counter?

A decade counter is a chip whose **main task is counting impulses in the decimal system**.

The voltage at which the counter operates is between 3 and 15V. The name of this chip is **CD4017**, and it is used in the electronics and automotive industry, medical devices, and alarms.

This chip consists of several input and output pins, each with its own function (controlling changes in output states, resetting the counter to the initial value, generating sequential output signals, etc.).




MARV
CircuitMess

Safety first

Before you start with the assembly, pay attention to the following safety measures:

Handling a screwdriver is not recommended for children under the age of 7!

Keep the Wacky Robots kit away from young children! This product contains small components that are dangerous to children under the age of 3.

If you are a minor, assemble Marv strictly with the help of an adult.

Closely follow all the instructions you received in this kit and those found on our online pages so that no one gets hurt.

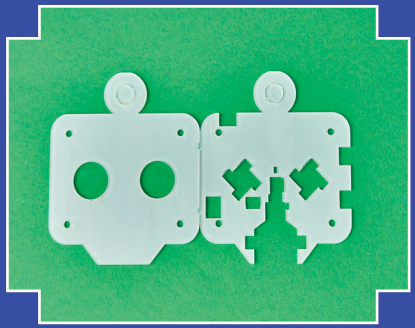
If you have never used a screwdriver, carefully follow the assembly instructions on our website and, if necessary, ask someone more experienced or older than you to help you.

If you are having problems with our kit, contact our customer support via email at contact@circuitmess.com.

MARV BUILD GUIDE

To get two smaller casings from the kit, you'll need to break one large acrylic piece.

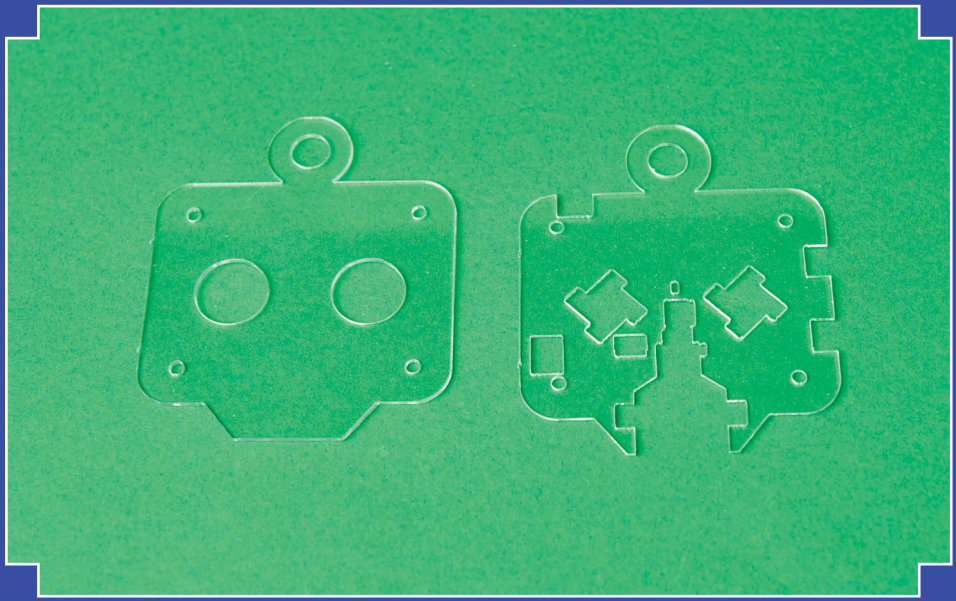
But please, **be super careful** when doing this to make sure you don't damage the parts you need.



After breaking it, you'll end up with **two separate pieces** of acrylic casings. If you find there's any acrylic in the holes of the casings, just gently push it out.

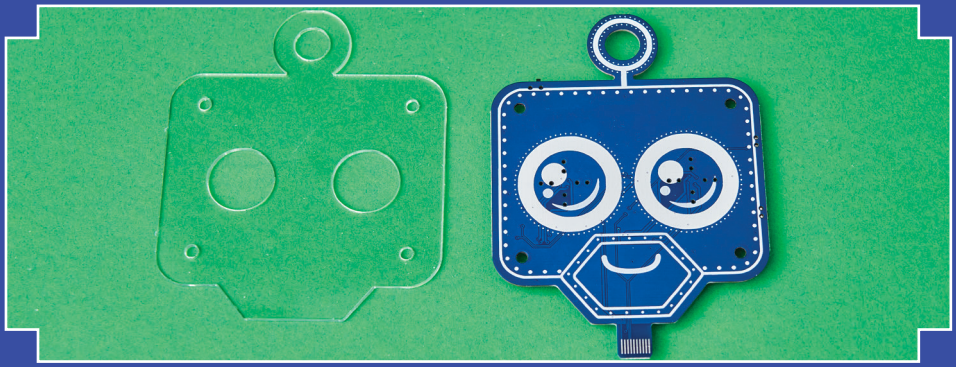
Remove the protective foil from both sides of the casings now.

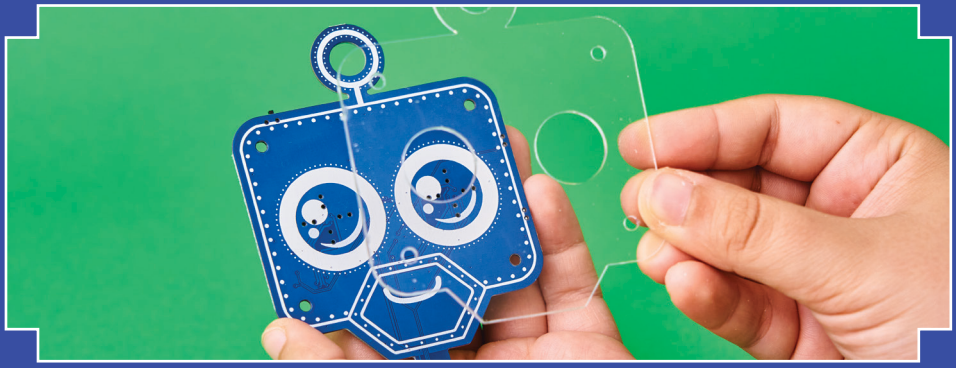
Your casings should be all nice and transparent now.



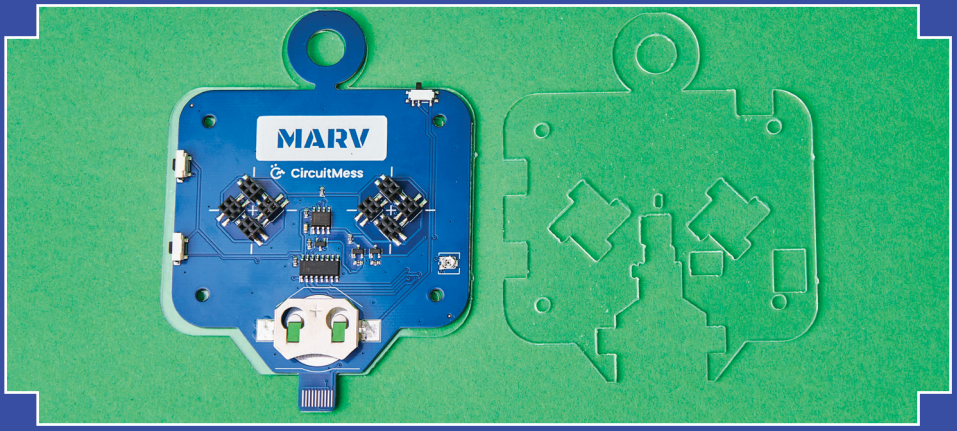
Now, let's dive into the exciting assembly part!

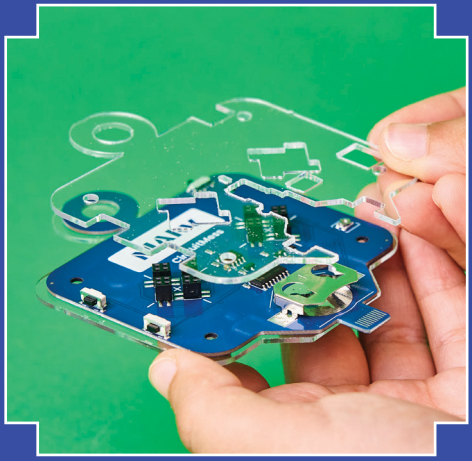
Start by grabbing the **casing** that matches the one in the photo below and gently place it onto the **PCB**.

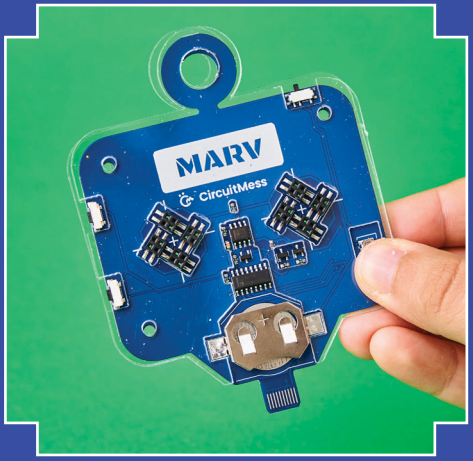




Now, for the next step, put the second casing on the backside.

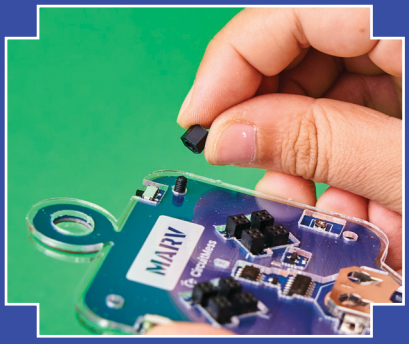




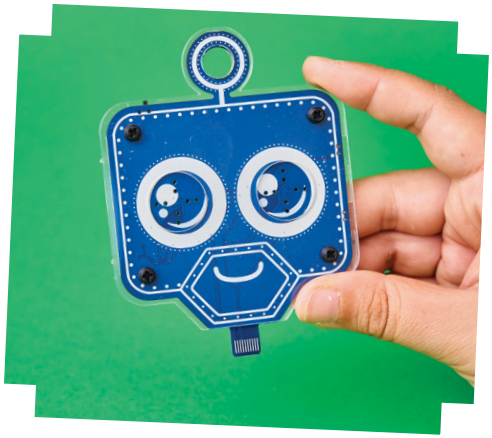


To make sure everything stays in place, we'll need to secure these **casings** with **bolts** and **standoffs**.

Here's how you do it: **put the bolts in from the front and add the standoffs onto the back.**

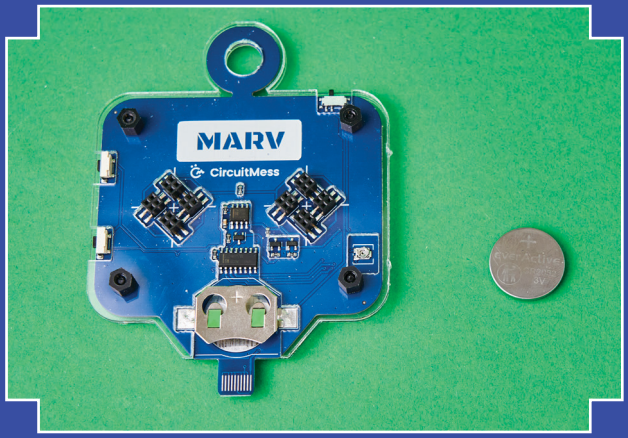


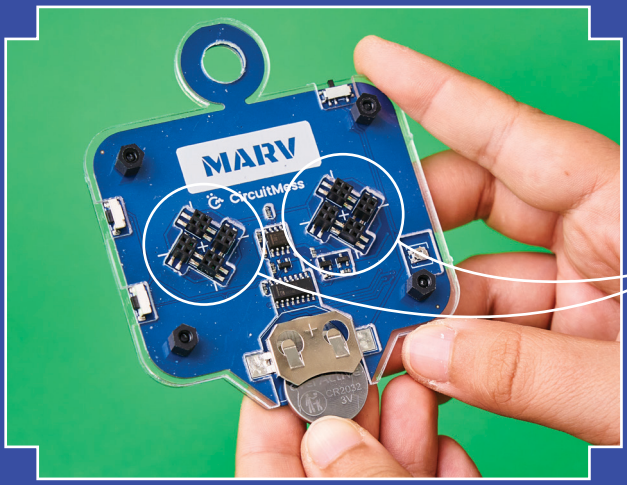
Fasten the standoffs with your fingers – no need for fancy tools!



This is what Marv should look like after you put on all of the bolts and standoffs.

Grab the coin battery and carefully place it on the backside **(make sure the + symbol on the battery matches the + sign on the board - front and up)**.

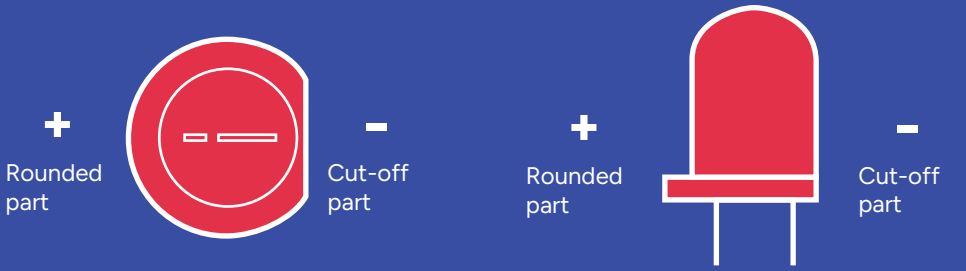


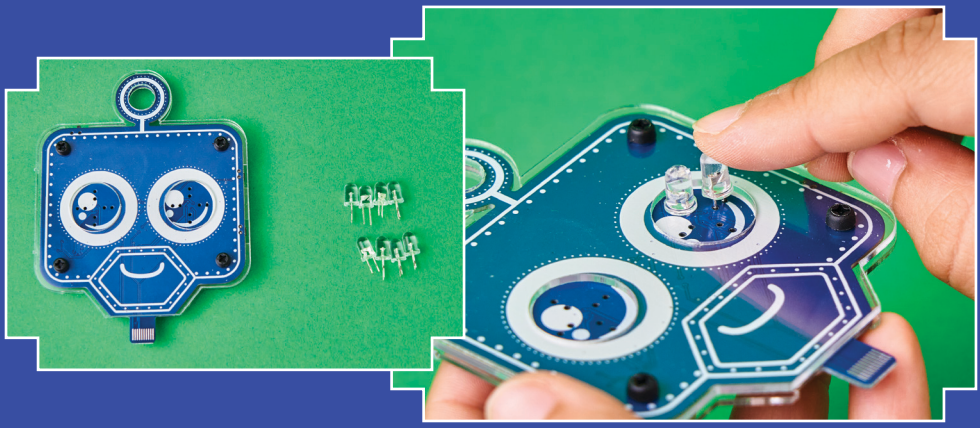


When it comes to Marv's LEDs, it's super easy. You'll find the **polarity** indicated by **plus and minus marks**.

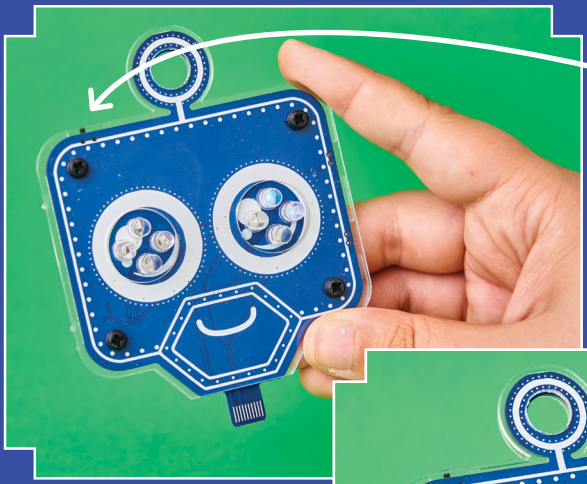
So, when you turn on Marv and start adding LEDs, just be sure to pay attention to their polarity as you connect them. **Look for the cut-off (-) and rounded (+) parts marked on the LED – they'll tell you all you need to know**.

And hey, if you flip Marv around, you'll spot those **+ and - signs next to each connector**. These symbols are your guide to getting the polarity right.



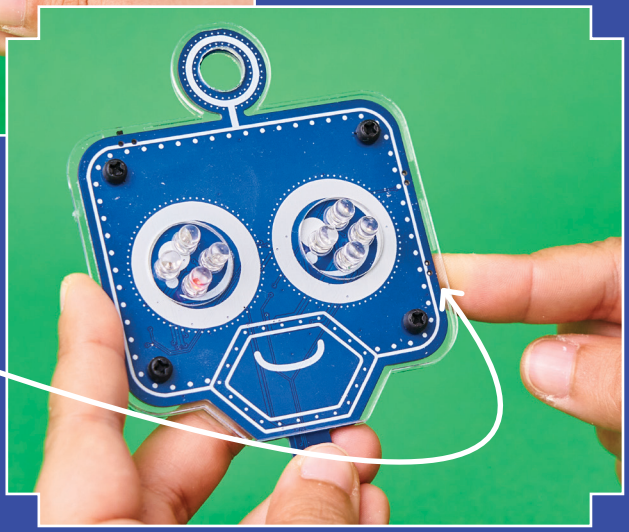


Now, here's where the magic happens: When you turn Marv on, the LEDs in the circle will light up one after the other.

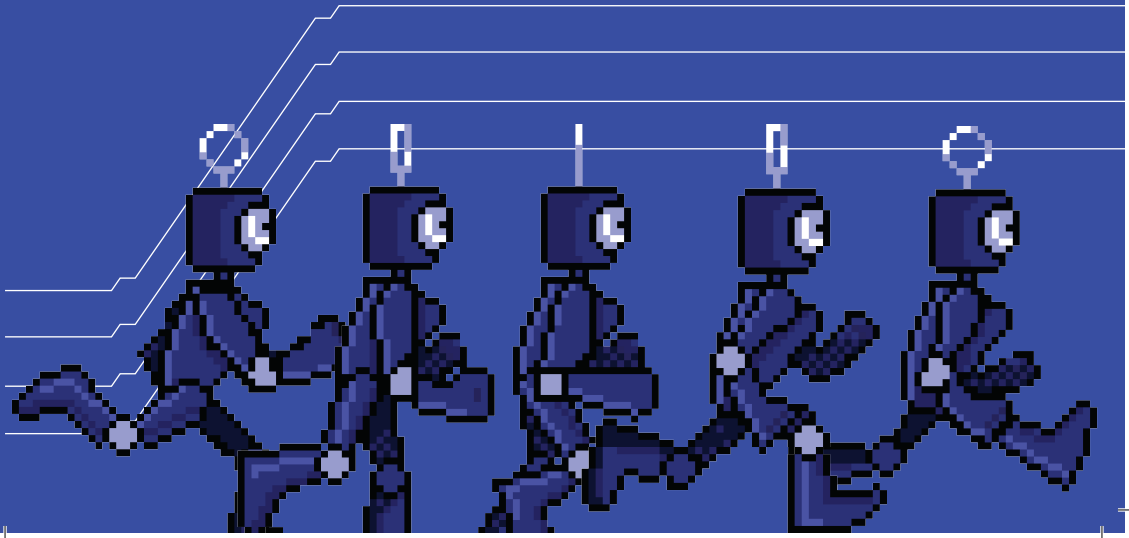


Ever wonder how Marv's decade counter works? Well, here's how:

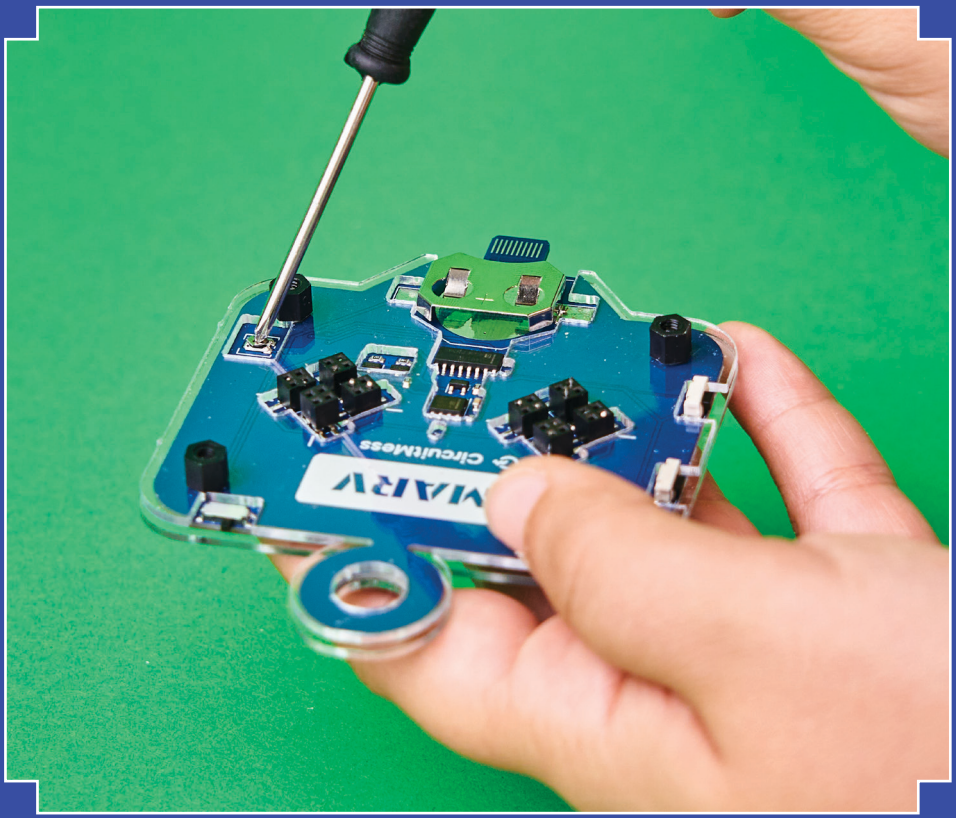
If you press the **pushbutton on the bottom right side**, the LEDs will stop in the **start position** (left eye).



But if you press the **pushbutton on the upper right side**, the LEDs will **pause right where they are**.

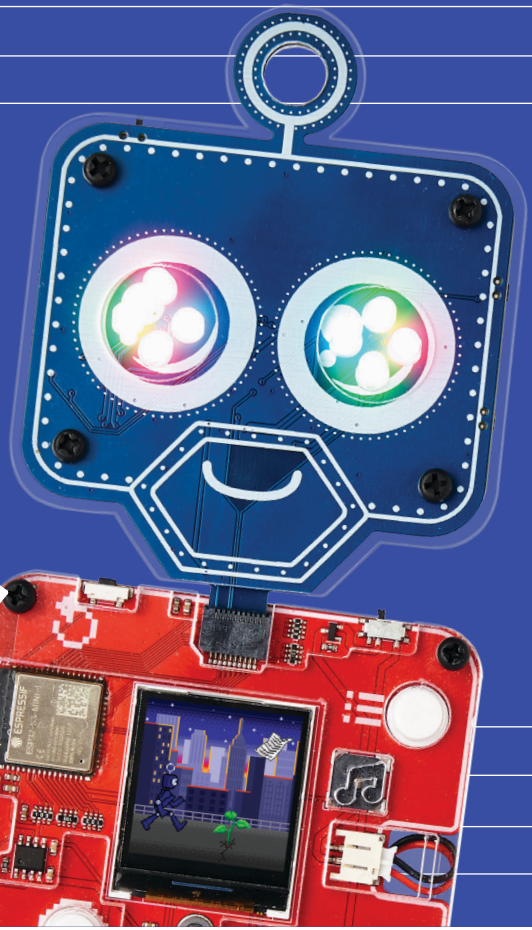


Need to change the speed of the counter? No problem! Marv's got a handy **potentiometer** on its back. **Grab a screwdriver, and with a simple twist of the potentiometer, you can adjust the speed to your liking**.



We hope you had a blast putting Marv together and maybe even picked up some cool insights into how it works.

And hey, here's a bonus:
Connect it to the CircuitMess BIT and unlock a new game!



*BIT is sold separately

Thank you for purchasing CircuitMess Wacky Robots Educational kits

For more information and detailed instructions on assembling and using your device, visit our official website: circuitmess.com/resources/guides

Important safety information for CircuitMess Wacky Robots

Read all safety information before using the device.

WARNING: Failure to follow these safety instructions could result in fire, electric shock, injury, and damage to your device or other objects. Read all safety information before assembling and using this device.

This product is a do–it–yourself device, and for it to work properly, you must assemble it according to the instructions you'll find on our website.

If you are a minor, assemble it only under an adult's supervision to avoid potential risks.

CircuitMess Wacky Robots kit contains sensitive electronic components. CircuitMess Wacky Robots or its components may be damaged if dropped, burned, punctured, crushed, or in contact with liquid. If you suspect that any part of your CircuitMess Wacky Robots kit (especially the batteries) is damaged, stop using the device. Using a damaged device may cause injury.

Use only authorized accessories compatible with your device and/or the supplied tools.

The device's operating temperature ranges from 0 ° C ~ 40 ° C.

Using this device in conditions outside this temperature range may damage the device.

Please turn off CircuitMess Wacky Robots after use and store it in a safe and dry location.

The included battery must be recycled appropriately and/or disposed of separately from household waste.

Improper handling of batteries can cause a fire or explosion. Dispose of or recycle

your device, battery, and accessories according to local regulations.

The included battery is NOT rechargeable.

- Do not short–circuit the battery
- Improper use of the battery can cause overheating, burns, or other injuries.
- Do not leave the battery directly exposed to intense sunlight.
- Do not use the device or the battery in high–temperature conditions. Overheating may cause an explosion.
- Do not disassemble or damage the battery to avoid battery leakage, overheating, or explosion.

- In the case of deformation, stop using the battery immediately and dispose of it properly.

If you are not sure whether your device or the included battery is safe to use, turn off the device, put it in a safe place, and contact our customer support via email at contact@circuitmess.com.

Keep the device dry.

Do not attempt to repair the device by yourself.

If any part of the device does not work correctly, contact our customer support (contact@circuitmess.com) or take your device to a certified repair shop.

Connect other devices according to their operating instructions. Do not connect incompatible devices to this device.

Precautions

During prolonged use, Wacky Robots may rarely overheat.

Keep CircuitMess Wacky Robots in a ventilated room during the use and assembly. Pay special attention to this if you suffer from a physical condition that affects your ability to detect heat on your body.

Assembling or using CircuitMess Wacky Robots in an area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapors, or particles (such as dust or metal powder), can be dangerous.

Exposure of CircuitMess Wacky Robots to environments with high concentrations of industrial chemicals, including liquefied gases that evaporate, such as helium, can damage the functionality of CircuitMess Wacky Robots.

Do not use CircuitMess Wacky Robots in hospital operating rooms or intensive care units.

Contact your doctor or our customer support (contact@circuitmess.com) to determine if the device's operation may compromise the work of medical devices.

To avoid possible interference with a pacemaker, maintain a minimum distance of 15 cm between the CircuitMess Wacky Robots and the pacemaker. To achieve this, do not carry the included device in your pockets.

Do not use CircuitMess Wacky Robots near hearing aids or similar medical aids and equipment to avoid interference with medical equipment.

Check aircraft safety regulations and turn off CircuitMess Wacky Robots on the aircraft if necessary.

Do not use CircuitMess Wacky Robots while driving.

To avoid lightning strikes, do not use CircuitMess Wacky Robots outdoors during storms.

Do not use the CircuitMess Wacky Robots in high-humidity environments

such as bathrooms. Failure to do so may result in electric shock, injury, fire, and damage to the product, electronic components, power adapter, or other parts of this electronic educational kit.

Follow all the rules that limit the use of portable electronic devices in some situations and conditions.

The individual parts and components in the CircuitMess Wacky Robots can pose a choking risk to children under 36 months. Keep all components, tools, and parts of this product away from small children before and after assembling the device.

Additional Recommendations and Precautions for Parents, Guardians, and Teachers Buying CircuitMess Wacky Robots for Children

1. Carefully follow the instructions for adequately assembling CircuitMess Wacky Robots. Keep these and all other instructions that came with the products in a safe place.

2. Supervise your child while assembling and using the CircuitMess Wacky Robots. Your responsibility is to ensure that the child uses the CircuitMess Wacky Robots correctly and that the CircuitMess Wacky Robots are suitable for the child's age and abilities.

3. Check from time to time if CircuitMess Wacky Robots are damaged or worn out in any way to prevent possible injuries and risks to the child's health and safety. If CircuitMess Wacky Robots is damaged, remove it immediately.

4. Remove any unnecessary packaging, but keep the instructions. Take care that children do not play with any plastic packaging as there are suffocation risks.

5. Teach children to always store CircuitMess Wacky Robots and other parts of the CircuitMess Wacky Robots educational kit appropriately to prevent accidents. Do not leave CircuitMess Wacky Robots on stairs or on the floor in your home or classroom where someone can step on them.

6. Always report a product security issue to our customer support (contact@circuitmess.com)

Declaration of Conformity

CircuitMess d.o.o. declares that these DIY educational kits CircuitMess Wacky Robots model complies with the essential requirements and all other relevant provisions of Directive 2014/53 / EU. The full text of the EU declaration of conformity is available at the following Internet address: circuitmess.com/certification.

Legal Information

These devices can be used in all EU Member States. Check all the national and local regulations about using the device. These devices may be restricted for use, depending on local laws.

Manufacturer:

CircuitMess d.o.o.

Ventilatorska cesta 24,

10250 Lučko,
Zagreb,
Croatia
OIB: 50943449035

Proper disposal of this product

WEEE markings on the product indicate that this product may not be disposed of with the rest of your household waste in the EU. To prevent possible damage to the environment or human health from uncontrolled waste disposal, recycle the product responsibly. Recycling promotes the sustainable reuse of resources. For more information on the disposal of electrical and electronic equipment, don't hesitate to contact your local household waste disposal service, the store where you purchased the kit, or our customer support (contact@circuitmess.com).

IMPORTANT! Warranty conditions:

The warranty is valid only if the original invoice is attached to the product as proof of purchase during the complaint. If the customer sends the product for repair for any reason not covered by the warranty, the customer may be charged for inspection and testing and delivery costs.

WARRANTY STATEMENT

CircuitMess d.o.o., with its registered office in Zagreb, Croatia, Ventilatorska cesta 24, guarantees the quality and proper functionality of the components that come in the CircuitMess Wacky Robots DIY educational kits for a duration of 24 months from the date of purchase.

If the assembled device does not work correctly due to defects in supplied parts or electronic components supplied in the CircuitMess Wacky Robots DIY educational kits, CircuitMess d.o.o. will repair the product or send an equivalent replacement product at their own expense.

In case you are experiencing assembly or functionality difficulties with your device, please contact us via email (contact@circuitmess.com).

Please include a detailed description of the problem.

If you are sending the product to a repair shop, it is recommended to deliver the product in the original packaging to protect it from potential damage during transportation.

WARRANTY CONDITIONS

The warranty period begins on the day of sale indicated on the invoice.

The warranty is valid upon presentation of the original invoice.

If the defect is not remedied within a reasonable period after receiving the product for repair, CircuitMess d.o.o. will replace it with a new product.

The repair shop does not take responsibility

for storing and/or losing personal data while repairing the device.

WARRANTY DOES NOT COVER

Upgrades, alterations, modifications to hardware and/or software without the written consent of CircuitMess d.o.o.

Malfunctions due to improper handling, faults due to wear of the device and/or its parts (in you need help with assembly or if you have difficulty using the device after assembling it, please contact us at contact@circuitmess.com).

Defects caused by external particles (including, but not limited to: staples, waste, dust, food) and external factors (including, but not limited to: moisture, water, thermal damage).

Mechanical damage and/or failures caused by mechanical damage.

Use of the product for a purpose for which it is not intended.

Requirements for the appearance, technical functionalities, and/or capabilities of the product outside the manufacturer's specifications and/or standards.

Damages to personal data, other tangible and/or intangible assets of the buyer and/or third parties, indirect damages, lost profits caused by the use of the product, and/or its failure.

Repairs in an unauthorized repair shop and/or installation of non–original spare parts.

Damage caused during transportation caused by improper packaging.

The rights under this warranty are the exclusive and final rights of the customer unless otherwise provided by national law.

CircuitMess d.o.o. as the warranty provider and/or its authorized partners will not be liable for any defect, damage, loss, direct or indirect cost, or connection with the delivered products outside the warranty conditions written here.

This warranty does not affect other rights of the customer belonging to him on other legal grounds.

WARRANTY SHEET

Product name:	CircuitMess Wacky Robots do-it-yourself educational solder kit
Warranty on components and parts contained in this set is:	24 months
Date of purchase:	
Seller and point of sale stamp:	
Invoice number:	

Information on interventions during warranty period is entered by a repair shop technician at an authorized repair shop.

Received on	Issued on	Fault description	Warranty extension

Manufacturer:

CircuitMess d.o.o.
Ventilatorska cesta 24,
10250 Lučko,
Zagreb,
Croatia
Country of origin: Croatia
www.circuitmess.com

Authorized repair shop:

CircuitMess d.o.o.
Ventilatorska cesta 24,
10250 Lučko,
Zagreb,
Croatia
Country of origin: Croatia
www.circuitmess.com

CircuitMess

WARNING:
Not for children under 3 years.

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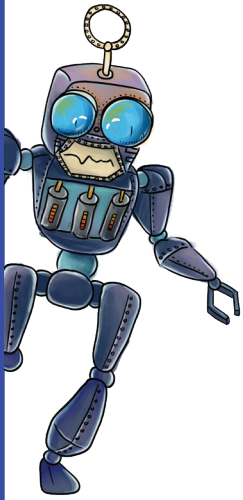

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