



# IKTISHAF

Explore... Learn... Create

Naim Al-Haj Ali



# Inspiration

1

**Snap Circuits**



2

**Little Bits**



3

**Arduino**



- Expensive
- Hard/Cold
- Static
- Limited Sensory Engagement
- Isolated

1

## Snap Circuits



2

## Little Bits




3

## Arduino

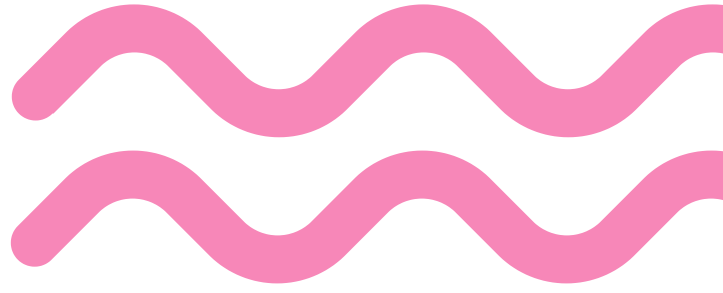




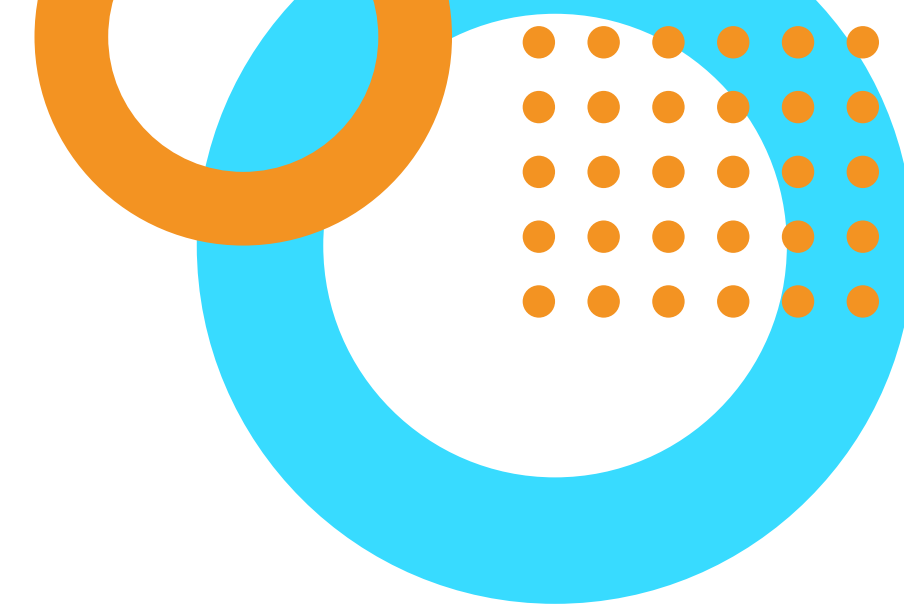
# Problem



Lack of educational kits  
designed with soft and  
tactile materials



# Why Soft Materials Matter



1

## Hard Materials are not welcoming

Rigid, hard-plastic kits can feel cold and intimidating, discouraging curious beginners

2

## Sensory Sensitivities

Children with sensory sensitivities or fine motor challenges may struggle with stiff materials

3

## Better User Experience

Soft, flexible modules are easier to handle and more inviting, increasing comfort and engagement.



# Sensory Engagement

## Smart Toys in Early Childhood and Primary Education: A Systematic Review of Technological and Educational Affordances

by Vassilis Komis <sup>1,\*</sup> , Christofors Karachristos <sup>1</sup> , Despina Mourta <sup>1</sup> , Konstantina Sgoura <sup>1</sup> ,  
Anastasia Misirli <sup>1</sup>   and Alain Jaillet <sup>2,\*</sup> 

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<sup>2</sup> INSPÉ de l'académie de Versailles, CY Cergy Paris Université, 95000 Cergy, France

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REVIEW article


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Volume 9 - 2024 | <https://doi.org/10.3389/educ.2024.1182660>

## *Beyond play: a comparative study of multi-sensory and traditional toys in child education*

 Yijun Fan<sup>1</sup>

 Daphne Khee Chong<sup>2</sup>

 Yuanzhe Li<sup>3\*</sup>

## Designing Multi Sensory Environments for Children's Learning: An Analysis of Teachers' and Researchers' Perspectives

[Giulia Cosentino](#), Department of Computer Science, Norwegian University of Science and Technology, Norway, [giulia.cosentino@ntnu.no](mailto:giulia.cosentino@ntnu.no)

[Serena Lee-Cultura](#), Department of Computer Science, Norwegian University of Science and Technology, Norway, [serena.leecultura@ntnu.no](mailto:serena.leecultura@ntnu.no)

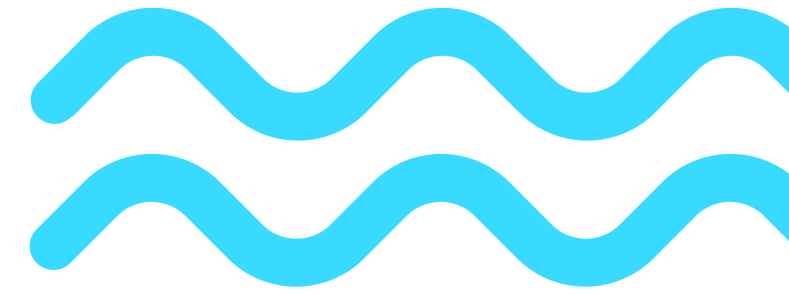
## Interactive soft toys to support social engagement through sensory-motor plays in early intervention of kids with special needs

[Beste Ozcan](#), Institute of Cognitive Sciences and Technologies, National Research Council of Italy, Italy, [beste.ozcan@istc.cnr.it](mailto:beste.ozcan@istc.cnr.it)

[valerio sperati](#), Institute of Cognitive Sciences and Technologies, National Research Council of Italy (ISTC-CNR), Italy, [valerio.sperati@istc.cnr.it](mailto:valerio.sperati@istc.cnr.it)

[Flora Giocondo](#), Institute of Cognitive Sciences and Technologies, National Research Council, Italy, [flora.giocondo@istc.cnr.it](mailto:flora.giocondo@istc.cnr.it)

# The Concept



- Modular kit made from textile-based electronics.
- Easy snap-together connections
- Integrates simple circuits
- Open Source
- Affordable
- Accessible
- Customizable





# Educational Value

1

**Hands-on learning supports problem-solving and creativity.**

2

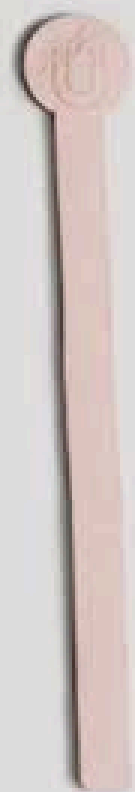
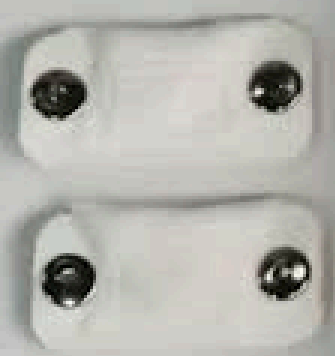
**Encourages curiosity about electronics, and materials science.**

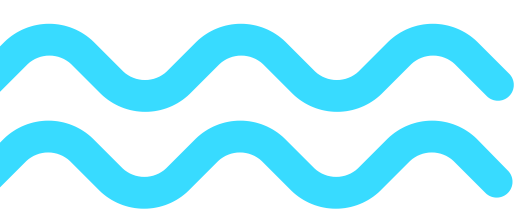
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**Aligns with STEAM standards and fosters early STEM interest.**

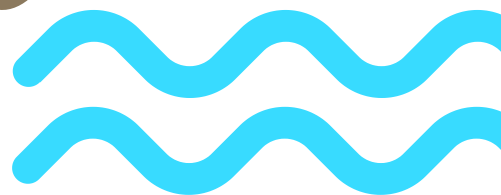
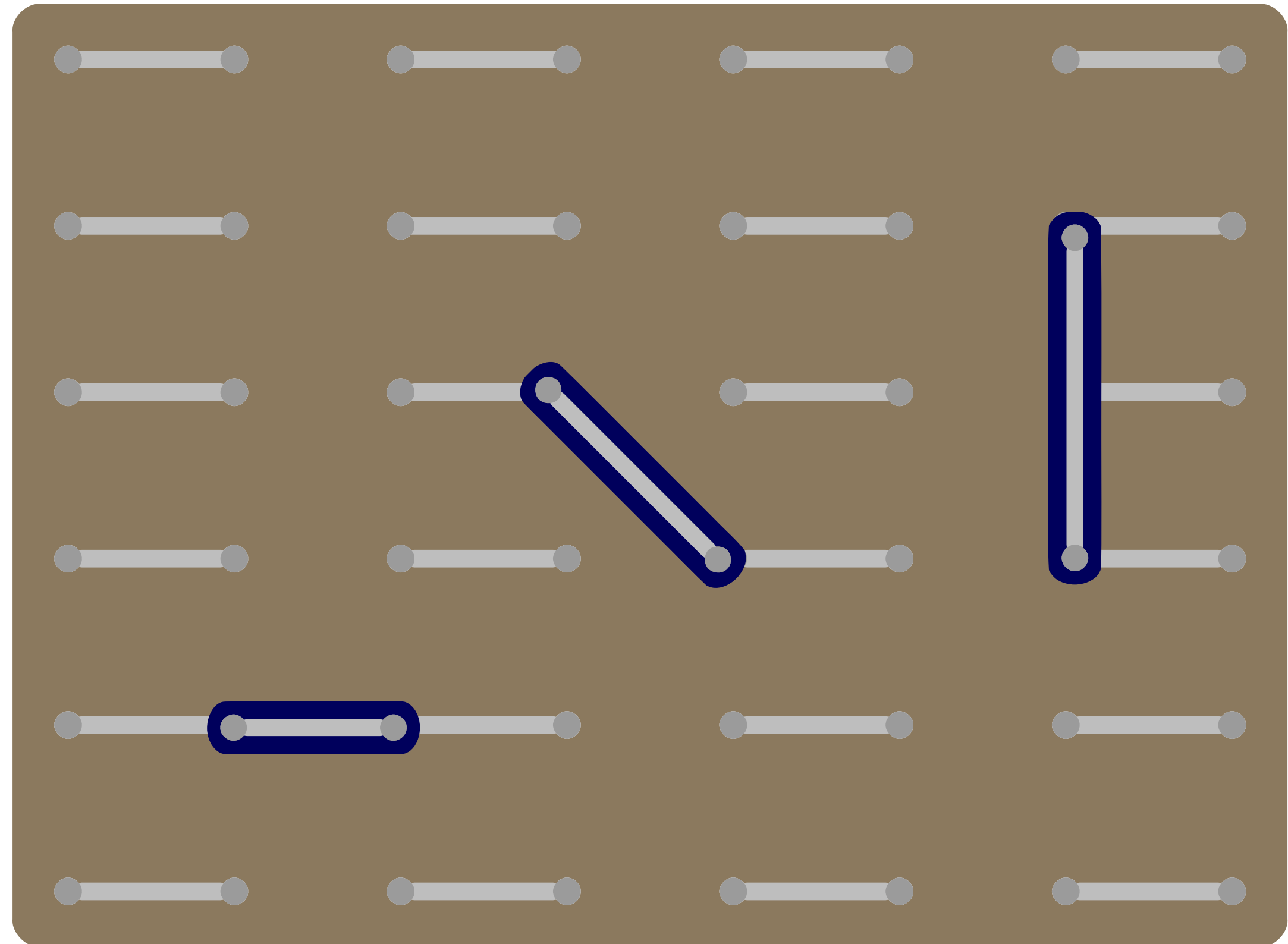
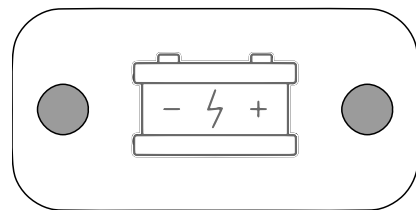


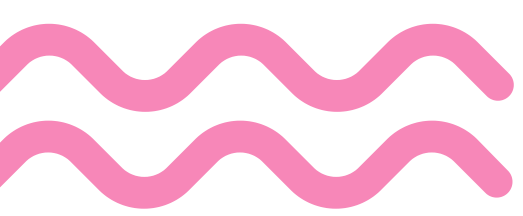




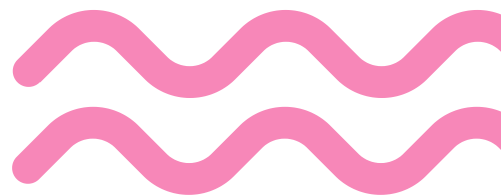
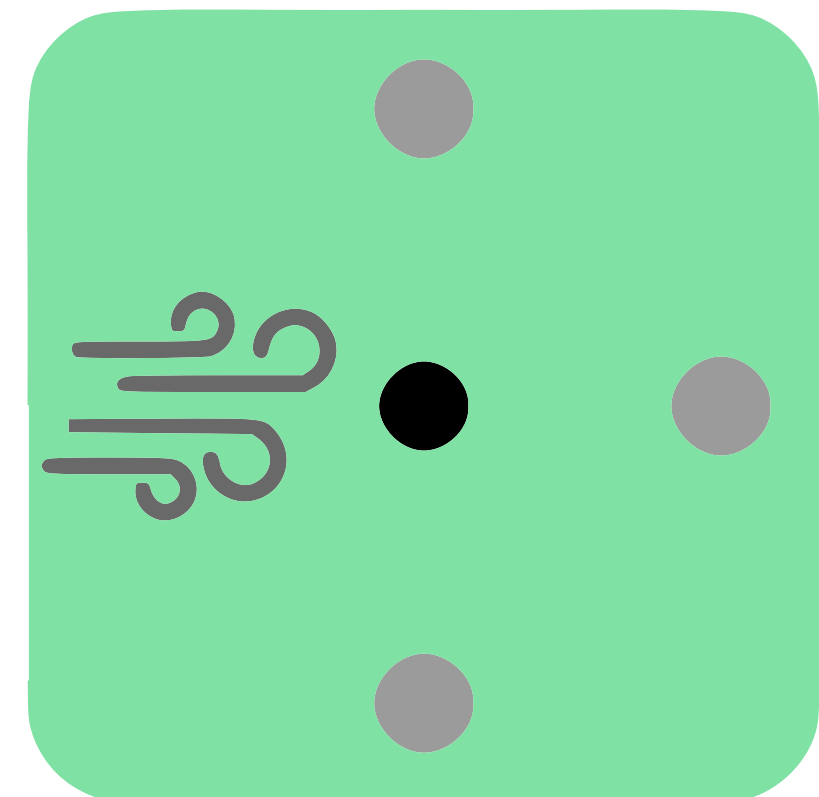
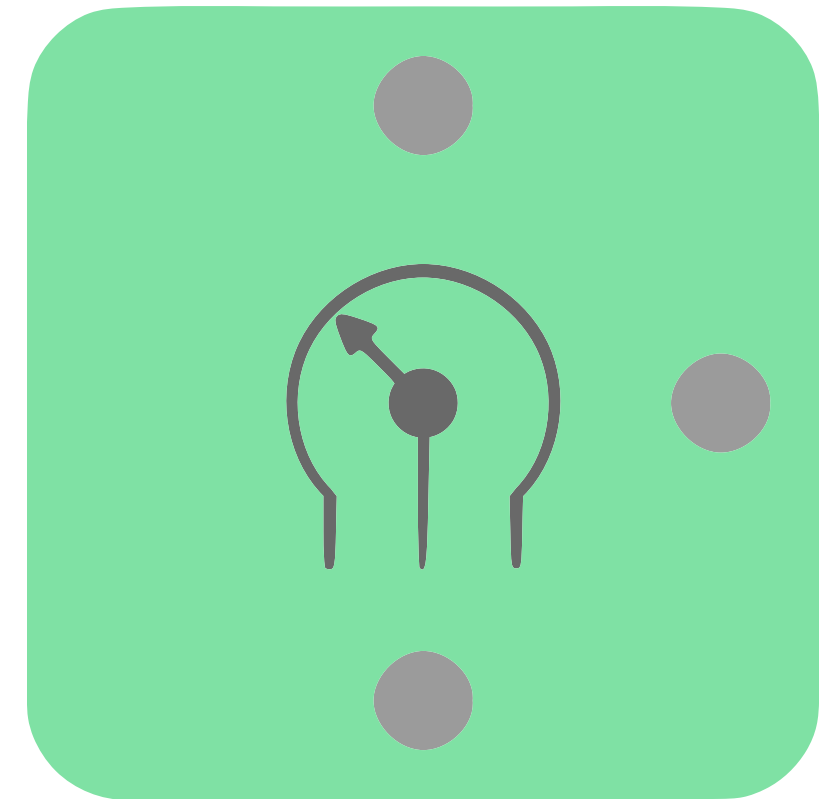
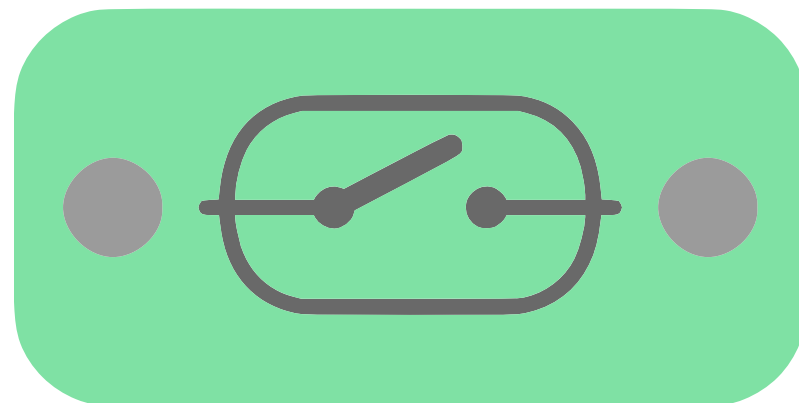
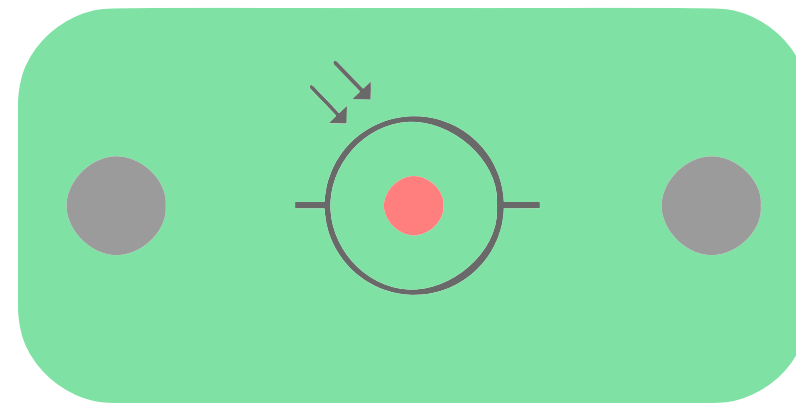
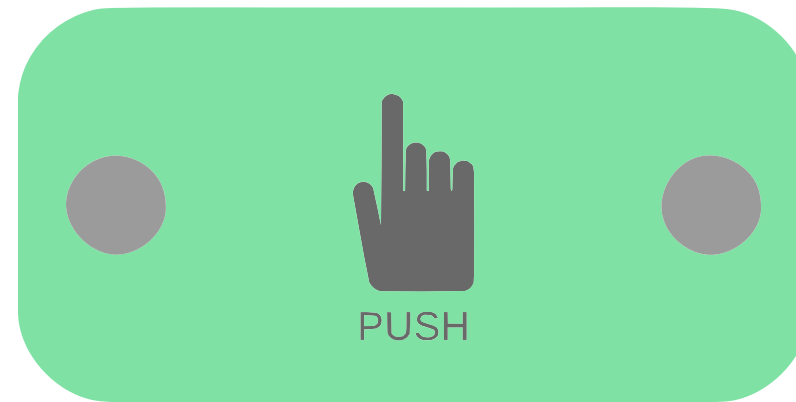


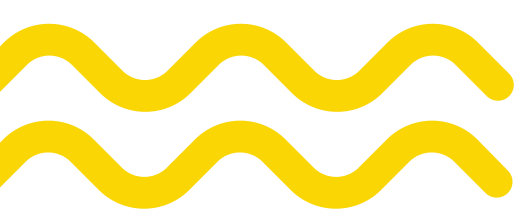
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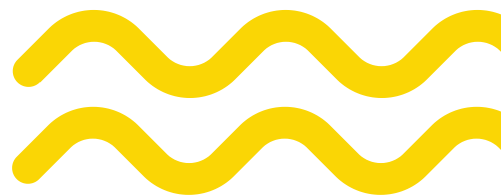
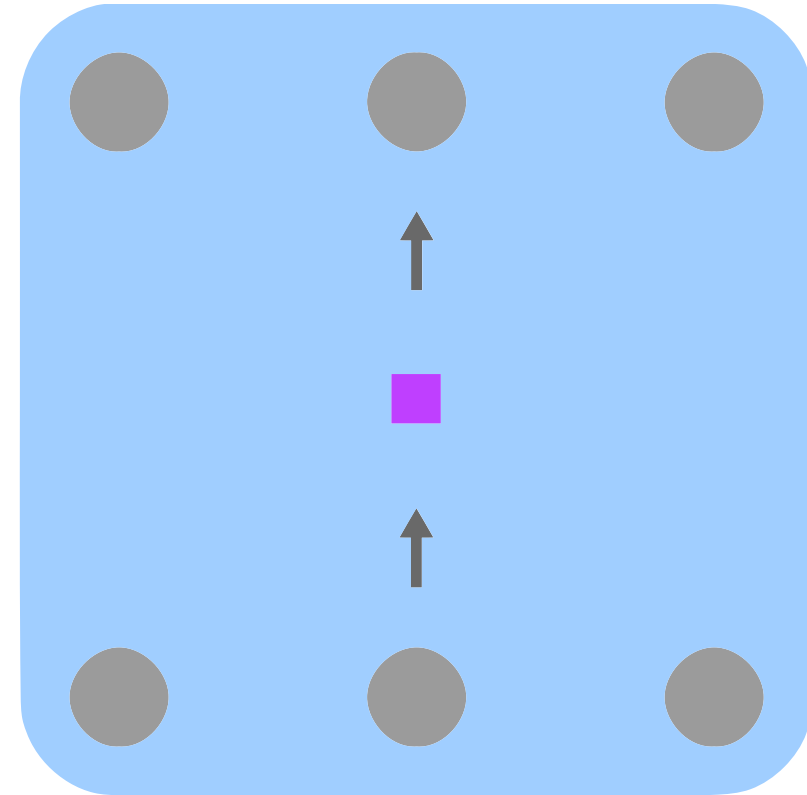
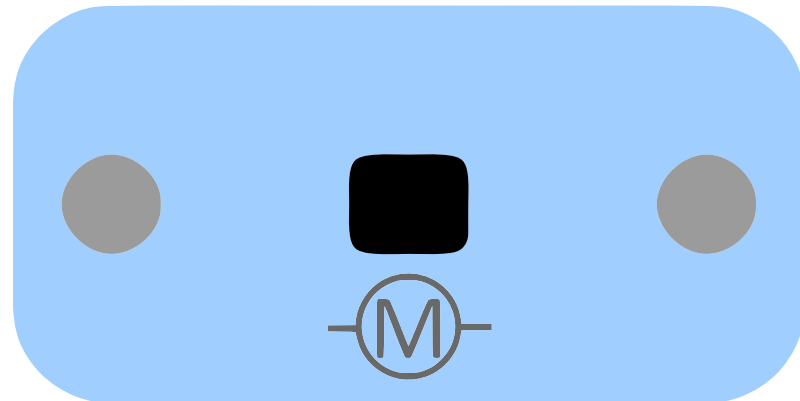
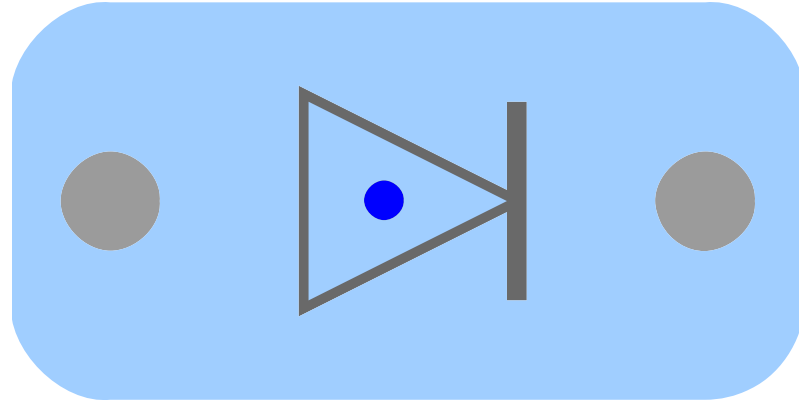
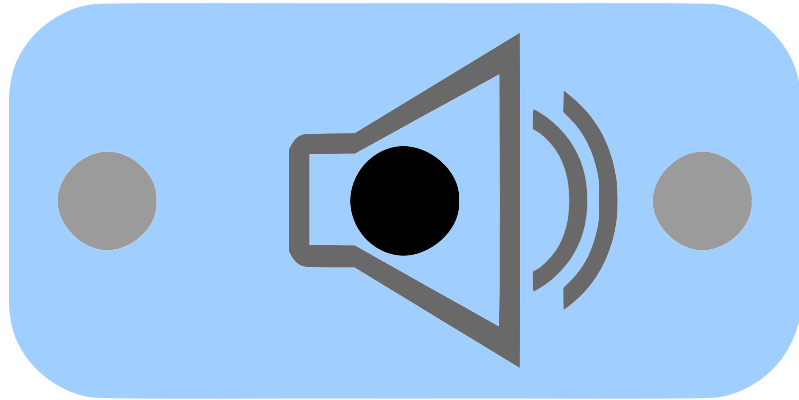


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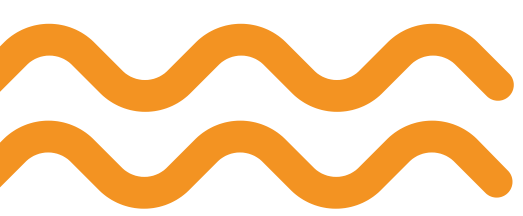




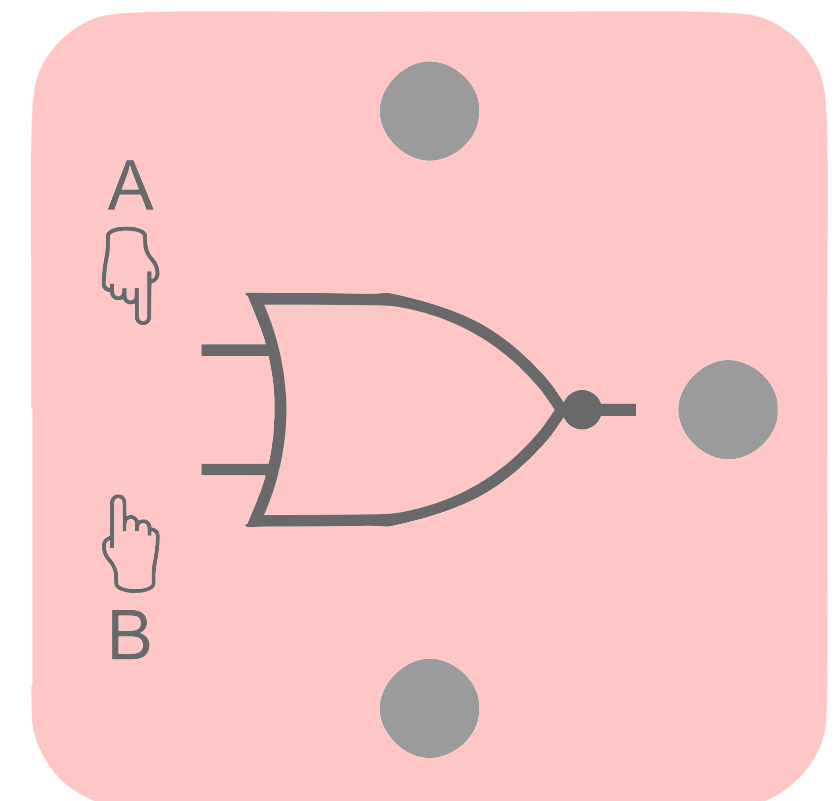
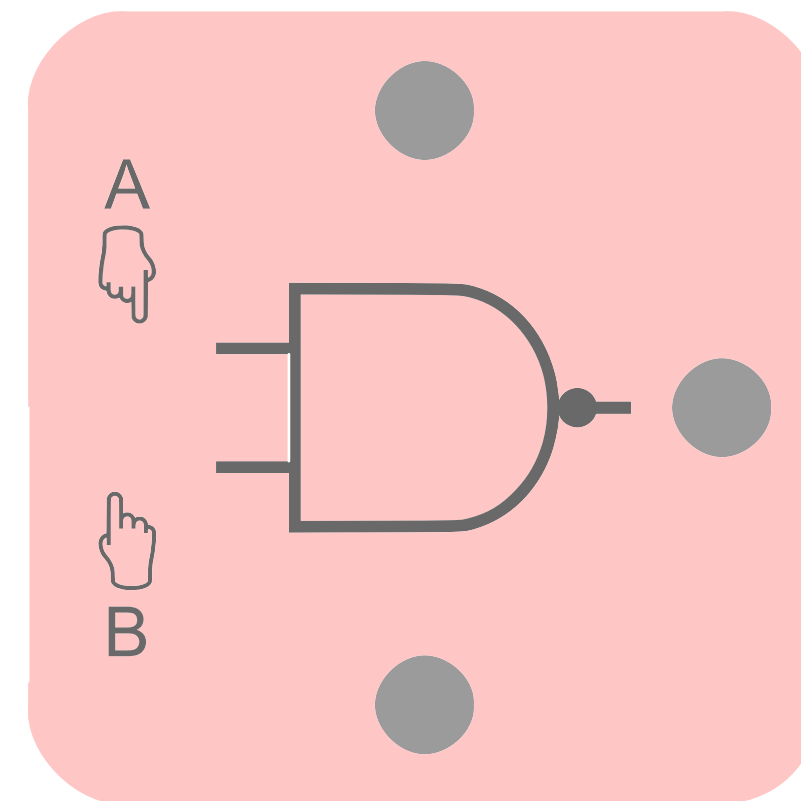
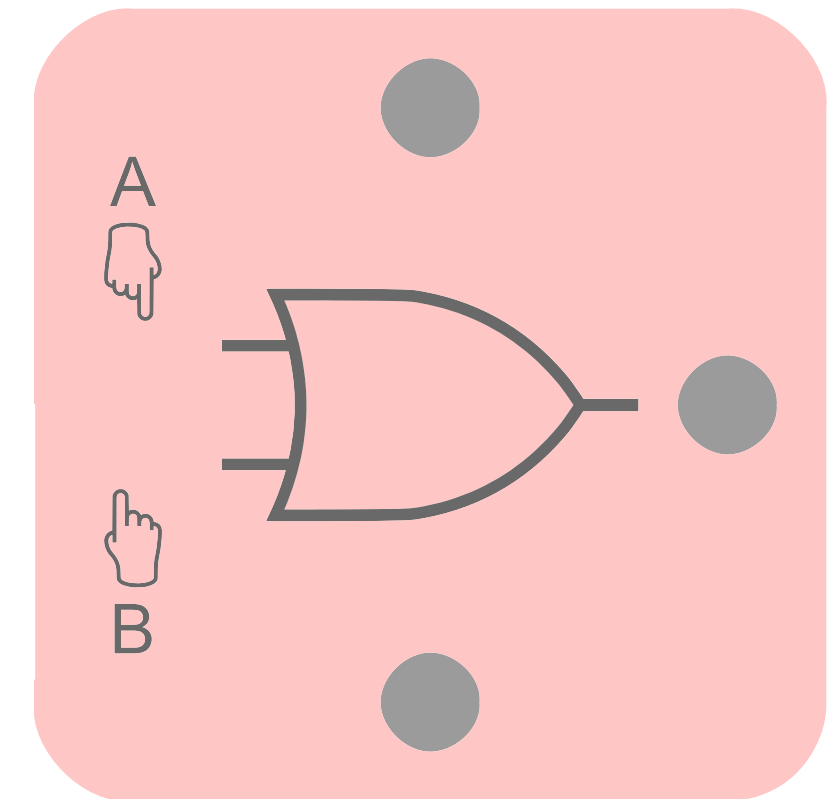
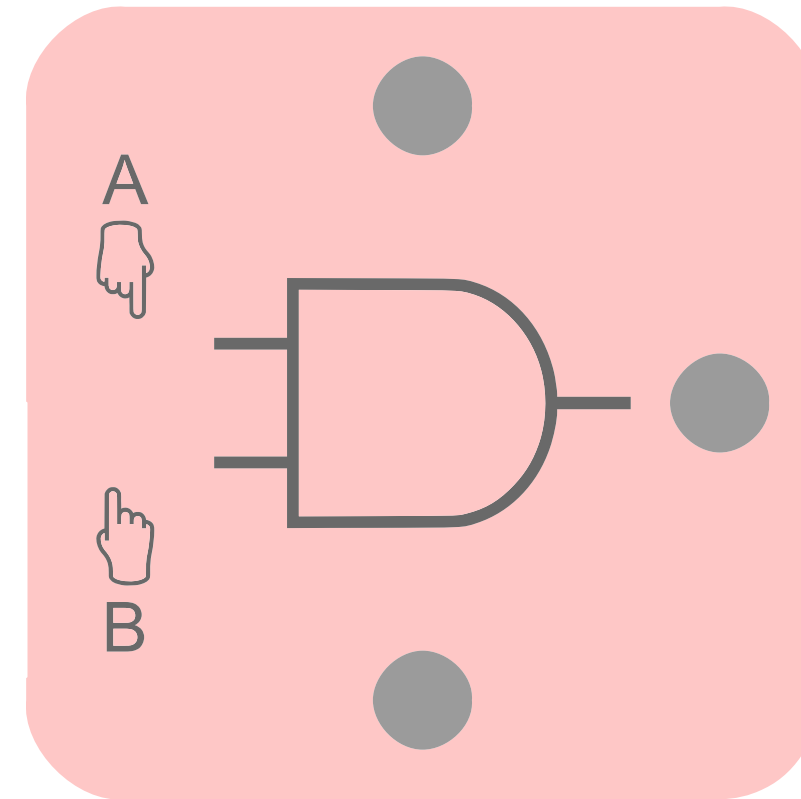
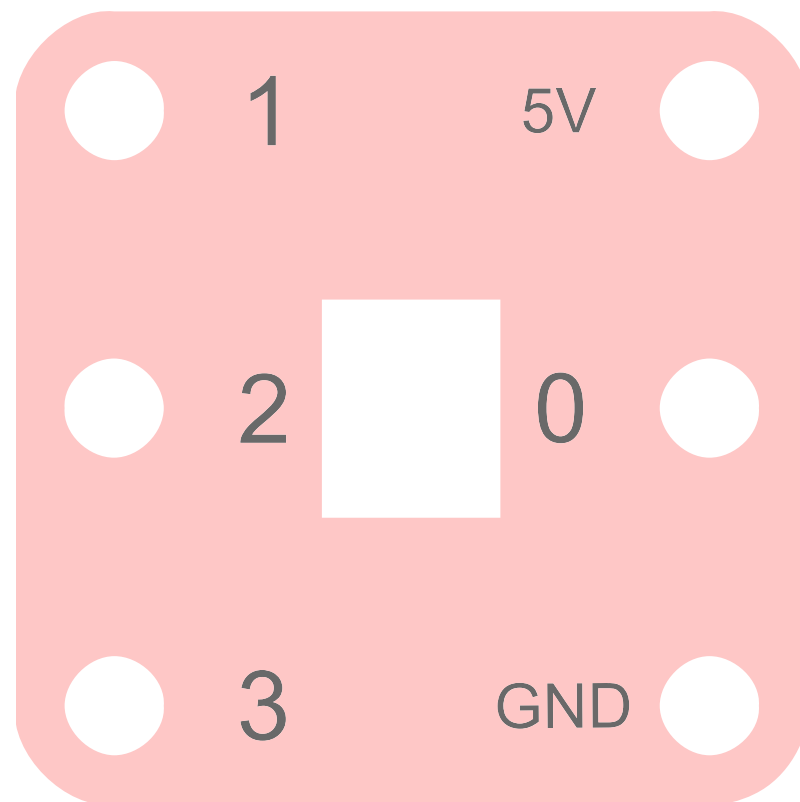
# Output Modules





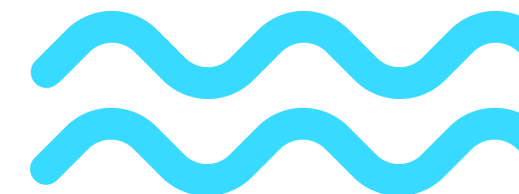
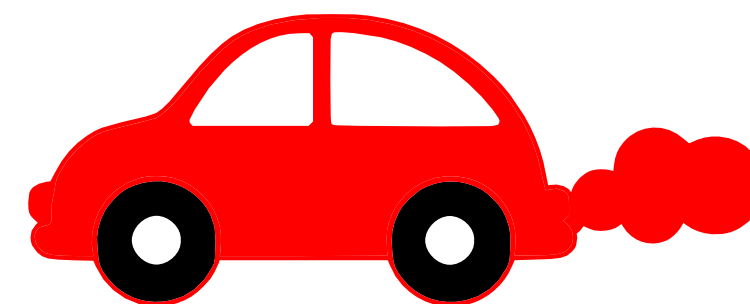
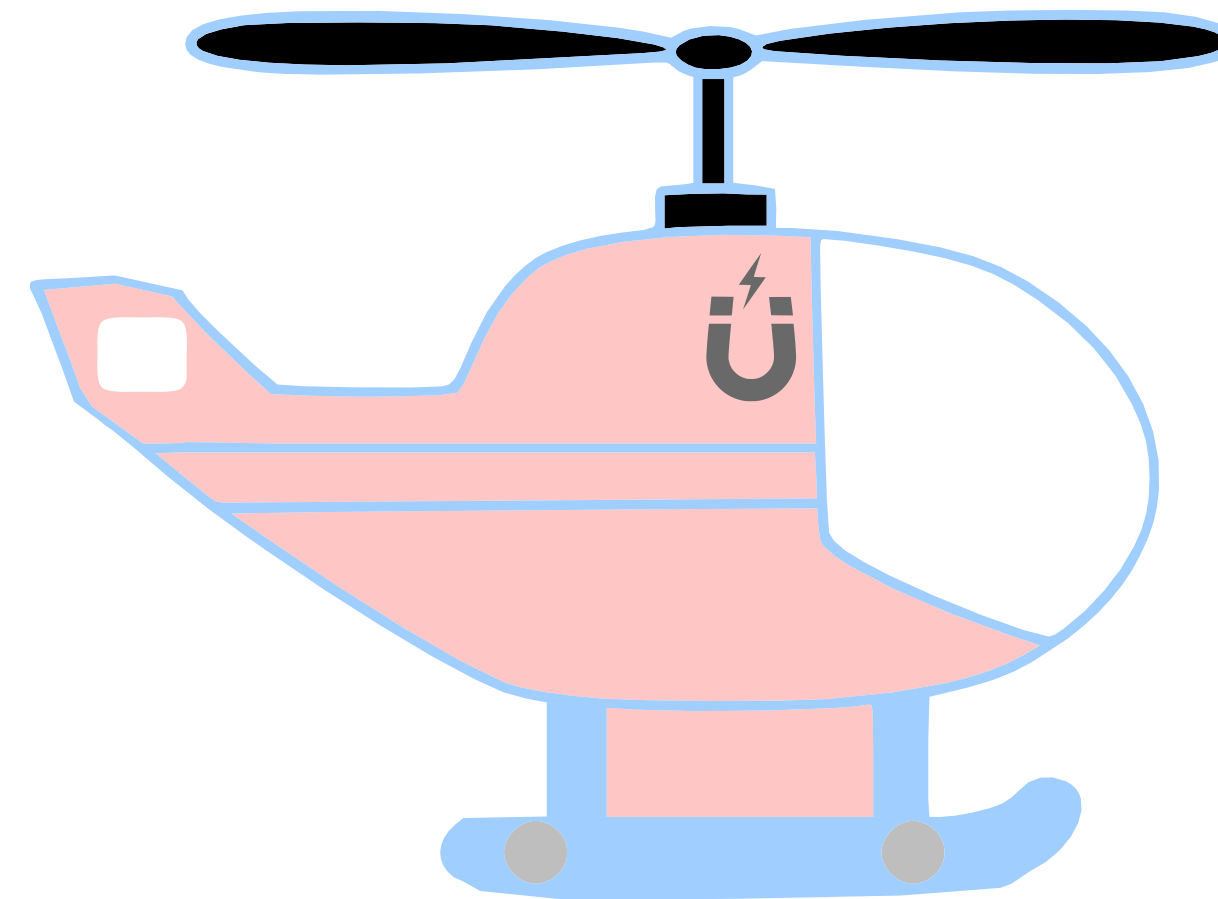
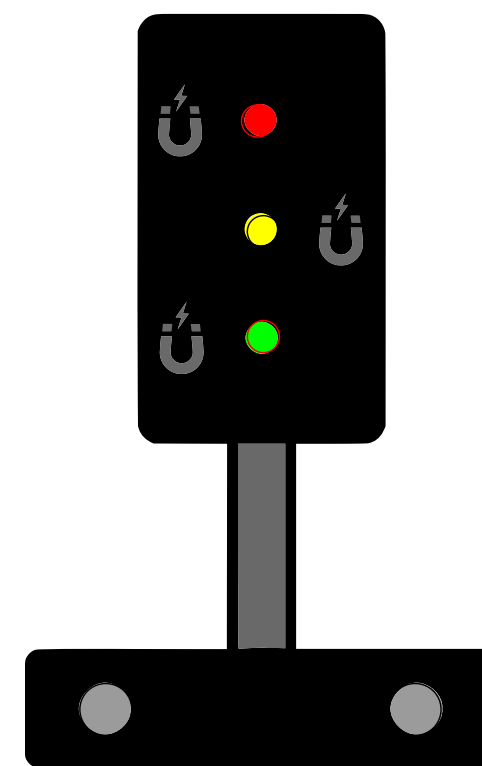
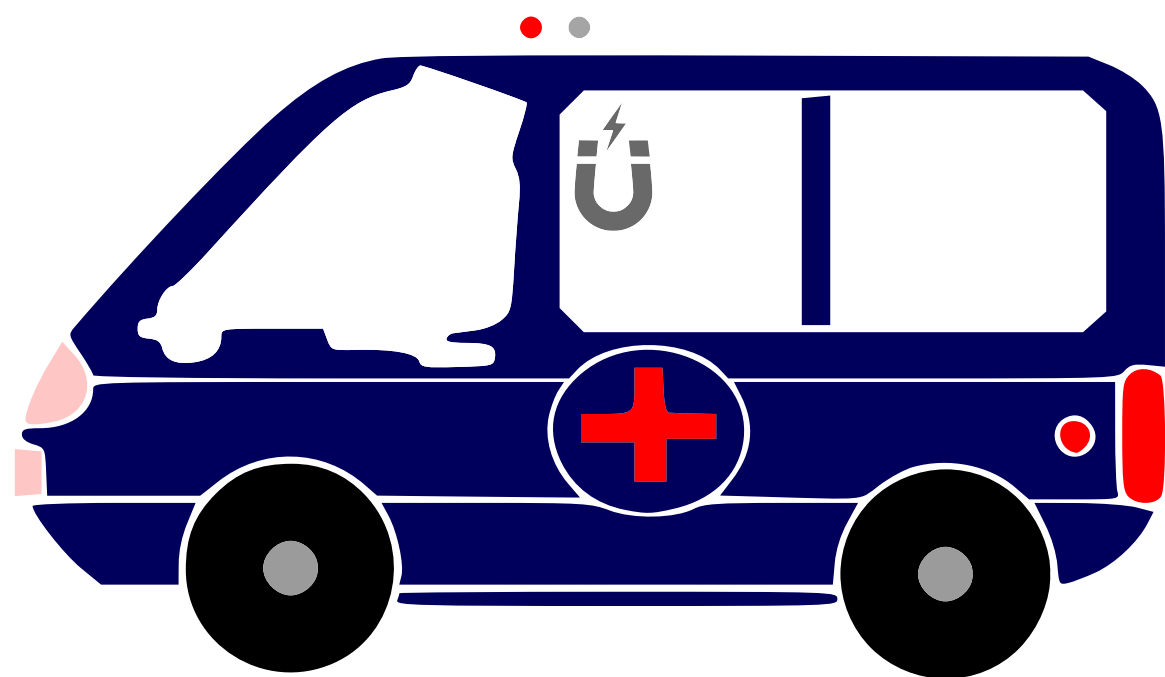


# Microcontroller and Logic Gates

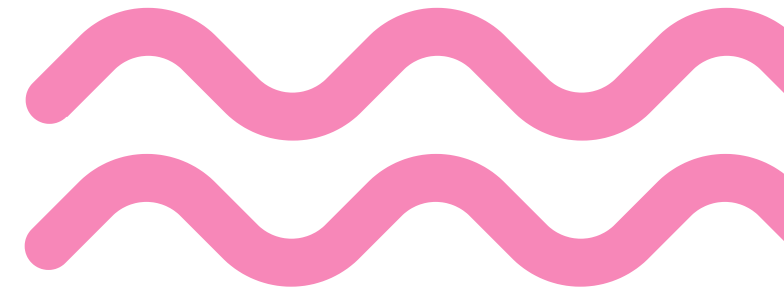




# Theme Modules



# Kits

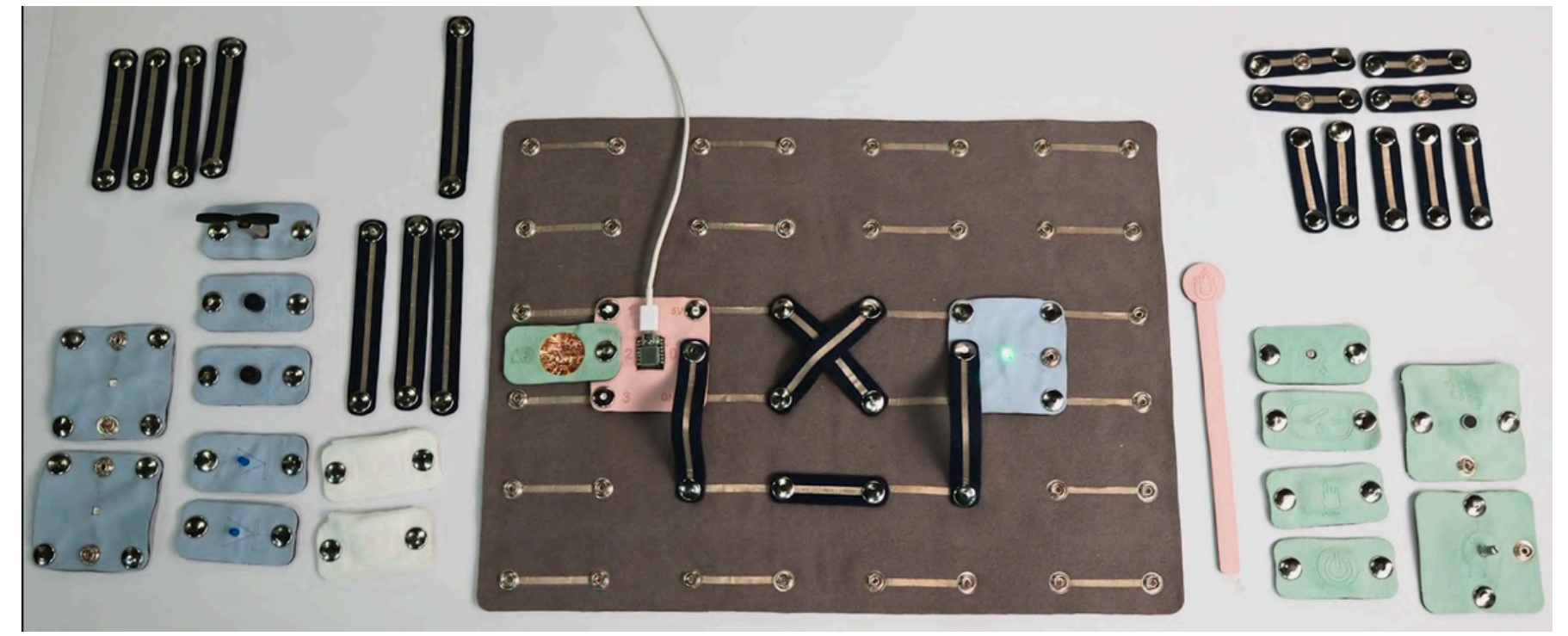
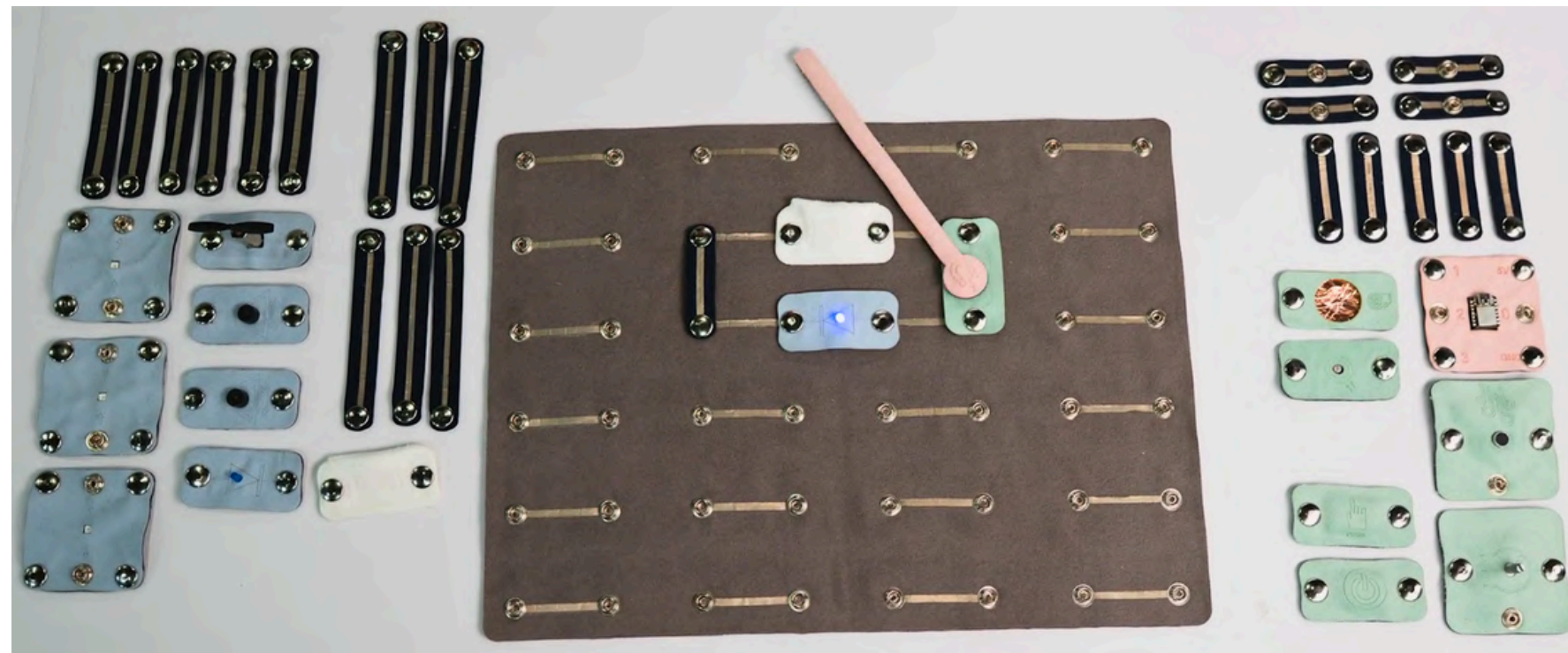
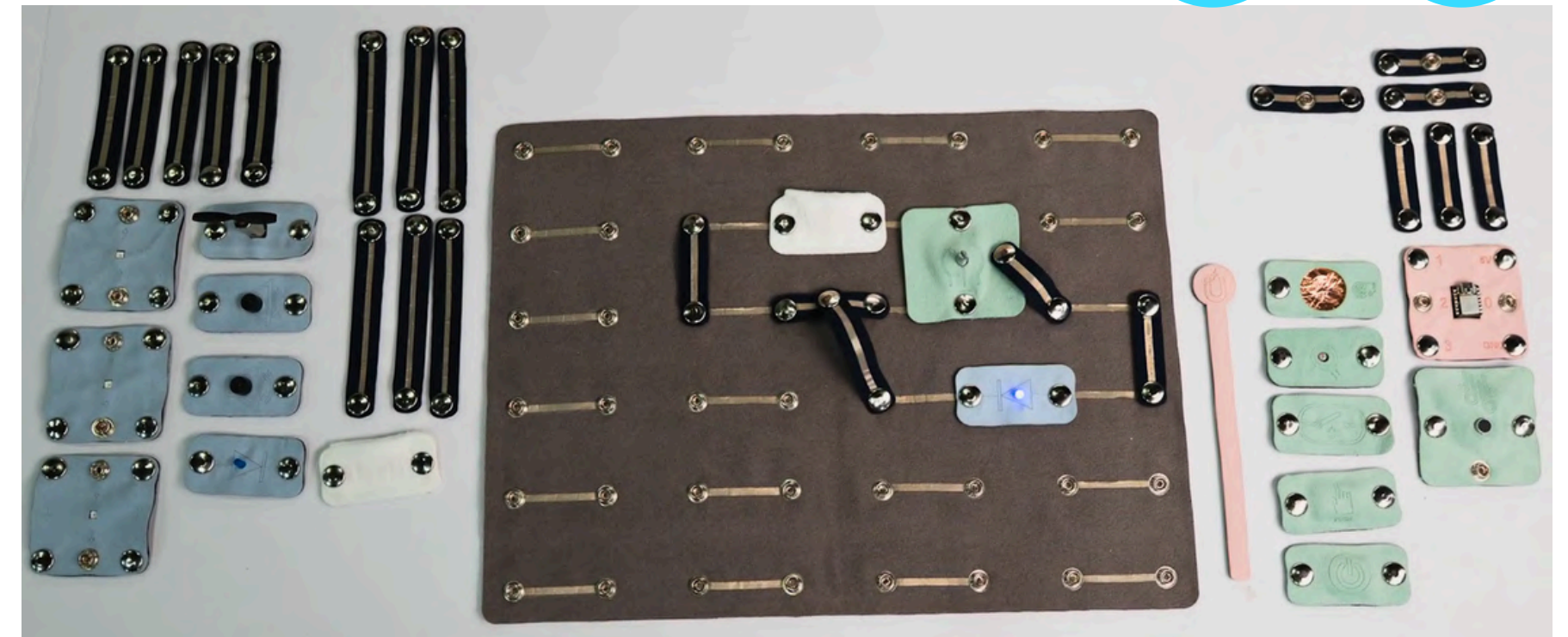
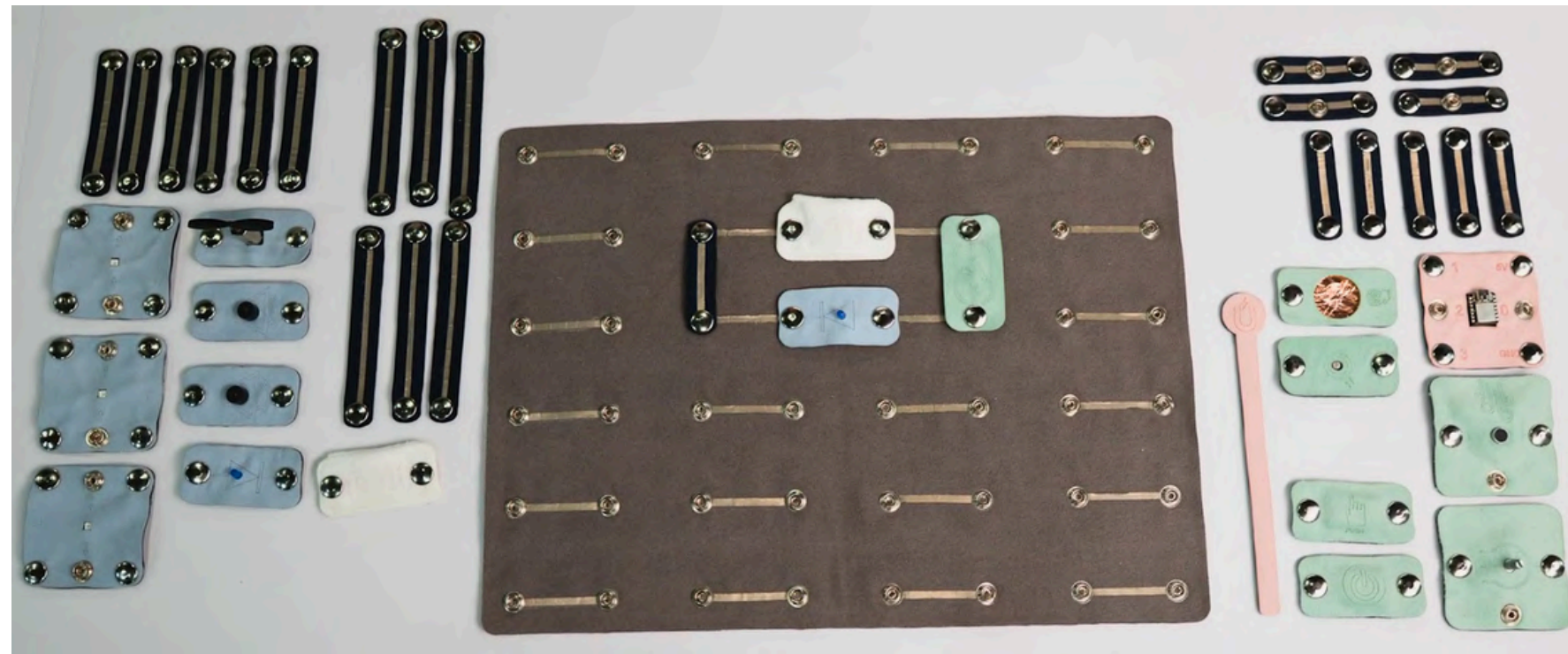
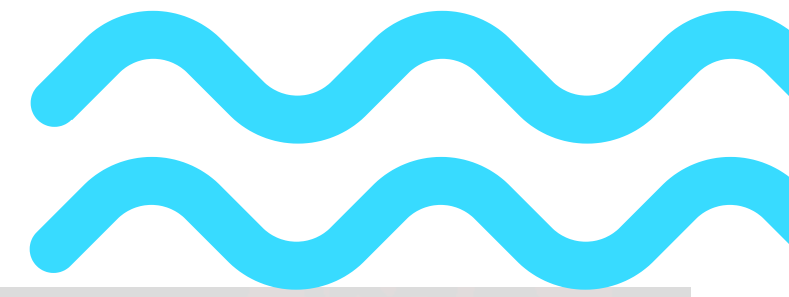




# Master Makers

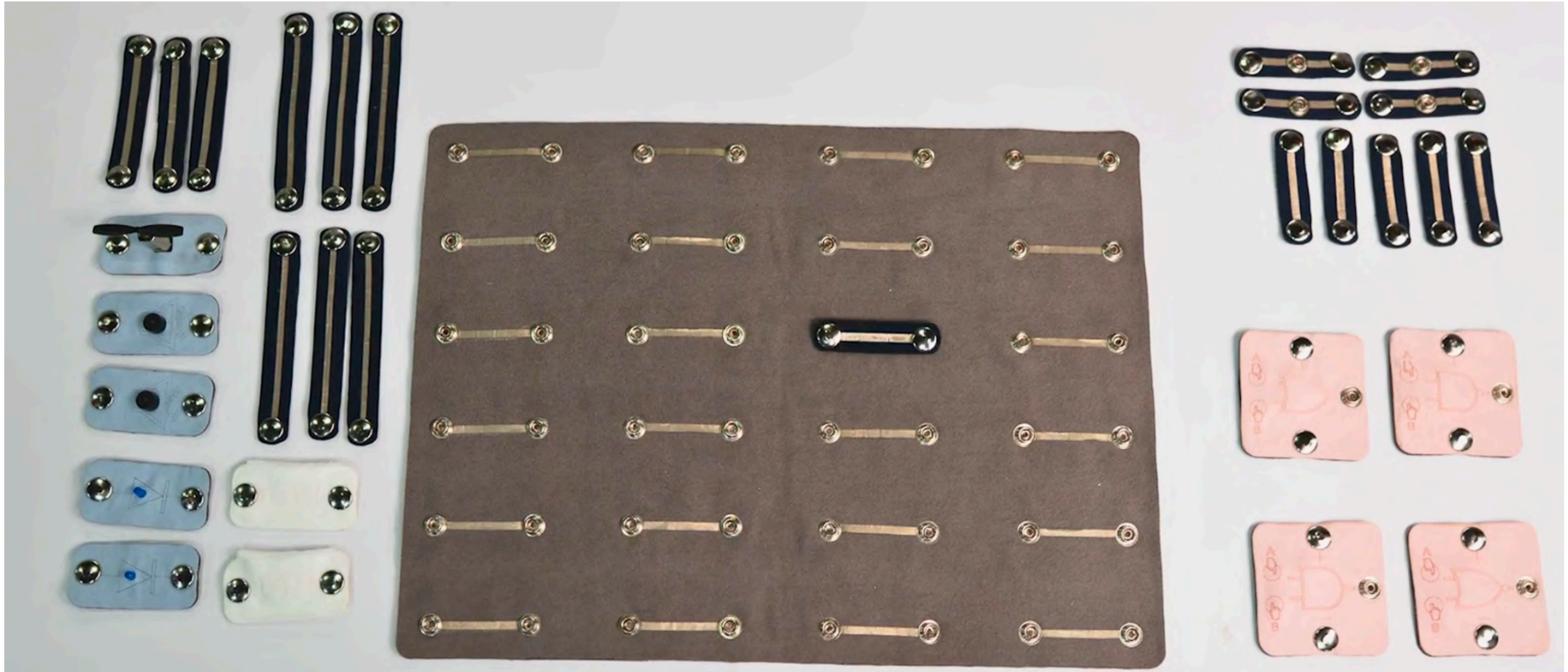
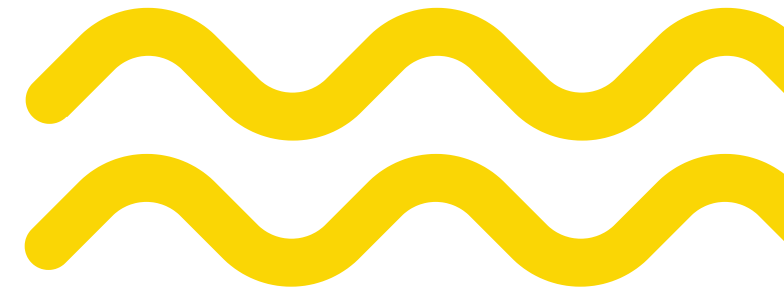




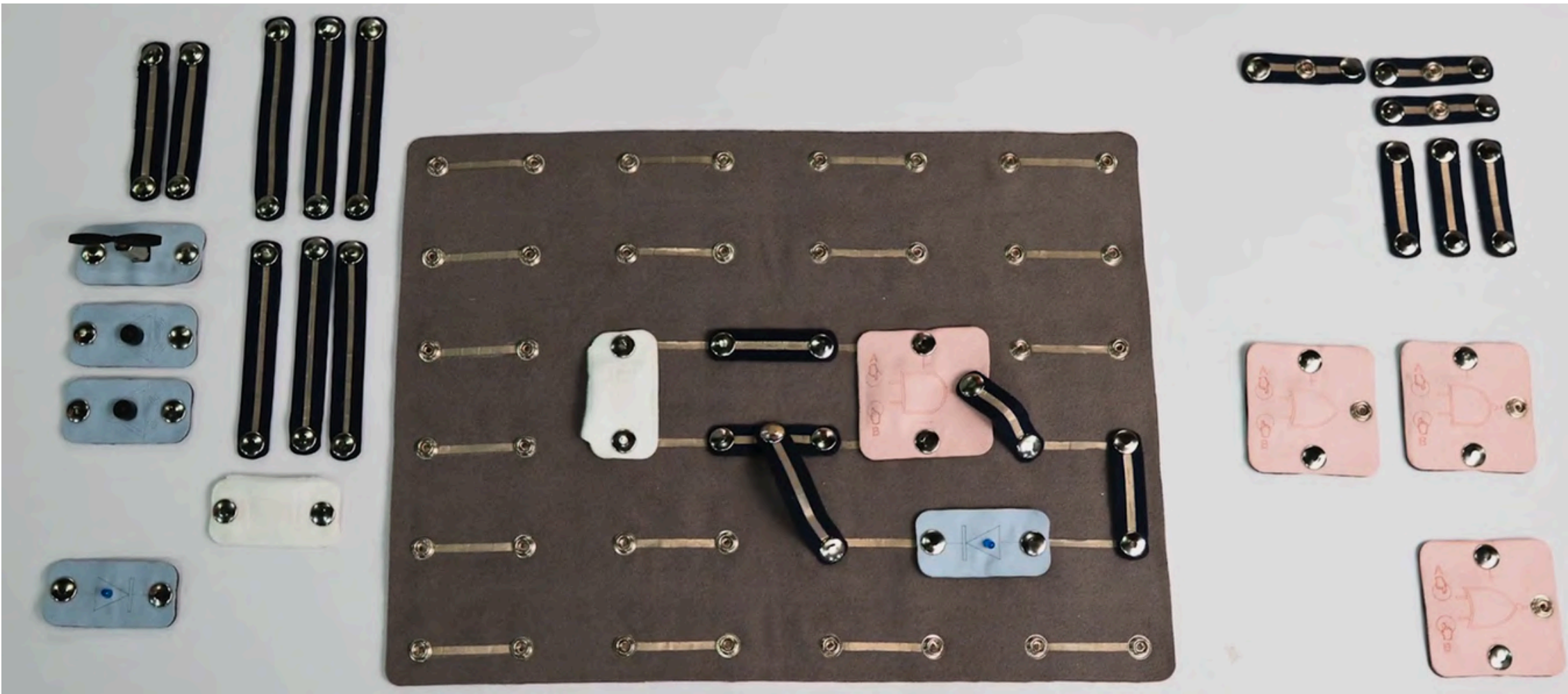
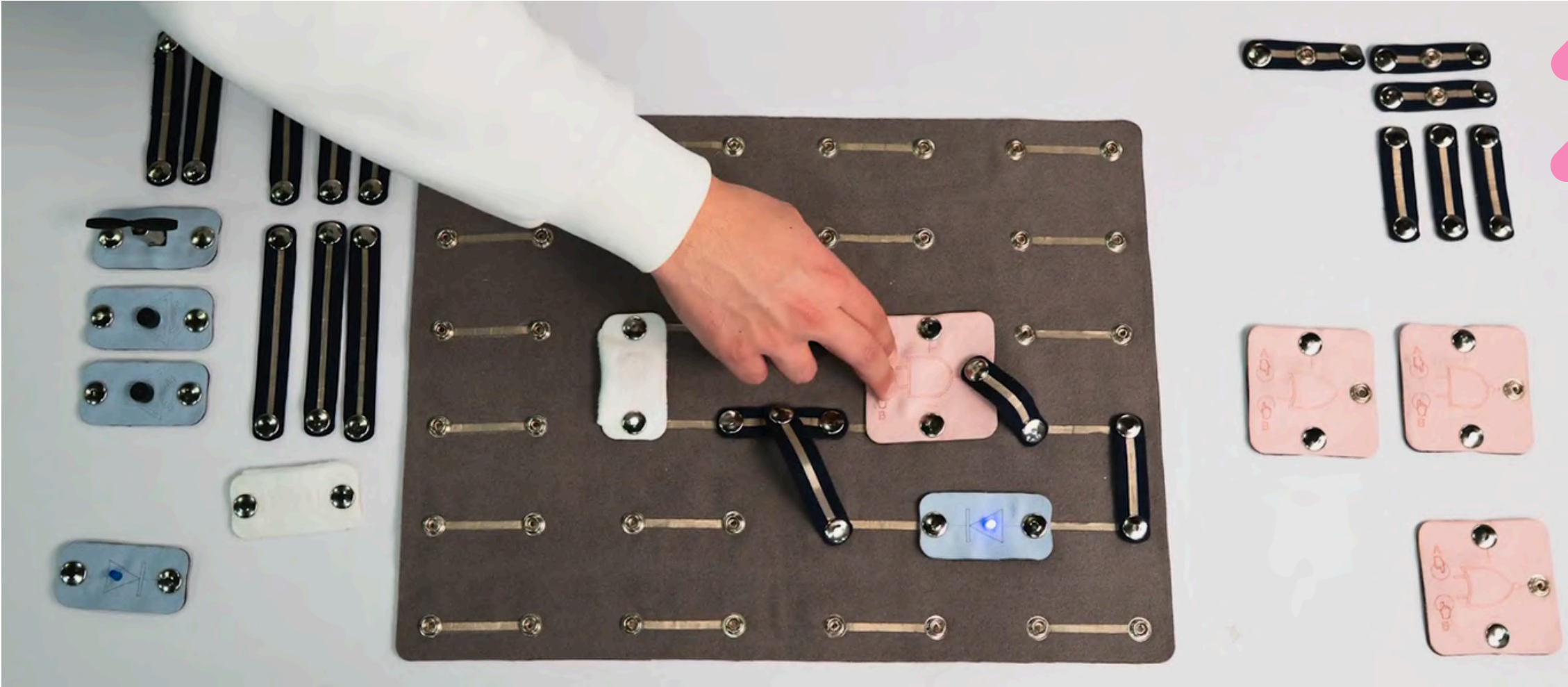




# Tinker Logics

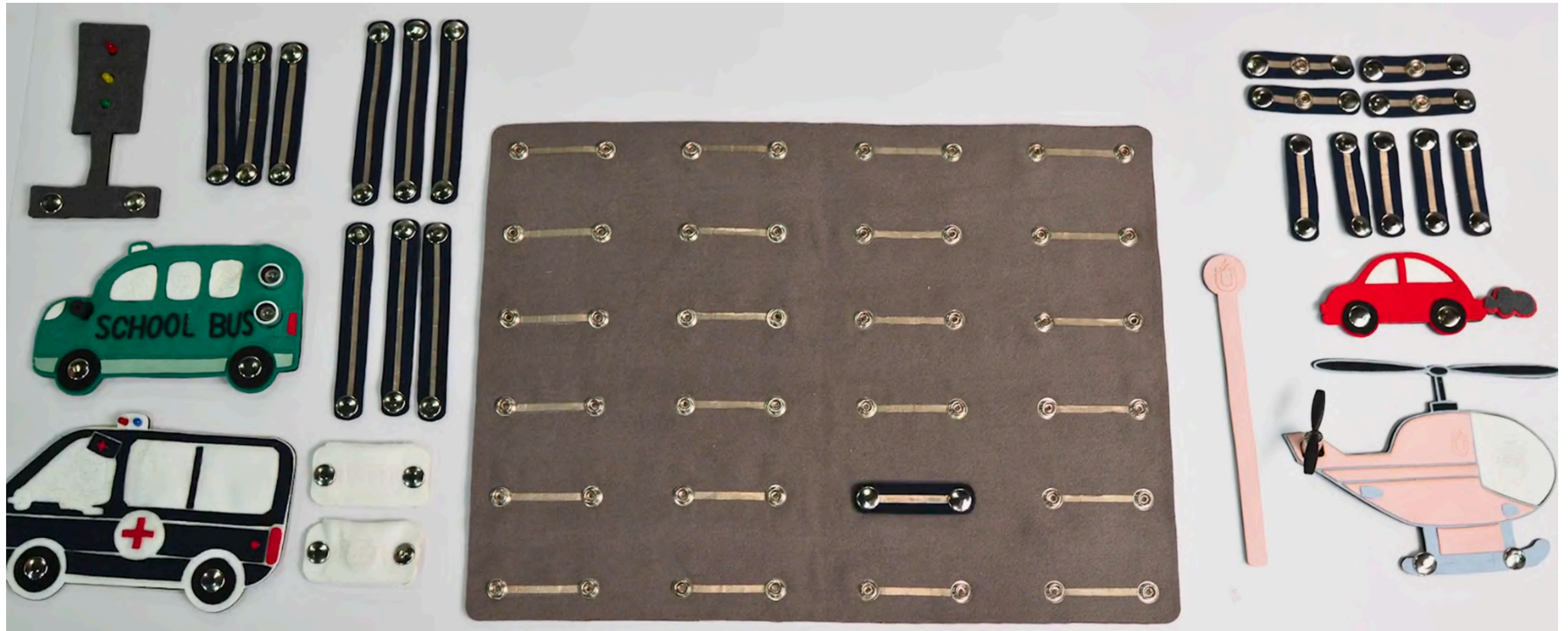




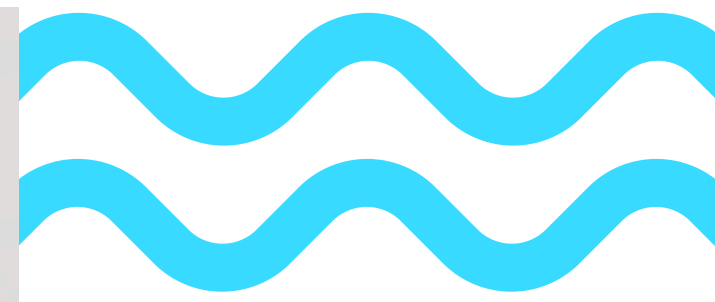
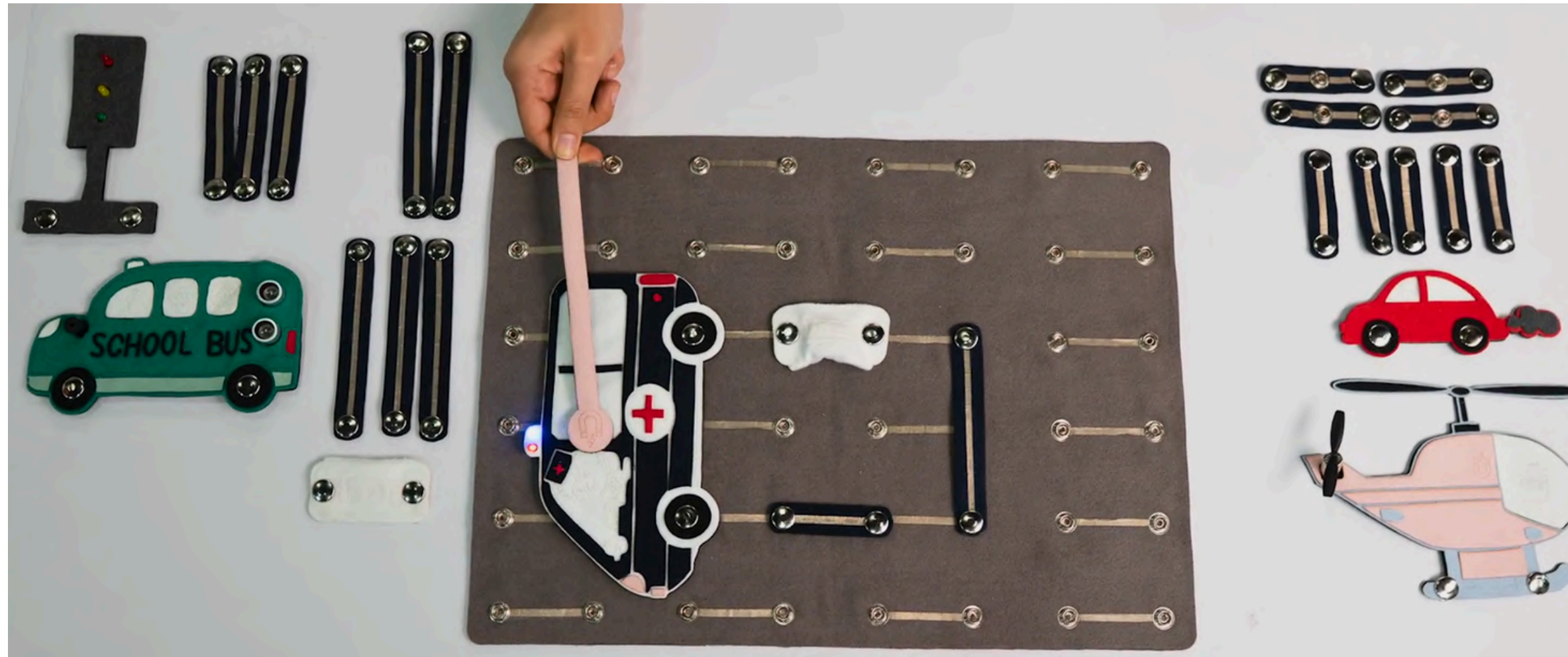
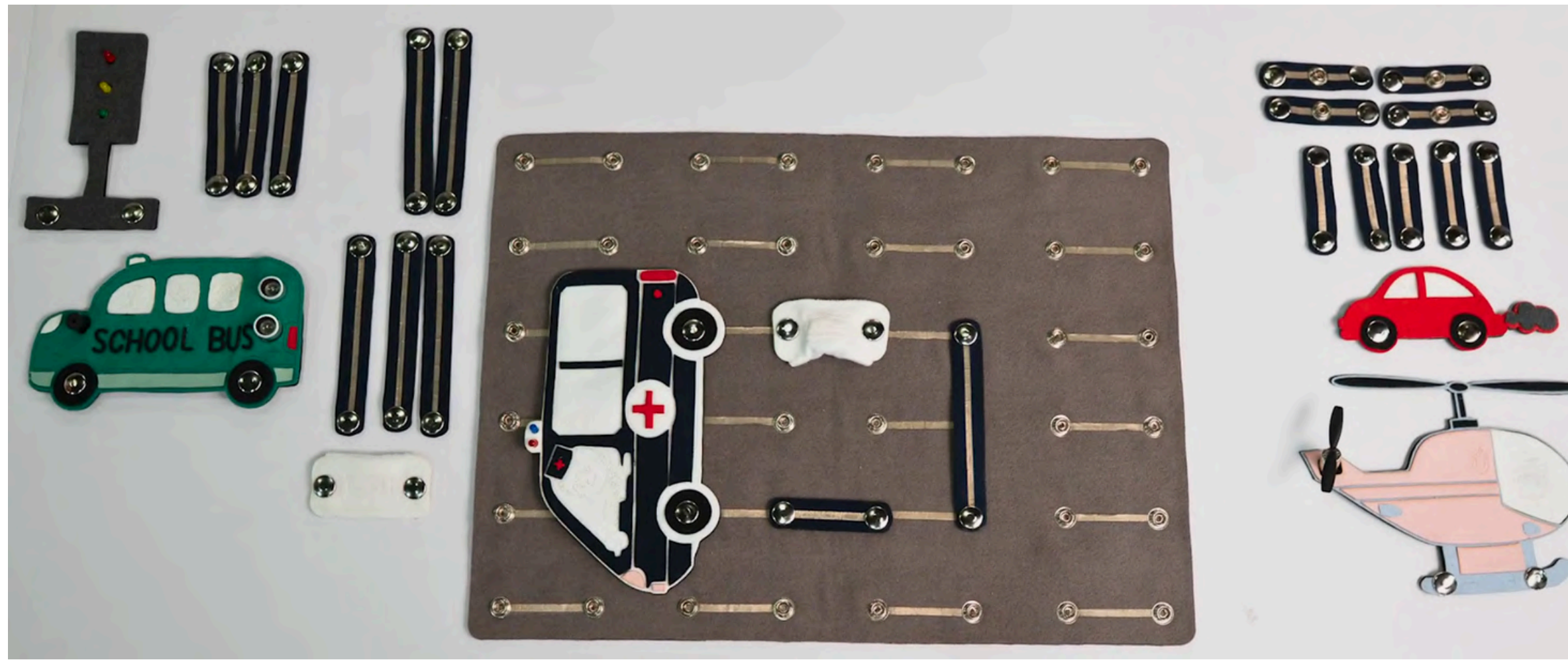




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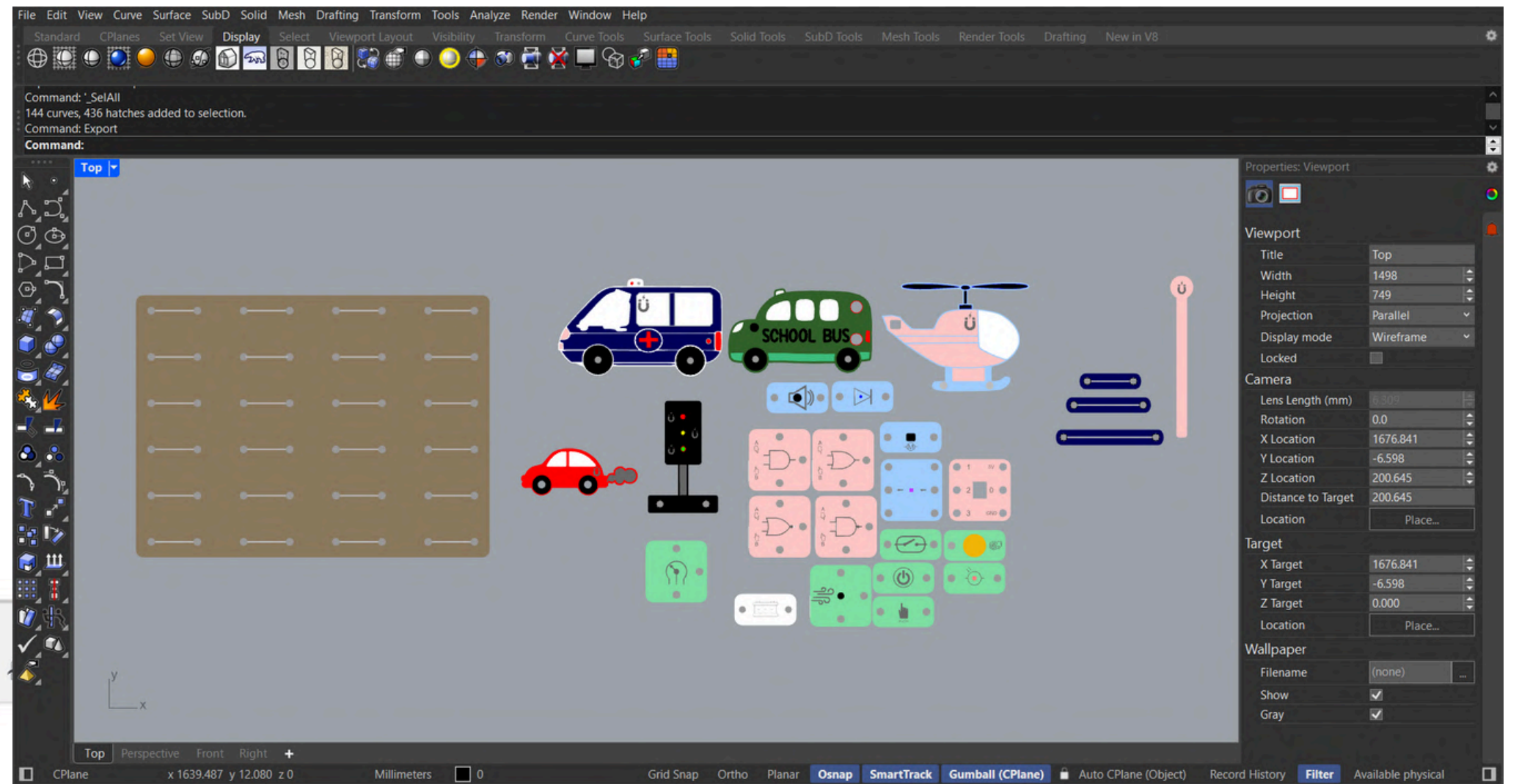
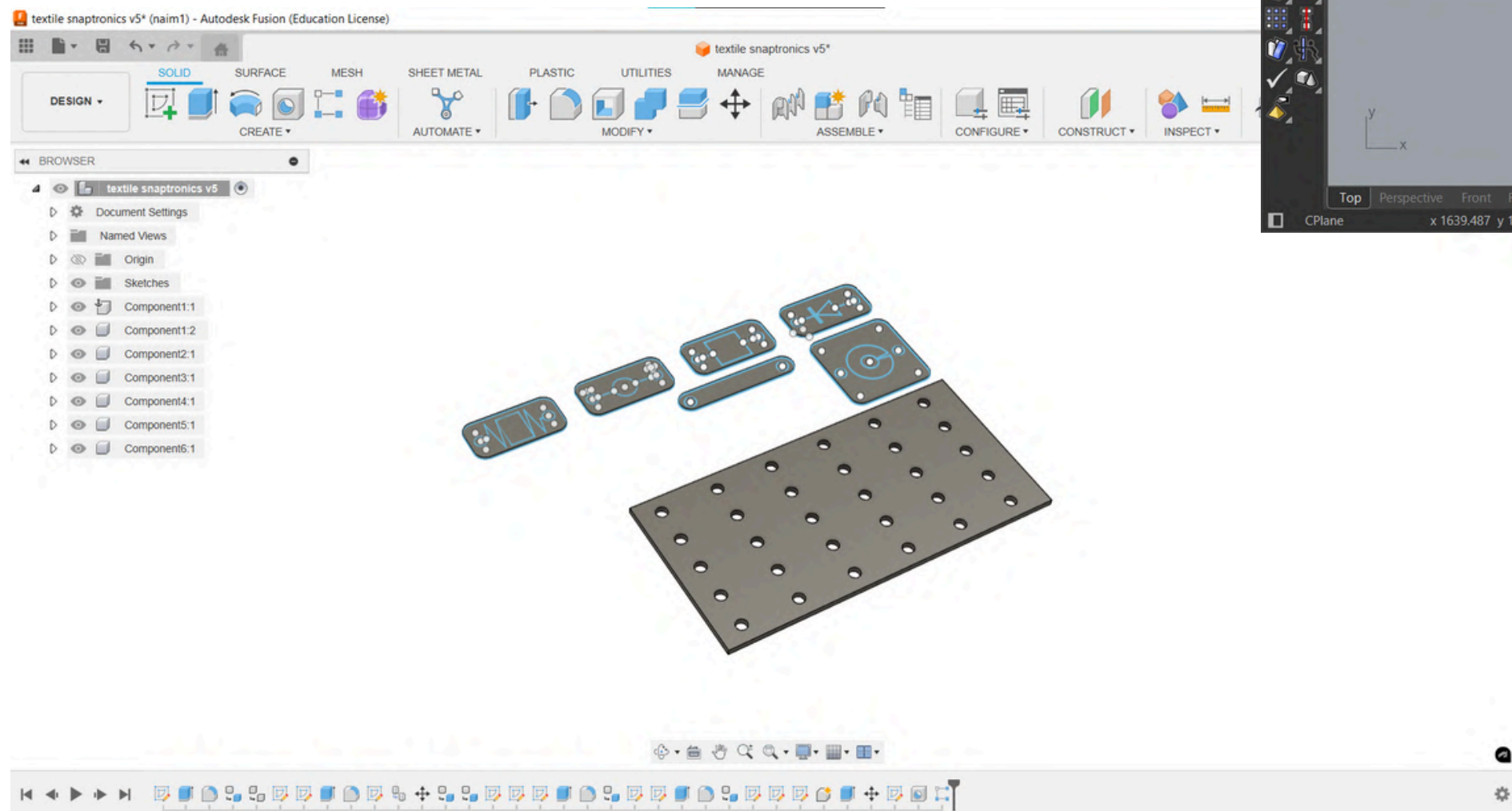






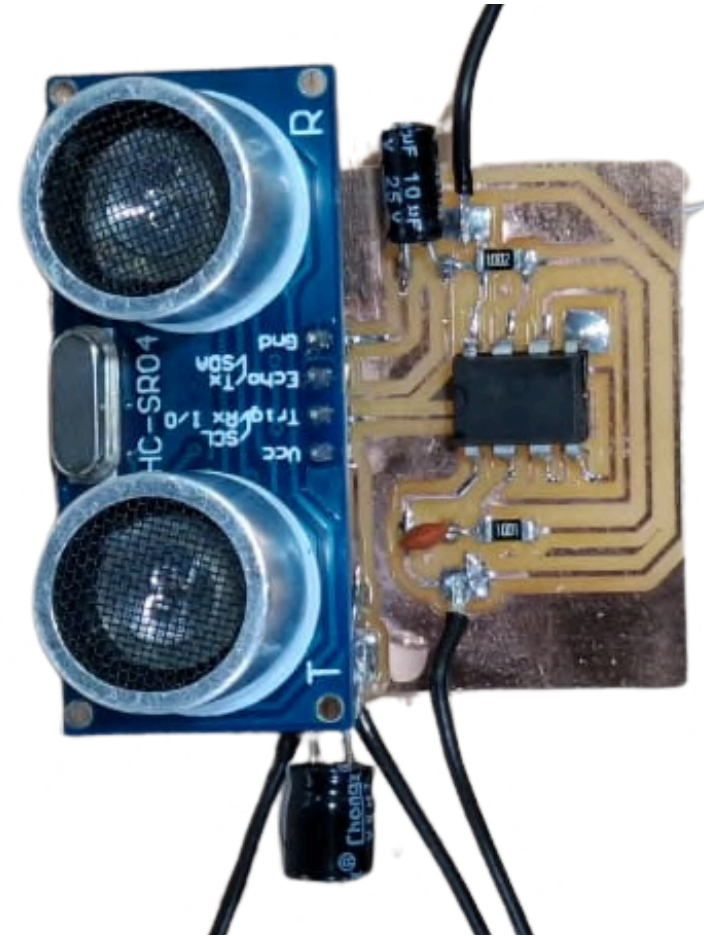
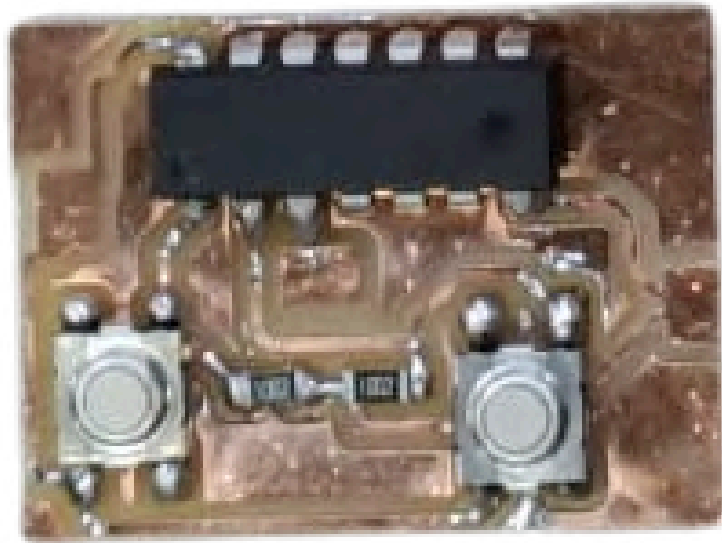
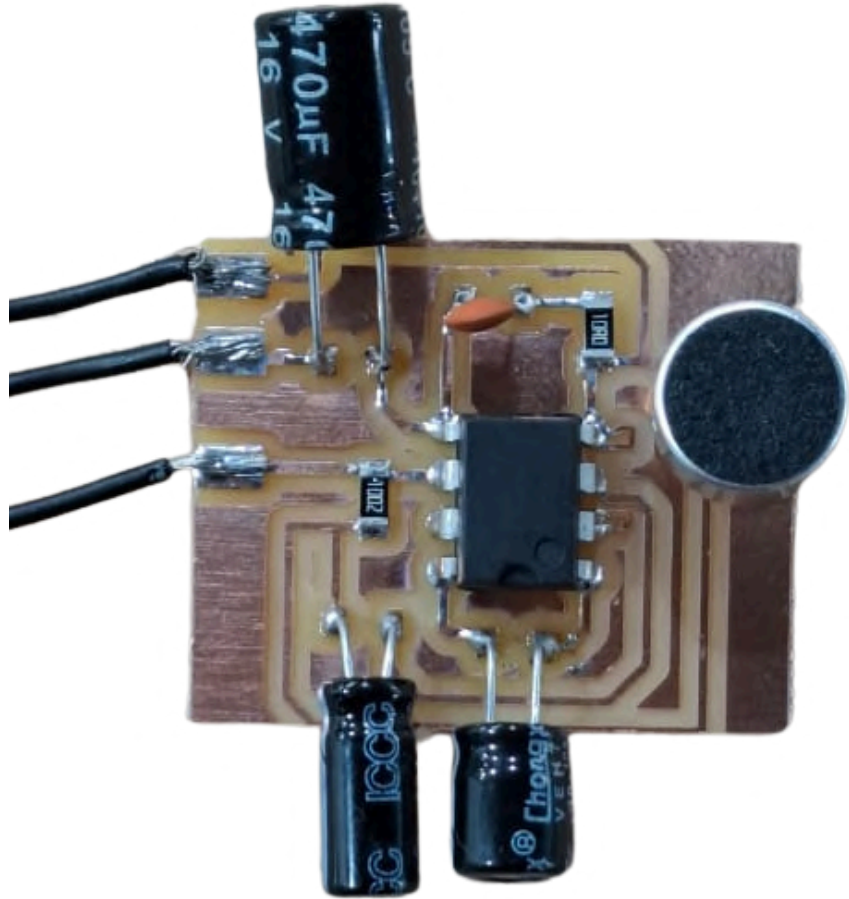


# Design



Fusion 360  
Rhino

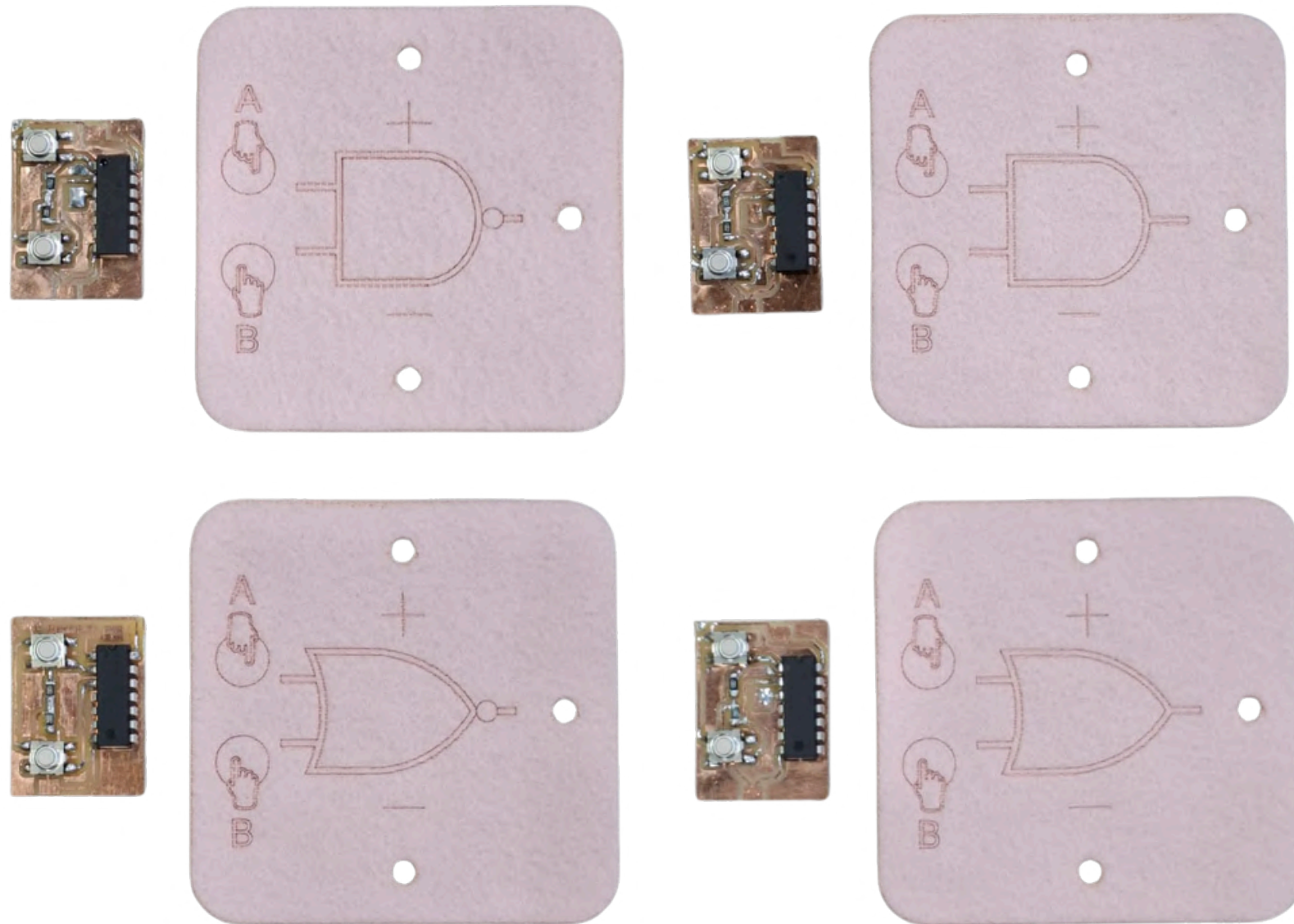
# PCB



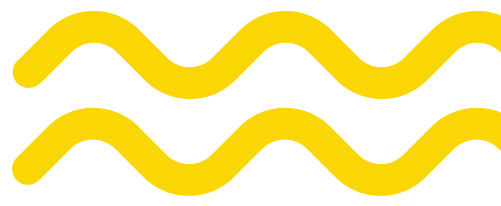
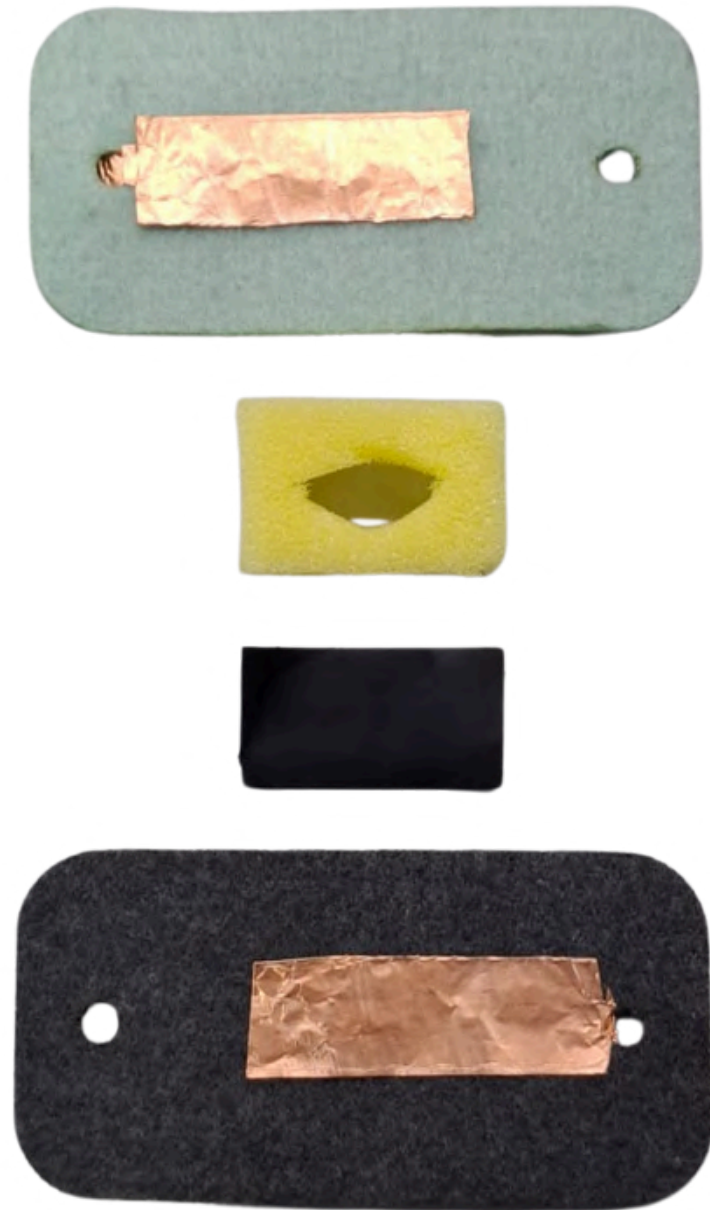
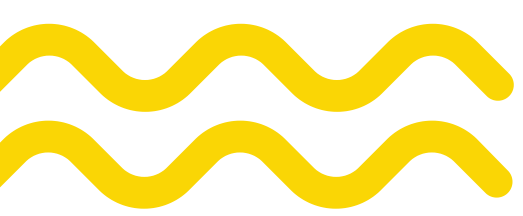




# Assembly











THANK  
YOU