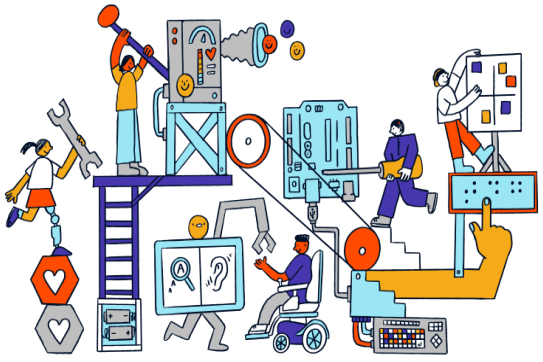
Product Manual: Squeeze/Grip Switch



engineering GOOD

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Table of Contents

1. Introduction

1.1 About the Community Partner

Our journey began in 1970 with the will of Mrs Shakuntala Bhatia. Under the banner of the Asian Women's Welfare Association, Mrs Bhatia and her peers, like Mrs Tambyah and Mrs Kula, identified gaps in the community to help the underserved.

The Association incorporated AWWA Ltd on 7 January 2015, a Singapore company limited by guarantee. In April of the same year, AWWA Ltd took over the operations and activities previously managed by the Association. In 2022, the Association was dissolved, and AWWA continues to address social service gaps as they arise, by being guided by our mission and strategic vision.

1.2 Product Description

This table clarifies the intended purpose and scope of the product:

WHY?	Special needs students with low grip strength are often excluded from using toys and/or face a lack of appropriate ways to express themselves.
WHO?	For special needs students with low grip strength who are learning to understand cause-and-effect and have fun.
WHAT?	A Squeeze switch with an additional 3.5mm male mono audio jack cable to trigger power on/off of other toys or playback audio.
HOW?	This product transforms common products like shampoo bottles with conductive fabric into working switches that trigger power of other toys or play back audio. Students use the squeeze switches to improve grip strength. It allows students to experience and understand the cause-and-effect.

1.3 Product Overview and Features

1. Connect to other electronic toys with a female 3.5mm mono audio jack cable.
2. Students can use it to improve grip strength and focus.
3. Can be triggered by squeezing the shampoo bottle in all directions in horizontal or in student hand grip position.

1.4 Bill of Materials (BOM)

Item	Supplier/Product Link	Price	Quantity
Shampoo bottle	Click Here - Link too long	6.21 SGD/4pcs	1
Conductive fabric	Clink Here - Link too long	9.70 SGD/1x1.1m	1
3.5mm male mono audio jack cable	Click Here - Link too long	5.42 SGD/10pcs	1
Sewing kit/Stapler	Click Here - Link too long	7.34 SGD/set	1
Cable tie	Click Here - Link too long	1.62 SGD/100pcs	1
Kapton tape 20mm Wide	Click Here - Link too long	2.22 SGD/roll	1
Copper tape 10mm Wide	Click Here - Link too long	3.19 SGD/roll	1

2. User Guide: Instructions for Use

2.1 Set Up Instructions

Use the following table for a step-by-step guide to setting up the product:

Setting up	
Connect the 3.5mm male mono audio jack cable to toys, light or playback button.	
Squeeze the shampoo tube to trigger it	

2.2 Maintenance

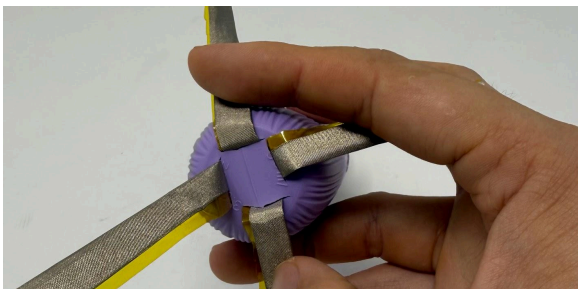
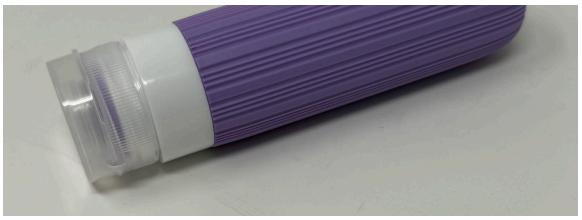
1. Pull the conductive fabric from the bottom of the shampoo tube if the connection is intermittent
2. Check the wire are the shampoo cap area if the wire came loose or break off

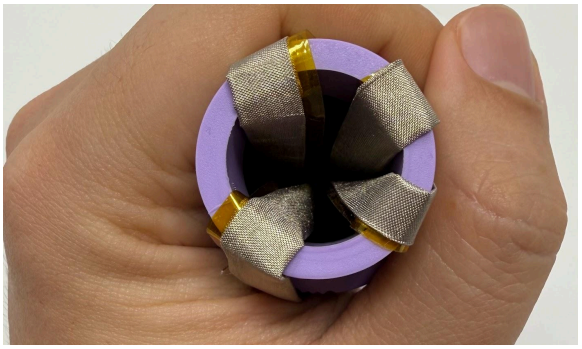
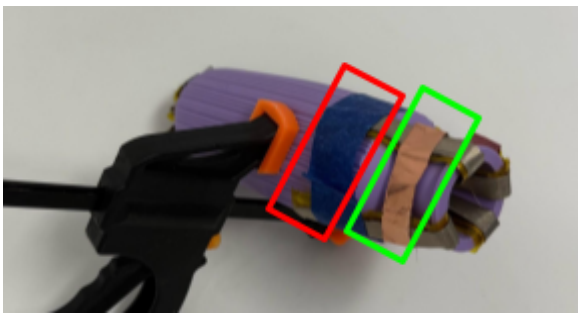
2.3 Troubleshooting

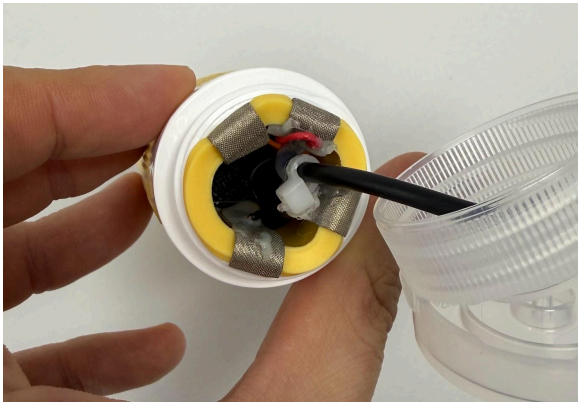
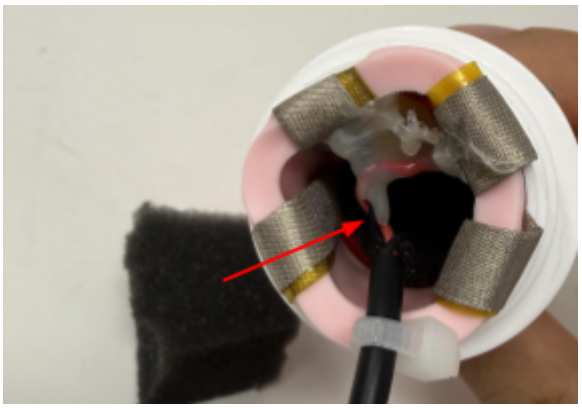
Problem	Possible Cause	What You Can Try
Soldered connection broken	Squeezed to hard and broke the soldering	Try to solder back or contact EG support
	Didn't solder properly	Try to solder back or contact EG support
Conductive fabric loosen after prolong usage and it always connected	The 2 piece conductive fabric connection after prolong usage	Tension the consecutive fabric at the end of the shampoo bottle.

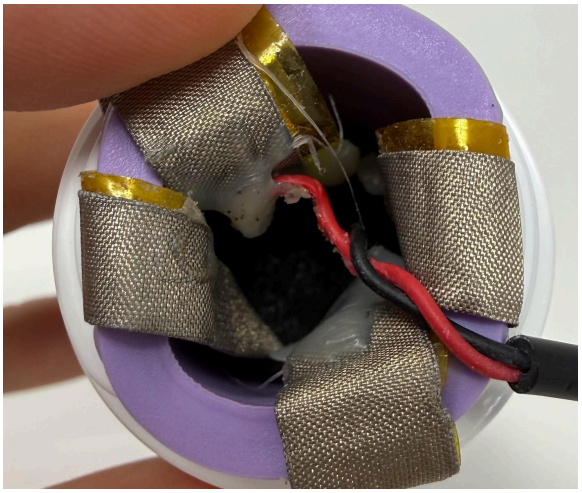
3. Maker Guide: Assembly Instructions

3.1 Assembly Guide

Steps	Images
Cut 4 strips of the conductive fabric 250mm by 30mm. Fold the conductive fabric 3 times half each fold as shown in the image. Tape the conductive fabric with kapton tape	
Cut 4 slots on the bottom of the shampoo bottle that are big enough to put the folded conductive fabric in. Put the fabric into it	 
Remove the shampoo bottle cap and the white cover part. Push/pull the fabric through the top of the shampoo hole into top, bottom, left and right have a strip of fabric.	

Steps	Images
	
Sew the bottom end of the fabric or staple it	
Use blue tape(red box) to secure the fabric on top side of the shampoo bottle into top, bottom, left and right have a strip of fabric. Use the copper tape(green box) to join top with right and bottom with left	

Steps	Images
Install back the white cover part to the shampoo bottle. Use a multimeter to check connectivity. Top with right and bottom with left will beep without squeezing. Top with bottom and left and right will beep only if squeezed	
Loop the 3.5mm male mono audio jack wire in the transparent cover and cable tie it.	
Insert the sponge into the shampoo bottle	

Steps	Images
Solder the 3.5mm male mono audio jack wire to the top and bottom or left and right conductive fabric Add hot glue to the soldering point to secure it.	

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This section provides the required legal notices and attribution for the open hardware design used to create this product.

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The hardware design used in this product is licensed under the CERN Open Hardware Licence Version 2 – Weakly Reciprocal (CERN-OHL-W 2.0) or later.
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- Complete Source Availability: The complete design files (Source), including schematics, assembly instructions, and any modifications made by Engineering Good, are available free of charge at a permanent online location: https://github.com/Engineering-Good/T4G-Squeeze-Grip-Switch
- Modification Notice: This version of the Squeeze/Grip Switch was modified by Engineering Good to include the 3.5mm mono audio jack functionality for triggering other toys. The full, modified source is available at the URL listed above.
- Full License Text: The complete legal text of the CERN Open Hardware Licence Version 2 – Weakly Reciprocal** follows this section.

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