

# Switch Adapted Whale Bubble Blower

## DESIGN RATIONALE

### Introduction

The Switch Adapted Whale Bubble Blower is an adapted “Balnore Bubble Machine” that can be activated with a 3.5mm switch. This adaptation is intended for users who have difficulty activating the button on the side of the bubble machine.

### Research

#### Existing Commercial Options

Title	Bubble Machine Adapted Reward
Link	<a href="https://specialneedstoys.com/can/bubble-machine-reward.html?gclid=EAlaIQobChMI5e-txMqI_AIVQsqUCR2HBAfTEAQYASABEgJoc_D_BwE">https://specialneedstoys.com/can/bubble-machine-reward.html?gclid=EAlaIQobChMI5e-txMqI_AIVQsqUCR2HBAfTEAQYASABEgJoc_D_BwE</a>
Vendor	TFH Special Needs Toys
Cost	\$99.37
Notes	Different option for a switch adapted bubble blower.

Title	Switch Adapted Toy Bubble Machine
Link	<a href="https://www.amazon.ca/Switch-Adapted-Machine-Adaptive-Special/dp/B086VW7FCB">https://www.amazon.ca/Switch-Adapted-Machine-Adaptive-Special/dp/B086VW7FCB</a>
Vendor	Amazon
Cost	\$122.08
Notes	Different option for a switch adapted bubble blower.

#### DIY Designs

Title	How to Switch Adapt a Bubble Machine for my Special Needs Daughter
Link	<a href="https://www.youtube.com/watch?v=7yFP0-Qda6c">https://www.youtube.com/watch?v=7yFP0-Qda6c</a>
Author	ParentXP
License	Not stated
Cost	£17.00 (\$28.11 CAD)
Notes	Bubble blower shown and pricing from the UK

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### Requirements

#### Goals

G01	Make a Balnore Bubble Blower more accessible by adapting it to be used with an assistive switch.
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#### Functional Requirements

F01	The toy can be operated with a 3.5mm assistive switch.
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#### Non-functional Requirement

NF01	The toy is easy to adapt so that others can do it themselves with our assembly manual.
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#### Constraints

C01	Cost less than \$50 so it is less expensive than commercially available options.
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### Ideation

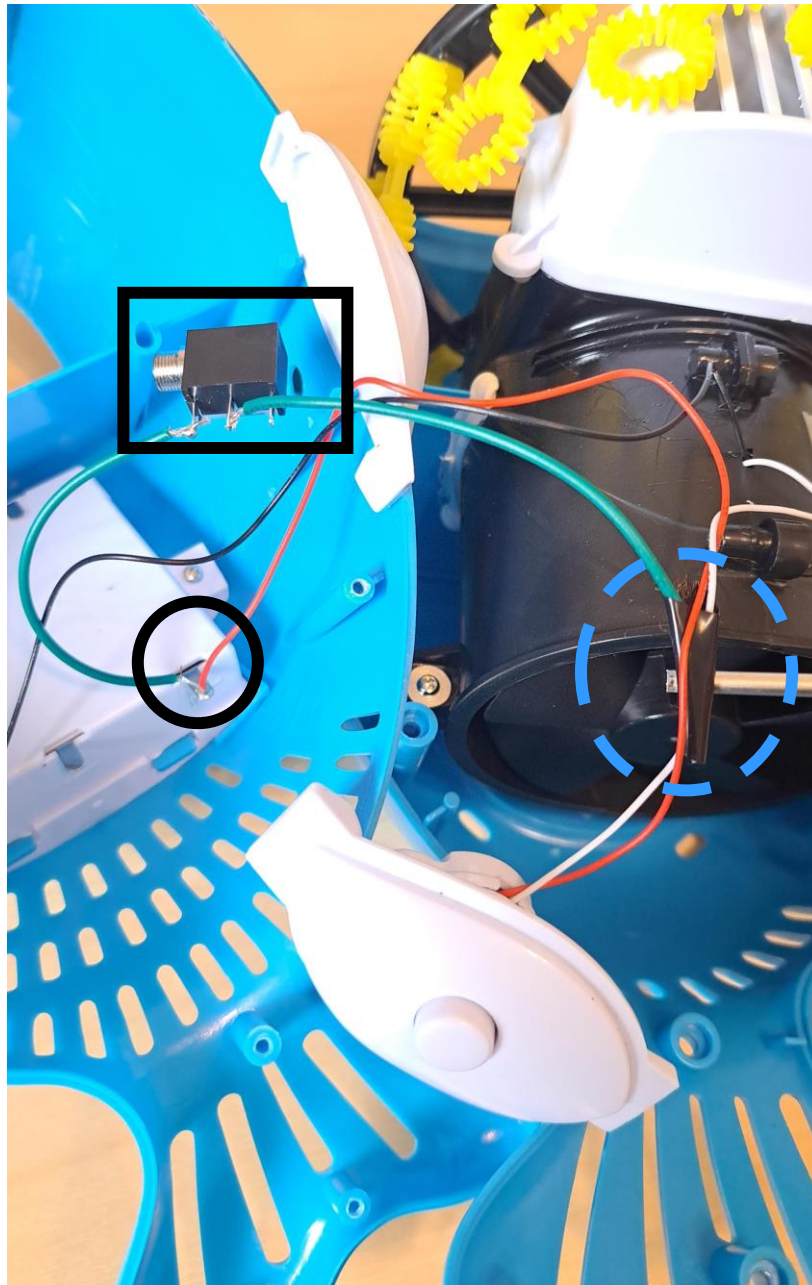
This bubble blower was chosen because bubble blowers are popular toys for people of all ages and abilities. This bubble blower is also smaller than other options currently available on our website making it cheaper and easier to ship to users.

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### Detailed Design

The below photo shows all connections for the 3.5mm mono jack. On the left (circled with a dashed blue line) is the connection between the mono jack and the white wire, which has been wrapped with electrical tape and is being supported with a screw driver to make it more visible. On the left (circled by a solid black line) is the connection of the mono jack to the battery pack. Also on the left (surrounded by a solid black square) is the mono jack with soldered connections, and the hole for the mono jack drilled in the case of the toy.



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The photo below shows the reassembled toy and an assistive switch. The 3.5mm mono jack can be seen above the white fin of the whale. The original switch is on the other fin of the whale. The end cost of the adaptation is less than \$30.

