SST\_Project Description

**(Website project blurb)**

**Overview**

The Simple Switch Tester is a device that enables the user to test the switch they have built, in order to determine if they assembled it successfully and that all the components are working. The device can be used at build events to test a series of switches, or at home during a digital build event. The switch tester is a simple device made up of six main components: the 3.5 mm jack, a AAA battery holder, two AAA batteries, an LED, a 68 Ω resistor, and a tactile switch working in parallel that can test the batteries as well as the switch. The small design (11 x 4.2 x 2.1 cm) affords the user the ability to transport it easily, whether locally or in carry-on luggage. The total cost of the device is well below other equivalent devices on the market by sourcing inexpensive components and utilizing FDM 3D printing.

**Usage**

When a switch is plugged into the 3.5 mm jack and activated, an LED will light up indicating a successfully operating switch. The lithophane cover plate enables the light to shine through, determining if the battery and/or assistive switch is working. The snap-fit design makes it easy to access the batteries to change them.

Download the PDF for the detailed user guide.

**Build Instruction**

After the electronic circuit is built, the lithophane cover plate is super glued onto the enclosure and the two enclosure pieces snap together.

Download the PDF for detailed assembly instructions.

**BOM**

1 - BC2AAAW AAA Battery Holder

1 - Tactile Switch B3F-5050

1 - 35RAPC2AV 3.5 mm jack

1 - LED (Red or Other)

1 - CF14JT68R0 Resistor

2 - AAA Batteries

1 - 3D Printed Cover plate (6. g) (26m)

1 - 3D Printed Enclosure Top (15 g) (1h13m)

1 - 3D Printed Enclosure Bottom (22 g) (1h33m)

Optional:

1 - 3D Printed Cover plate (hole) (6.05 g) (26m) - for black or dark filament

Download the PDF for the detailed BOM (technical and visual).

**Tools**

Soldering iron

Solder

Wire strippers

Flush cutters

Pliers

3D printer

The parts were designed to be printed without support on a 0.4 mm nozzle, and a vertical resolution of 0.2 mm, and two walls/shells. An entire set of pieces (3 pieces total) for a single switch tester takes 3 hours and 12 minutes to print and costs approximately $1.10 (PLA).

**Cost**

The device costs $15.99/unit, and at 20 units it costs $6.59/unit, including 3D printing costs (minimum for free shipping).

**Approximate build time**

The approximate build time is 30 minutes to create the circuit and assemble the printed pieces.