

Rocket-Switch-Interface

REQUIREMENTS SPECIFICATIONS

1. Introduction

The Rocket Switch Interface is intended to be a low-cost switch interface, alternative to commercial options. The device needs to perform the main functions offered by commercial devices.

2. Problem Definition

Who

Who will be using the product?

- The Switch Interface is intended to be used primarily by anyone wishing to use adaptive switches and switch control software, to interface with computers or smartphones.

What

What must the device do?

- The source Switch Interface must convert the assistive switch activations, to inputs readable by the host devices (computers or smartphones).
- The Switch Interface must be easy to use.

Where

Where will the device be used?

- The Switch Interface is primarily intended to be used in an assistive switch user's home, school or office environment.

When

- The Switch Interface is primarily intended to be used during computer or smartphone access/usage sessions.

Why

Why will the device be used?

- The Switch Interface is primarily intended to be used as a low cost, open source switch interface option, alternative to commercial options.



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3. Functional Properties

3.1 Goals

| | |
|-----|--|
| G01 | Cost-effective |
| G02 | Cost Effective (Low cost comparing to alternative options) |
| G03 | Easy to use |
| G04 | Easy to assemble |
| G05 | Minimal size |

3.2 Functional Requirements

| ID | Description |
|-----|---|
| F01 | The device shall have one or more input channels. |
| F02 | The device shall send output data via USB HID to the host device. |
| F03 | The device shall be compatible with switch control software. |
| F04 | The device switch shall incorporate minimal input protection. |
| F05 | The device latency shall not exceed 50 milliseconds. |
| F06 | The device shall support visual feedback for user interactions. |
| F07 | The device shall not consume more than 20 mA of current from the USB port. |
| F08 | The device shall be able to perform Mouse button, joystick button and keyboard emulation. |
| F09 | The device shall weigh less than 25 grams. |
| F10 | The device shall be smaller than 50mm x 40mm x 20mm. |

3.3 Non-functional Requirement

| ID | Description |
|------|--|
| NF01 | Shall look professional with tight tolerance on case size. |
| NF02 | Input ports should be legibly labelled for easy identification |

3.4 Constraints

| ID | Description |
|-----|---|
| C01 | Shall be able to be built as a single unit for ≤ \$40 CAD |
| C02 | <i>Shall be easily manufacturable by a moderately skilled maker</i> |

