



# Adaptive Case for PS4 Controller

## DESIGN RATIONALE

### Introduction

The Adaptive Case for PS4 Controller is an inexpensive and non-destructive controller modification designed to make the stock PS4 controller more accessible. This device aims to assist those with limited hand dexterity by enlarging and spreading out the buttons on the PS4 controller. This device can be mounted to a surface so that both hands can freely operate the controls.

### Research

Device	Price	Notes	Link
XAC – Commercial 	~\$130 CA	The Xbox adaptive controller allows users with limited dexterity fully customize their gaming set up with different assistive switches and joysticks. This device costs around \$130 plus the additional cost of external devices.	<a href="#">Xbox Adaptive Controller   Xbox</a>
One Handed Ps4 Controller 	DIY	This DIY device is inexpensive and fully 3D printed. It targets users with one hand or users with more dexterity in one hand.	<a href="#">One-handed DualShock 4 by Akaki   Download free STL model   Printables.com</a>  <a href="#">One-handed PS4 Controller Modification - Makers Making Change</a>

### Requirements

#### Goals

G01	Allow users with limited hand dexterity operate the PS4 controller
G02	Nondestructively modify the PS4 controller to make it more accessible
G03	Assist users who find it challenging to hold a controller

#### Functional Requirements

F01	Must fit the standard PS4 controller (DualShock 4)
F02	Must allow users to operate the PS4 controller with limited dexterity and force

#### Non-functional Requirement

NF01	Must be easy to clean
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### Constraints

C01	Must be printable on standard Maker 3D printers
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### Version 1.0

The Adaptive Case for PS4 Controller is designed by [Cisco](#) on [Printables](#) under the [GNU GENERAL PUBLIC LICENSE](#).

This device encapsulates the controller in an adaptive case that can be mounted to a surface, so users do not need to hold the controller. It has multiple joystick options to help tailor the device to the user.

### Device Testing

#### Assembling

- Little difficult to feed in Button Tails
  - Broke R1 tail while feeding into its slot.
  - Using sandpaper to smooth rough parts on these tails helps.
  - Using a zip tie to clear the tunnels also helps.
  - May take a few extra tails to install properly.
  - Once installed, they work great.
- Joysticks
  - Very secure when properly attached.
  - Very difficult to thread screws into joystick toppers.
  - Broke two different mounting screw while attaching the joysticks to the controller.
  - Threads broke off inside the joystick toppers. All had to be reprinted.

**Notes:** The designer has been contacted and is willing to modify the print files so threads can be printed sideways to increase strength. The designer will also increase the thread tolerances to make the joysticks easier to attach.

**Update:** Fusion360 files have been updated to add 0.15mm clearance to the joystick threads. This has been tested on multiple printers and is working well.

#### Operating

- All buttons worked as intended.

### Opportunities for Improvement

- Allow Touch Pad to be pressed.
- As only L2 and R2 bumpers can be triggered, it would be nice to allow access to the L1 and R1 bumpers.

