**Title**

Oak Compact Joystick - U

**Subtitle**

A medium-sized, proportional USB analog joystick that can be used for gaming. This joystick has a large range of motion and is compatible with the Xbox Adaptive Controller.

## Device Specifications

Build Time:

 < 1hr

1-4 hr

 5-10hr

 >10hr

Cost:

 $0 - $10

 $11 - $25

 $26 - $50

 $51 - $100

 $101 - $250

 $250+

Stage:

Skills: Soldering, 3D printing, software

Need: Agility/Dexterity

Disability: Mobility/Physical

Difficulty: Intermediate

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Usages: Recreation and Leisure, Computer Access

Type: Gaming

Designer: Makers Making Change

## Device Details

### Overview

The Oak Compact Joystick – U is a medium-sized proportional input USB gaming joystick that has 4 interchangeable toppers and is compatible with both PC and the XAC. It has an approximately ±25° range of motion and moderate force to operate. It has a USB connection and can be used to play games with the Xbox Adaptive Controller (XAC). It can also be used directly with PC for some games.

For the analog non-USB version of this joystick with a 3.5 mm jack connection please see the Oak Compact Joystick – A.

### Usage

1. Plug a USB-C to USB-A cable into the USB-C port on the joystick as shown above.
2. Plug the USB-A end of the cable into the host device (such as the Xbox Adaptive Controller).
3. Wait for joystick to initialize, approximately 15 seconds.
4. Ensure the arrow on the joystick is pointing in the “up” direction, away from the user.
5. Mount the device if needed. Instructions go over three mounting methods:
   1. Table top mounting – non slip pads
   2. Tabletop mounting – hook and loop fasteners
   3. Camera mount with ¼-20 thread
6. Move joystick as you would with a standard controller.

### Cost

The cost of this device is approximately $69.44 CAD ($61.44 in components, $8 for component shipping).

A more detailed breakdown is available in the bill of materials.

### Build Instructions

The Oak Compact Joystick – U consists of 3D printed parts and electronic components. The Assembly Guide is available at the GitHub repository.

#### Skills Required

* Soldering
* 3D printing
* Microcontroller programming (Arduino)

#### Time Required

3D printing time is approximately 5 hours.

Assembly time is approximately 1 hour.

#### Tools

* Wire Strippers
* Soldering Iron
* #3 Philips Head Screwdriver
* (Optional for mount adapter) ¼-20 Screw or Hex Bolt, at least ½” long

#### Components

* Adafruit Mini Analog Joystick
* SeeedStudio XAIO RP2040 with Included Male Headers
* 24 Gauge Wire
* 2x Male-Male Dupont Cables
* 2x #4 3/8” Screws
* USB-C Cable – 6 ft

Optional parts for mounting:

* ¼-20 Tee Nut
* 2x M3 x 10mm Screws
* 2x M3 Nuts

#### 3D Printing

* Oak Enclosure Top
* Oak Enclosure Bottom
* 2x Oak MCU Mounts
* Optional Topper Prints
  + Convex
  + Concave
  + Cylindrical
  + Goalpost

#### Programming

A custom Arduino code (Open\_AT\_Joystick\_Software\_Oak.ino) needs to be flashed using Arduino IDE.

### Design

The enclosure was designed using Autodesk Fusion 360.

### Attribution

Designed by Makers Making Change

Documentation by Neil Squire / Makers Making Change