

# Birch Mini Joystick - A

**Version: V0.2**

**Last Updated: 2023-Mar-31**

Unit Cos

## Total Cost

**Total Print time (hr)**

## Total filament (g)

## Commercial Parts

ID	Part Name	Part Type	QTY	QTY/PKG	\$/PKG	PKG QTY	\$/Unit	Extended	Total	Link	
	Mini 2-Axis Analog Thumbstick	Electrical	1	1	\$ 3.84	1	\$ 3.84	\$ 3.84	\$ 3.84	<a href="https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176">https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176</a>	
	Analog Mini Thumbstick Breakout Board	Electrical	1	1	\$ 2.16	1	\$ 2.16	\$ 2.16	\$ 2.16	<a href="https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176">https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176</a>	
	Universal Proto-board PCB 4cm x 6cm	Electrical	1	3	\$ 3.60	1	\$ 1.20	\$ 1.20	\$ 3.60	<a href="https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176">https://www.digikey.ca/en/products/detail/adafruitindustriesllc/1176</a>	
	3.5 mm stereo cable (4 conductor, TRRS, M-M)	Electrical	0.5	1	\$ 6.80	1	\$ 6.80	\$ 3.40	\$ 6.80	<a href="https://www.digikey.ca/en/products/detail/tenflexinc/1176">https://www.digikey.ca/en/products/detail/tenflexinc/1176</a>	
	24 AWG Wire, 1 foot	Electrical	1	1	\$ 0.72	1	\$ 0.72	\$ 0.72	\$ 0.72	<a href="https://www.digikey.ca/en/products/detail/cnc1176">https://www.digikey.ca/en/products/detail/cnc1176</a>	
	M2 x 8 mm Machine Screws	Mechanical	8	1000	\$ 12.99	1	\$ 0.01	\$ 0.10	\$ 12.99	<a href="https://a.co/d/1mQQYbU">https://a.co/d/1mQQYbU</a>	
	(Optional for mount) M3 hex nut x2	Mechanical	0	100	\$ 6.65	0	\$ 0.07	\$ -	\$ -	<a href="https://www.digikey.ca/en/products/detail/b-f-fabrics/1176">https://www.digikey.ca/en/products/detail/b-f-fabrics/1176</a>	
	(Optional for mount) M3x12mm screw x2	Mechanical	0	1	\$ 1.11	0	\$ 1.11	\$ -	\$ -	<a href="https://www.digikey.ca/en/products/detail/apr/1176">https://www.digikey.ca/en/products/detail/apr/1176</a>	
	(Optional for mount) Tee nut	Mechanical	0	1	\$ 0.48	0	\$ 0.48	\$ -	\$ -	<a href="https://www.homedepot.ca/product/paulin-14">https://www.homedepot.ca/product/paulin-14</a>	
	Digikey shipping (if spending less than \$100)	Shipping	1	1	\$ 8.00	1	\$ 8.00	\$ 8.00	\$ 8.00		

## 3D Printed Parts ESTIMATED PRICING USING 1KG ROLL COST:

\$	25.00
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ID	Part	Material	QTY	Mass (g) / Unit	Time / Unit		Print Time (Min)	Estimated Unit Price	Total Price	Link	
	Birch_Enclosure_Bottom v1.0	PLA	1	14.9	127		106	\$ 0.37	\$ 0.37		
	Birch_Enclosure_Top v1.0	PLA	1	10.6	74		67	\$ 0.27	\$ 0.27		
	Inner cover disk v1.0	PLA	1	0.5	4		4	\$ 0.01	\$ 0.01		
	(Optional) Joystick_Camera_Mount	PLA	0	8.5	54		0	\$ 0.21	\$ -		
	(Optional) Topper - small dome	PLA	0	0.6	8		0	\$ 0.02	\$ -		
	(Optional) Topper - medium dome	PLA	0	1.7	17		0	\$ 0.04	\$ -		
	(Optional) Topper - large dome	PLA	0	4.9	37		0	\$ 0.12	\$ -		
	(Optional) Topper - ring	PLA	0	1.5	16		0	\$ 0.04	\$ -		
	(Optional) Topper - concave	PLA	0	1	10		0	\$ 0.03	\$ -		
								\$ -	\$ -		

## Custom Printed Circuit Board (PCB)

[illegible]

## Tools for Assembly

Flush cutters										
Wire strippers										
Soldering iron										
Philips head screw driver										
3D printer										
(Optional for mount adapter) 1/4-20 screw or hex bolt, at least 1/2" long									<a href="https://www.homedepot.ca/product/paulin-1-4-20-1-2-hex-bolt/504110000">https://www.homedepot.ca/product/paulin-1-4-20-1-2-hex-bolt/504110000</a>	

Alternatives (if there are other sources for some parts link them below)

ID	Part and description	Part Type	QTY	QTY/PKG	\$/PKG	PKG QTY	\$/Unit	Extended	Total	Link	
	Universal Proto-board PCB 4cm x 6cm - Amazon	Electrical	1	10	\$ 11.31	1	\$ 1.13	\$ 1.13	\$ 11.31	<a href="https://a.co/d/ftDjiYV">https://a.co/d/ftDjiYV</a>	
	Analog Mini Thumbstick Breakout Board - Adafruit	Electrical	1	1	\$ 1.50	1	\$ 1.50	\$ 1.50	\$ 1.50	<a href="https://www.adafruit.com/product/3246">https://www.adafruit.com/product/3246</a>	
	Mini 2-Axis Analog Thumbstick	Electrical	1	1	\$ 2.50	1	\$ 2.50	\$ 2.50	\$ 2.50	<a href="https://www.adafruit.com/product/2765">https://www.adafruit.com/product/2765</a>	
	24 Guage wire	Electrical	1	6	\$ 22.99	1	\$ 3.83	\$ 3.83	\$ 22.99	<a href="https://a.co/d/0x1zLnq">https://a.co/d/0x1zLnq</a>	
	Jumper wire kit - varying lengths	Electrical	10	560	\$ 18.99	1	\$ 0.03	\$ 0.34	\$ 18.99	<a href="https://a.co/d/i4QJhrz">https://a.co/d/i4QJhrz</a>	
	Jumper wire kit - varying lengths	Electrical	10	70	\$ 6.60	1	\$ 0.09	\$ 0.94	\$ 6.60	<a href="https://www.digkey.ca/en/products/detail/glo">https://www.digkey.ca/en/products/detail/glo</a>	
	3.5 mm 4C TRRS M-M Cable	Electrical	0.5	1	\$ 2.89	1	\$ 2.89	\$ 1.45	\$ 2.89	<a href="https://www.primecables.ca/p-370661-cab-aud">https://www.primecables.ca/p-370661-cab-aud</a>	

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	(Optional for mount) M3x10mm screws and nuts x2			Mechanical		4	340	\$	22.14	1	\$	0.07	\$	0.26	\$	22.14	<a href="https://a.co/d/OB9sK8N">https://a.co/d/OB9sK8N</a>		