

Bill of Materials

August 2024

Part Name	Vendor	Part Number	Price (\$USD)
Optics			
Mounted Zero-Order QWP	Thorlabs	WPQ05ME-780	291.16
2"x 2" Diffuse Polarizer Sheet	Thorlabs	LPNIRE2X2	102.48
<i>Optics Total</i>			393.64
Mechanics and Opto-Mechanics			
24V DC Motor	Amazon	XD3420	29.53
Hall Switch	YOYCart	CHE12-10NB-H710 NJK-5002D	4.66
2" Lens Tube	Thorlabs	SM05L20	21.07
2x ½" Optical Post	Thorlabs	TR20/M	10.76
2x ½" Post Holder and Base	Thorlabs	PH2, BA1S	29.16
2x Timing Pulley, 8mm Shaft†	McMaster	1277N721	35.04
Drive/Timing Belt†	McMaster	6484K2	6.18
2x Ball Bearing†	McMaster	5972K104	12.16
6x M4 Hex Screws	McMaster	91290A164	0.96
2x M4 Phillips Screws	McMaster	92467A219	0.38
4x M4 Nuts	McMaster	90591A255	0.06
<i>Opto-Mechanics Total</i>			149.96
Custom Parts		Extra Information	
PLA Photodiode Mount (Raw Material)	Custom	\$0.02/g, 34.3g	0.69
Aluminum Body (Raw Material)	Custom	Machine Shop Quote	18.09
Machining Time*	N/A	\$25.32/hr, 7hr	177.24
<i>Custom Parts Total</i>			196.02
Raspberry Pi			
Raspberry Pi 3 B	DigiKey	2648-SC0022-ND	35.00
MCC118 DAQ HAT	DigiKey	1286-6069-410-000-ND	99.00
<i>Raspberry Pi Total</i>			134.00
Photodiode Electronics			
Printed Circuit Board	PCBWay	Custom Order, 2-Layer	5.00
OPT101 Photodiode-TI Amp	DigiKey	296-23090-5-ND	8.57
RM107 Rotary Switch	DigiKey	CKN10705-ND	3.38
Header Connectors x2	DigiKey	900-0022232021-ND	0.42

Part Name	Vendor	Part Number	Price (\$USD)
SMD Resistors**	DigiKey	Mixed Value**	1.10
SMD Capacitors**	DigiKey	Mixed Value**	1.99
<i>Electronics Total</i>			<i>20.46</i>
Total (\$USD)			894.08

†Exact McMaster parts may no longer be in production. As long as parts have the same properties (Same pitch, OD, shaft diameter; correct belt length), any combination will work.

*Note that machining costs include modification of one timing pulley and lens tube.

**See github: [circuit-pcb-2024>to-order>SWPBOM.csv](#) for detailed part breakdown.