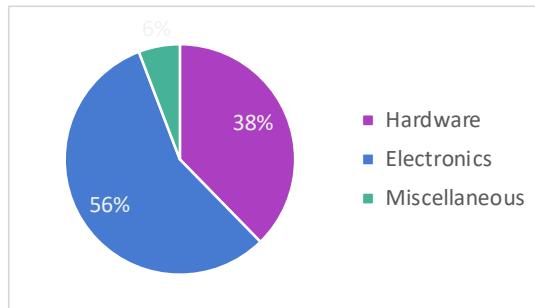


## Sand Table Bill of Materials

By Ravi Dudhagra (<https://github.com/rdudhagra/Sand-Table>)

	Item	Link	Price	Quantity	Total	Remarks
Table Hardware	1x8 pine board (8'), square edges	<a href="https://www.homedepot.com/p/1-in-x-8-in-x-8-ft-Select-Pine">https://www.homedepot.com/p/1-in-x-8-in-x-8-ft-Select-Pine</a>	\$ 22.22	2	\$ 44.44	If you have proper woodworking tools, you could probably get away with lower-quality boards
	1/2" sanded plywood, 4'x8'	<a href="https://www.homedepot.com/g/12mm-Sanded-Plywood-1-2-in-Category-A-B-A-8-ft-Actual-0-472-in-x-48-in-454532/2034035">https://www.homedepot.com/g/12mm-Sanded-Plywood-1-2-in-Category-A-B-A-8-ft-Actual-0-472-in-x-48-in-454532/2034035</a>	\$ 35.95	1	\$ 35.95	
	5.0mm underlayment plywood, 4'x4'	<a href="https://www.homedepot.com/g/16-PL-X-Underlayment-Common-5-0mm-x-4-ft-A-8-ft-Actual-0-186-in-x-47-75-in-x-48-in-448867/203037787">https://www.homedepot.com/g/16-PL-X-Underlayment-Common-5-0mm-x-4-ft-A-8-ft-Actual-0-186-in-x-47-75-in-x-48-in-448867/203037787</a>	\$ 10.48	1	\$ 10.48	Any thin wood will work, this is a pretty economical choice
	Finishing nails	<a href="https://www.homedepot.com/p/Grip-Rite-13-x-2-in-6-Penny-Bright-Steel-Finish-Nails-1-lb-Pack-6F1/100027781">https://www.homedepot.com/p/Grip-Rite-13-x-2-in-6-Penny-Bright-Steel-Finish-Nails-1-lb-Pack-6F1/100027781</a>	\$ 4.75	1	\$ 4.75	
	Gray spray paint primer	<a href="https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Flat-Grey-Primer-General-Purpose-Spray-Paint-334027/307244825">https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Flat-Grey-Primer-General-Purpose-Spray-Paint-334027/307244825</a>	\$ 3.98	6	\$ 23.88	You'll need more than you think
	Gloss black spray paint	<a href="https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Gloss-Black-General-Purpose-Spray-Paint-334026/307244831">https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Gloss-Black-General-Purpose-Spray-Paint-334026/307244831</a>	\$ 3.98	4	\$ 15.92	These are probably not the best options...but choose whatever you need for the finish that you want to achieve
	Clear coat spray paint	<a href="https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Gloss-Clear-General-Purpose-Spray-Paint-334029/307244797">https://www.homedepot.com/p/Rust-Oleum-Painter-s-Touch-2X-12-oz-Gloss-Clear-General-Purpose-Spray-Paint-334029/307244797</a>	\$ 3.98	1	\$ 3.98	Makes the finish slightly less glossy, but improves durability
	M8 Nuts	<a href="https://www.homedepot.com/p/Everbilt-M8-10-9-Zinc-Metric-Hex-Nut-5-per-Bag-802418/204281770">https://www.homedepot.com/p/Everbilt-M8-10-9-Zinc-Metric-Hex-Nut-5-per-Bag-802418/204281770</a>	\$ 2.27	1	\$ 2.27	For use with the IKEA legs
	M8 Washers	<a href="https://www.homedepot.com/p/Everbilt-M8-Zinc-Plated-Metric-Flat-Washer-5-Piece-Bag-802458/204604800">https://www.homedepot.com/p/Everbilt-M8-Zinc-Plated-Metric-Flat-Washer-5-Piece-Bag-802458/204604800</a>	\$ 0.97	1	\$ 0.97	Or whatever you can find in your spare parts drawer that's close enough
	BRENNÅSEN bed legs (IKEA)	<a href="https://www.ikea.com/us/en/p/brennasen-leg-black-stained-00299689/">https://www.ikea.com/us/en/p/brennasen-leg-black-stained-00299689/</a>	\$ 30.00	1	\$ 30.00	Not always in stock, but alternatives either have long shipping times or are pricey (or you could make your own legs...)
	36"x36" Glass table top (1/4" thick)	<a href="https://www.ikea.com/us/en/p/36-x-36-x-1-4-glass-table-top-00299689/">https://www.ikea.com/us/en/p/36-x-36-x-1-4-glass-table-top-00299689/</a>	\$ 99.95	1	\$ 99.95	You should check the availability of local glass suppliers in your area for a better deal (I purchased mine for around \$60)
Electronics	3D Printer Filament (PLA)	<a href="https://www.amazon.com/HATCHBOX-3D-Filament-Dimensional-Accuracy/dp/B0010ECS7I/ref=ast_sto_dp">https://www.amazon.com/HATCHBOX-3D-Filament-Dimensional-Accuracy/dp/B0010ECS7I/ref=ast_sto_dp</a>	\$ 22.99	1	\$ 22.99	Whatever you have will work, but you'll need the majority of the spool for all the parts. If you can print with something stronger like PETG, that's better.
	Stepper motor dampers	<a href="https://www.amazon.com/gp/product/B07GWN6V89/ref=ppx_yo_dt_b_asin_title_o08_s007ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B07GWN6V89/ref=ppx_yo_dt_b_asin_title_o08_s007ie=UTF8&amp;psc=1</a>	\$ 13.99	1	\$ 13.99	Not required, but greatly reduce noise
	M5 Square nuts	<a href="https://www.amazon.com/gp/product/B01H5KL7Z6/ref=ppx_yo_dt_b_asin_title_o03_s007ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B01H5KL7Z6/ref=ppx_yo_dt_b_asin_title_o03_s007ie=UTF8&amp;psc=1</a>	\$ 8.09	1	\$ 8.09	You won't need this many
	12V to 5V step-down, 15A max	<a href="https://www.amazon.com/gp/product/B07V7YYSX6/ref=ppx_yo_dt_b_asin_title_o05_s007ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B07V7YYSX6/ref=ppx_yo_dt_b_asin_title_o05_s007ie=UTF8&amp;psc=1</a>	\$ 13.95	1	\$ 13.95	
	M5 40mm bolts	<a href="https://www.amazon.com/gp/product/B083F9MWW7/ref=ppx_yo_dt_b_asin_title_o07_s007ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B083F9MWW7/ref=ppx_yo_dt_b_asin_title_o07_s007ie=UTF8&amp;psc=1</a>	\$ 8.99	1	\$ 8.99	
	TMC2209 Stepper drivers	<a href="https://www.amazon.com/gp/product/B07W553KVF/ref=ppx_yo_dt_b_asin_title_o07_s027ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B07W553KVF/ref=ppx_yo_dt_b_asin_title_o07_s027ie=UTF8&amp;psc=1</a>	\$ 29.98	1	\$ 29.98	You only need two, this comes with four
	1 kOhm resistors	<a href="https://www.amazon.com/Projects-100KPS14300-Ohm-Resistors-Pack/dp/B028F9T552/ref=pc_1_97461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9">https://www.amazon.com/Projects-100KPS14300-Ohm-Resistors-Pack/dp/B028F9T552/ref=pc_1_97461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9</a>	\$ 5.82	1	\$ 5.82	You only need two, this comes with 100
	Jumper Wires	<a href="https://www.amazon.com/Projects-100KPS14300-Ohm-Resistors-Pack/dp/B028F9T552/ref=pc_1_97461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9">https://www.amazon.com/Projects-100KPS14300-Ohm-Resistors-Pack/dp/B028F9T552/ref=pc_1_97461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9</a>	\$ 6.98	1	\$ 6.98	You only need three female-to-female cables that you'll have to cut and splice, so if you have that or have the materials to crimp your own wires, this isn't necessary
	Power wire	<a href="https://www.amazon.com/TYUMEN-Heckup-Electric-Clips-Extension/dp/B07J440N11/ref=pc_1_77461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9">https://www.amazon.com/TYUMEN-Heckup-Electric-Clips-Extension/dp/B07J440N11/ref=pc_1_77461614-18-keywords-131-refers-to-resistor-to-buy-1598903731&amp;radius=1&amp;n=1-9</a>	\$ 15.99	1	\$ 15.99	Stranded is best, but if you have solid-core wire on hand, that will work as well (that's what I did)
	NEMA17 Steppers	<a href="https://www.amazon.com/gp/product/B00PNEQ17W/ref=ppx_yo_dt_b_asin_title_o07_s037ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B00PNEQ17W/ref=ppx_yo_dt_b_asin_title_o07_s037ie=UTF8&amp;psc=1</a>	\$ 12.99	2	\$ 25.98	These have long cables already soldered with female connectors. If you get steppers from somewhere else, you may have to solder connectors yourself.
	12V 10A power supply	<a href="https://www.amazon.com/gp/product/B00Z9X4GLW/ref=ppx_yo_dt_b_asin_title_o07_s037ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B00Z9X4GLW/ref=ppx_yo_dt_b_asin_title_o07_s037ie=UTF8&amp;psc=1</a>	\$ 19.99	1	\$ 19.99	
	F623ZZ Bearings	<a href="https://www.amazon.com/gp/product/B07MGTM2L4/ref=ppx_yo_dt_b_asin_title_o07_s057ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B07MGTM2L4/ref=ppx_yo_dt_b_asin_title_o07_s057ie=UTF8&amp;psc=1</a>	\$ 8.48	2	\$ 16.96	
	GT2 Belt - 10m					

	Assorted M3 Screws	<a href="https://www.amazon.com/gp/product/B0812SLTBT/ref=ppx_yo_dt_b_asin_title_o07_s07?ie=UTF8&amp;pcc=1">https://www.amazon.com/gp/product/B0812SLTBT/ref=ppx_yo_dt_b_asin_title_o07_s07?ie=UTF8&amp;pcc=1</a>	\$ 25.98	1	\$ 25.98	You need 5% of the screws in this pack, but it's a good deal
	M5 Washers	<a href="https://www.amazon.com/gp/product/B009OIKATZ0/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1">https://www.amazon.com/gp/product/B009OIKATZ0/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1</a>	\$ 3.66	1	\$ 3.66	
	M5 Nylock Nuts	<a href="https://www.amazon.com/gp/product/B076189F5/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1">https://www.amazon.com/gp/product/B076189F5/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1</a>	\$ 5.64	1	\$ 5.64	
	Raspberry Pi	<a href="https://www.adafruit.com/product/4295">https://www.adafruit.com/product/4295</a>	\$ 30.00	1	\$ 30.00	A Model 3B+ (what I used) or newer will work, this is the cheapest one I could find (Pi 4 Model B 1GB).
	Micro SD Card	<a href="https://www.amazon.com/gp/product/B07743X1Y6/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1">https://www.amazon.com/gp/product/B07743X1Y6/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1</a>	\$ 6.19	1	\$ 6.19	Anything of <i>acceptable</i> quality should be fine...
	LED Strips (4m)	<a href="https://www.amazon.com/gp/product/B07743X1Y6/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1">https://www.amazon.com/gp/product/B07743X1Y6/ref=ppx_yo_dt_b_asin_title_o07_s08?ie=UTF8&amp;pcc=1</a>	\$ 24.99	1	\$ 24.99	Go for whatever you are comfortable with. These are a good price and should work. I used something a bit more pricey since I had some on-hand ( <a href="https://www.mouser.com/ProductDetail/Seeed-Studio/104020109?qs=byeeYqUIh0PmErITC2u0yQ%3D%3D">https://www.mouser.com/ProductDetail/Seeed-Studio/104020109?qs=byeeYqUIh0PmErITC2u0yQ%3D%3D</a> , Qty 4)
	Openbuilds V-Slot Linear Rail (1500mm)	<a href="http://makerstore.cc/product/v-slot-20-x-40mm/">http://makerstore.cc/product/v-slot-20-x-40mm/</a>	\$ 20.90	2	\$ 41.80	There are many other places that sell this...look for one that's on sale (when I bought mine makerstore was 30% off)
Misc	Arduino Uno (or any other arduino)	<a href="https://www.amazon.com/ELSGOOD-Board-ATmega328P-ATmega328P-Compliant/dp/B02EWQEDU1/ref=sr_1_1?ie=UTF8&amp;keywords=arduino+cheapest&amp;qid=1588099515&amp;s=8-4">https://www.amazon.com/ELSGOOD-Board-ATmega328P-ATmega328P-Compliant/dp/B02EWQEDU1/ref=sr_1_1?ie=UTF8&amp;keywords=arduino+cheapest&amp;qid=1588099515&amp;s=8-4</a>	\$ 12.98	1	\$ 12.98	Any Arduino that can run LED strips will work (specifically can run the FastLED library)
	Sand	<a href="https://www.amazon.com/Bulk-White-Fine-Sand/dp/B07B7KCC2Y/ref=sr_1_1?ie=UTF8&amp;keywords=fine+white+sand+wholesale&amp;qid=1588099755&amp;s=8-2">https://www.amazon.com/Bulk-White-Fine-Sand/dp/B07B7KCC2Y/ref=sr_1_1?ie=UTF8&amp;keywords=fine+white+sand+wholesale&amp;qid=1588099755&amp;s=8-2</a>	\$ 14.99	2	\$ 29.98	I found this to work well. It's fine, but not too fine to the point where it's just a powder
	Assorted Sandpaper	<a href="https://www.amazon.com/24PCS-Variety-Sandpaper-Assorted-Sanding/dp/B07B64F2B9/ref=sr_1_1?ie=UTF8&amp;keywords=sandpaper&amp;qid=1588099485&amp;s=8-5">https://www.amazon.com/24PCS-Variety-Sandpaper-Assorted-Sanding/dp/B07B64F2B9/ref=sr_1_1?ie=UTF8&amp;keywords=sandpaper&amp;qid=1588099485&amp;s=8-5</a>	\$ 5.99	1	\$ 5.99	Amazon sandpaper isn't terrible
	Wood glue	<a href="https://www.homedepot.com/p/Titebond-II-16-oz-Premium-Wood-Glue-5004/100144210">https://www.homedepot.com/p/Titebond-II-16-oz-Premium-Wood-Glue-5004/100144210</a>	\$ 5.97	1	\$ 5.97	Any wood glue will work



Hardware	\$ 272.59
Electronics	\$ 408.86
Miscellaneous	\$ 41.94
<b>Total</b>	<b>\$ 723.39</b>