				Pagis Mar	ials to Build Assistant Moc	ktaila Miyar			
Item #	Part	Cost/Unit	Supplier	QTY	Total Cost(-shipping)	Comments	Link		
		Hardwar	е						
1	#10-32 X 1in Length Button Socket Head SS (92949A271)	\$0.12	McMaster	12	\$1.44	Box of 50 \$6.16	https://www.mcmaster.com/#92949a271/=17darel		
2	#10-32 Square Nut (94785A411)	\$0.09	McMaster	18	\$1.58	Box of 100 \$8.80	https://www.mcmaster.com/#94785a411/=17daryh		
3	#2-56 X 3/16 Phillip Head 3/16 L (91772A076)	\$0.06	McMaster	44	\$2.51	Box of 100 \$5.76	https://www.mcmaster.com/#91772a076/=17dasam		
4	#2-56 SS Phillip Head 3/8 L (91772A079)	\$0.05	McMaster	44	\$2.07	Box of 100 \$4.71	https://www.mcmaster.com/#91772a079/=17dash6		
5	#10-32 X 1/2 in Length Button Socket Head (92949A265) #10-32 X 3/4 Length Button Socket Head SS (92949A269)	\$0.06 \$0.08	McMaster McMaster	20 8	\$1.22 \$0.67	Box of 100 \$6.11	https://www.mcmaster.com/#92949a265/=17dat73		
7	#10-32 X 3/4 Length Button Socket Head SS (92949A269) #2-56 X 1/2 in Lenght Pan Head Philip (91772A081)	\$0.08	McMaster McMaster	18	\$0.67	Box of 100 \$8.48 Box of 100 \$5.29	https://www.mcmaster.com/#92949a269/=17daw2c		
8	#2-56 X 3/8 in Length 1/8 in OD Standoff (93330A252)	\$0.05	McMaster	6	\$4.50	\$.75 ea	https://www.mcmaster.com/#91772a081/=17daw9b https://www.mcmaster.com/#93330a252/=17dawh2		
9	#2-56 X 5/32 in Length Pan Head Philip (91772A073)	\$0.73	McMaster	4	\$0.12	Box of 100 \$3.00	https://www.mcmaster.com/#93330a252/=17daw12		
10	#2-56 SS Hex Nut (91841A003)	\$0.03	McMaster	16	\$0.43	Box of 100 \$3.00	https://www.mcmaster.com/#91841a003/=17daww1		
11	#4-40 X 1.25 in Length Pan Head Philips (91772A116)	\$0.07	McMaster	4	\$0.26	Box of 100 \$6.57	https://www.mcmaster.com/#91772a116/=17dax72		
12	#8-32 X 3/8 in Length 1/4 in Hex Standoff Female to Male (91075A451)	\$1.72	McMaster	4	\$6.88	\$1.72 ea	https://www.mcmaster.com/#catalog/123/3301/=17daxbs		
13	#4-40 Hex Nut (91841A005)	\$0.03	McMaster	10	\$0.26	Box of 100 \$2.61	https://www.mcmaster.com/#91841a005/=17daufc		
14	#8-32 Hex Nut (91841A009)	\$0.03	McMaster	4	\$0.13	Box of 100 \$3.18	https://www.mcmaster.com/#hex-nuts/=17dav9i		
15	#2 washer	\$0.03	McMaster	40	\$1.06	Box of 100 \$2.64	https://www.mcmaster.com/#90107a003/=17db2wy		
		Electronic	cs						
16	Raspberry Pi 3	\$39.95	Adafruit	1	\$39.95		https://www.adafruit.com/product/3055		
17	Arduino Micro	\$20.63	Digikey	1	\$20.63		https://www.digikey.com/product-detail/en/arduino/A000053/1050-1066-ND/4486332		
18	Beefcakes (Relays)	\$7.95	Sparkfun	8	\$63.60		https://www.sparkfun.com/products/13815		
19	5V-5A 25W AC to DC Power Supply	\$9.49	Jameco	1	\$9.49		http://www.jameco.com/z/RS-25-5-Mean-Well-AC-to-DC-Power-Supply-Single-Output-5-Volt-5-Amp-25-Wa	tt_323282.html	
20	12V-5A 60W AC to DC Power Supply	\$12.99	Amazon	1	\$12.99		https://www.amazon.com/QUANS-Universal-Regulated-Switching-Lighting/dp/B00UHI3NGS		
21	14 Gauge Bundled Wire with Plug	\$6.24	Digikey	1	\$6.24		https://www.digikey.com/product-detail/en/cnc-tech/800-1401-2-SJT0-BL-00100/1175-1195-ND/3064926		
22	Speaker - 4 Ohm	\$4.75	Digikey	1	\$4.75		https://www.digikey.com/products/en?keywords=668-1117-ND		
23	2.5W Class D Amplifier	\$3.95	Digikey	1	\$3.95		https://www.adafruit.com/product/2130		
24	USB Microphone	\$5.95	Adafruit	1	\$5.95		https://www.adafruit.com/product/3367		
25	Neopixle Ring	\$16.95	Adafruit	11	\$16.95		https://www.adafruit.com/product/1586		
26	USB Extender	\$3.95	Adafruit	1	\$3.95		https://www.adafruit.com/product/908		
27	18 Guage Wire - GREEN (8054T15) (per Ft) 18 Guage Wire - RED (8054T15) (per Ft)	\$0.23	McMaster	5	\$1.15		https://www.mcmaster.com/#8054t15/=17doy93		
28	18 Guage Wire - RED (8054115) (per Ft) 18 Guage Wire - BLACK (8054T15) (per Ft)	\$0.23	McMaster McMaster	5	\$1.15		https://www.mcmaster.com/#8054t15/=17doy93		
29 30	Button	\$0.23 \$1.95	+	5 1	\$1.15 \$1.95		https://www.mcmaster.com/#8054t15/=17doy93		
31	22 Gauge Wire - RED (per Ft)	\$0.12	Digikey Digikey	15	\$1.95		https://www.digikey.com/product-detail/en/sparkfun-electronics/COM-09337/1568-1477-ND/6047816		
32	22 Gauge Wire - RED (per Ft) 22 Gauge Wire - GREEN (per Ft)	\$0.12	Digikey	15	\$1.80		https://www.digikey.com/product-detail/en/adafruit-industries-llc/288/1528-1750-ND/6226987. https://www.digikey.com/product-detail/en/adafruit-industries-llc/2988/1528-1764-ND/6227001		
33	22 Gauge Wire - BLACK (per Ft)	\$0.12	Digikey	15	\$1.80		https://www.digikey.com/product-detail/en/adalfuit-industries-lic/290671528-1752-ND/6226989		
34	22 Gauge Wire - WHITE (per Ft)	\$0.12	Digikey	15	\$1.80		https://www.digikey.com/product-detail/en/adafruit-industries-llc/2984/1528-1761-ND/6226998		
0.	EE Gaage Tine Time (per ti)	Liquid Manag	ement	10	\$1.00		Integration and integration an		
35	Peristaltic Pumps	\$17.99	Amazon	8	\$143.92		https://www.amazon.com/Homecube-Peristaltic-Miniature-Aquarium-Analytical/dp/B0196LDFJQ/ref=sr 1 2	! ?ie=UTF8&aid=1493239127&sr=	3-2&kevwords=peristaltic+pumps
36	4 Pack 32 OZ Bottles	\$24.97	Amazon(Kanrel)	2	\$49.94		https://www.amazon.com/gp/product/B01MYQ5KI5/ref=oh_aui_detailpage_o04_s00?ie=UTF8&psc=1		
37	Food Safe PVC Tubing 1/8 IN ID, 1/4 OD (per Ft)	\$0.90	McMaster	15	\$13.50		https://www.mcmaster.com/#5894k32/=17db1qv		
38	1/8 Backflow Prevention Valve (2987K45)	\$4.07	McMaster	8	\$32.56		https://www.mcmaster.com/#2987k45/=17daznn		
39	Tygon Clear PVC tubing 3/32 in ID X 5/32 in OD (6546T346546T34)	\$0.29	McMaster	3.33	\$0.97	.29 per foot	https://www.mcmaster.com/#6546t34/=17dm4d1		
40	1/8 Connector Barbed Tube Food Safe (5116K167)	\$0.39	McMaster	16	\$6.18	Pack of 10 \$3.86	https://www.mcmaster.com/#5116k167/=17dazbn		
41	NO. 8 Neoprene Washers (90133A009)	\$0.07	McMaster	64	\$4.36	Pack of 100 \$6.81	https://www.mcmaster.com/#90133a009/=17dazwy		
		Structur	е						
42	Acrylic Sheets 24X36 IN .25IN Thick	\$33.00	Total Plastics	3	\$99.00				
				Total	\$570.16				
				tional Ontion	I Materials to Build Assista	nt Mocktaile Mives			
Item#	Part	Cost/Unit	Supplier	QTY	Total Cost(-shipping)	Comments	Links		
IIGIII #	1 dit	Hardwar		QII	rotal Goot(-onlippility)	Comments	LIIKO		
1	#2-56 1/8IN OD 3/8 L SS Stand Off Female Round (93330A252)	\$0.75	McMaster	40	\$30.00	Box of 100 \$8.80	https://www.mcmaster.com/#90575a191/=17dasuz		
2	#10-32 .25 IN 2 IN L Stand Off Female Round (91125A503)	\$2.84	McMaster	4	\$11.36	Box of 100 \$5.76	https://www.mcmaster.com/#91125a503/=17db4r3		
3	#10-32 .25 IN 3 IN L Stand Off Female Round (91125A037)	\$3.62	McMaster	4	\$14.48	Box of 100 \$4.71	https://www.mcmaster.com/#91125a037/=17db4jy		
4	#8-32 1/2 IN Binding Posts (94887A142)	\$0.83	McMaster	12	\$9.96	Box of 100 \$4.71	https://www.mcmaster.com/#94887a142/=17db43g		
5	#8-32 IN Binding Post 1/4 Thick material (94887A129)	\$0.84	McMaster	4	\$3.36	Box of 25 \$29.6	https://www.mcmaster.com/#94887a129/=17db3n8		
6	#10-32 X 1 in Length .25 in OD Stand Off Female Round (91125A469)	\$2.36	McMaster	6	\$14.16	Box of 50 \$6.16	https://www.mcmaster.com/#91125a469/=17db4x7		
7									
8	Terminal Block Black 10-26 AWG	\$1.24	Digikey	21	\$26.04				
9	Neopixle Ring	\$16.95	Digikey	9	\$152.55		https://www.adafruit.com/product/1586		
10	Din Rail	\$0.13	McMaster	7	\$0.90	7 inches of dinrail			
	Cord Grip	\$12.60	McMaster	1	\$12.60		https://www.mcmaster.com/#8302k132/=17dog2e		
11	33.5 3.15								
12									
12 13	333 51,9								
12 13 14									
12 13 14 15									
12 13 14 15 16									
12 13 14 15 16									
12 13 14 15 16									
12 13 14 15 16 17		Liquid Manag	ement						

20							
21							
22							
23							
	Structure	В					
24							
			Optional Total	\$275.41			
			Upgraded Total	\$845.57			