STIRLING CRYOCOOLER BILL OF MATERIALS

	PART #	PART NAME	QTY.	DESCRIPTION	MATERIAL	COST/UNIT($)	SOURCE	ACTUAL COST ($)	
R & D	1	Envirocooler ActiVault 25L4C Cooler -12V	1	Existing Design/Reverse Engingeering	N/A	377.25	Ebay	377.25	
	2	Schumacher PC-6 120AC to 6A 12V DC Power Converter	1	12 V VoltageE Converter	N/A	16.53	Amazon	16.53	
	3	Module + K Type Thermocouple Temperature Sensor	4	Arduino Thermocouple Sensors	Steel Braided	6.99	Amazon	27.96	
	4	Elegoo EL-KIT-008 Mega 2560	1	Arduino Starter Kit	Misc. Electronics	59.99	Amazon	59.99	
	5	Adafruit MicroSD card breakout board+ [ADA254]	1	Arduino Datalogger	Misc. Electronics	9.16	Amazon	9.16	
	6	SanDisk Mobile Class4 MicroSDHC Flash Memory Card	1	Flash Memory Card	N/A	6.95	Amazon	6.95	
	7	Programming Arduino: Getting Started with Sketches 2nd Ed.	1	Arduino Programming Book	Paperback	10.20	Amazon	10.2	
	8	ELEGOO Upgraded 37 in 1 Sensor Modules Kit	1	Arduino Extra Sensor Kit	Misc. Electronics	29.86	Amazon	29.86	537.9
PARTS AND MATERIALS	9	Black Laminated Wood Shelving	2	Used To Support Instrumentation	Laminated Particleboard	9.98	HomeDepot	19.96	
	10	2-Hole 90 degree angle bracket	10	Used To Join Unistrut Frame	Steel	14.10	HomeDepot	14.1	
	11	UniStrut Spring Nuts	5	5 pc/unit Springnut for joining Unistrut	Steel	5.00	HomeDepot	25.00	
	12	Unistrut Bracing	1	Structural Frame for Display Mounting	Steel	15.00	HomeDepot	15.00	
	13	Bolts	50	Box of 1/4" x 1" coarse thread	Steel	15.00	HomeDepot	15.00	
	14	Pull Push Type Linear Motion Solenoid Electromagnet	2	uxcell XRN-25x50TL DC 24V 0.7A 17W 20N 10mm	Steel	19.97	Amazon	39.94	
	15	Aluminum Material for fabrication	3	3-1/2" x 8" solid aluminum stock	Aluminum	38.89	Stoner Metal	116.67	
	16	Round Head Course Hex Screws	6	1/4-20 x 3/4	Stainless	0.75	HomCo	4.50	
	17	Flat-Head Coarse Hex Machine Screws	6	1/4-20 x 3/4	Stainless	0.65	HomCo	3.90	
	18	Coarse Hex (internal) Head Machine Screw	6	1/4-20 x 3/4	Stainless	0.65	HomCo	3.90	
	19	Pressure Transducer	1	1.2 Mpa 1/4" 5v	Misc. Electronics	17.99	Amazon	17.99	
	20	Copper mesh for regenerator material	1	Copper Mesh	Copper	6.99	Amazon	6.99	
	21	Neodymium Magnets	10	1/2" X 3/8" X 1/8" Ni coated	Neodymium	8.99	Apex Mag.	8.99	
	22	Rubber Gasket Material	4	1/16" X 6" X 6"	Rubber	0.79	HomCo	3.16	
	23	Aluminum Heatsink	4	150 X 69 X 37 mm	Aluminum	18.37	Amazon	73.48	368.58
DONATED ITEMS	27	40 W, Single Output, 24 V @1.7A AC-DC Power Supply	1	Mean Well MDR-40-24	Plastic Case/Electronics	17.10	On-line	0	
	28	Touch Screen, KADET 2, Model G307K2	1	RedLion Human Machine Interface (HMI)	Touchscreen/Electronics	833.40	redLion	0	
	29	DIN Rail Terminal Block,	5	30 A/ 600V 30-10 AWG terminal block	Plastic	2.50	On-line	0	
	30	DIN Rail	1	Small Lengths approx. (2Feet)	Stainless	6.55	Ebay	0	
	31	SixNet Process Logic Controller	1	Input/Output logic controller	Plastic Case/Electronics	150.00	Ebay	0	
	32								
	33								
	34				Donated Value	1009.55	Actual Cost	906.48	1009.55
					Donated Value+Actual	1916.03			

Balance From $1500

593.52

Under Budget!