

P12371 Bill of Materials

Manipulator Subsystem Cost: \$ 153.25
 Pump Subsystem Cost: \$ 948.75
 Computer Subsystem Cost: \$ 402.37

System Cost: \$ 1,504.37

Part Name	Qty	Unit Cost	Total Cost	Make/ Buy	Vendor	Vendor P/N	Lead Time	Subsystem	Owner
Bread Board Peripherals	1	\$ 15.00	\$ 15.00					Control	Sabine L
Breakout board	1	\$ 10.78	\$ 10.78	Buy	BusBoard Prototype System	PAD 3D		Control	Sabine L
Driver Chip	9	\$ 7.40	\$ 66.60	Buy	Toshiba	THB6064AH	3 weeks	Control	Sabine L
Joystick	1	\$ 24.99	\$ 24.99	Buy	Logitech	Extreme 3D Pro		Control	Sabine L
Microcontroller	1	\$ 95.00	\$ 95.00		Freescade	CSMB12		Control	Sabine L
Serial Cable	1	\$ 5.00	\$ 5.00					Control	Sabine L
Wires	1	\$ 5.00	\$ 5.00					Control	Sabine L
Power Supply	1	\$ 129.00	\$ 129.00		Automation Direct	STP-PWR-3204	1 Week	Electrical	Brad L
Stepper Motor	3	\$ 17.00	\$ 51.00	Buy	Automation Direct	STP-MTR-17040	1 Week	Electrical	Brad L
Tubing	10	\$ 0.46	\$ 4.60	Buy	Ace Hose and Rubber Company		2 weeks	Electrical	
LPM27R_0075_Y_10mm	3	\$ 13.33	\$ 40.00	Buy	PBC LINEAR		2 WEEKS	Manipulator	Brad O
LPM27C CARRIAGE	3	\$ -	\$ -	Buy	PBC LINEAR		2 WEEKS	Manipulator	Brad O
LPM27 ELBOW BRACKET	1	\$ -	\$ -	Make				Manipulator	Brad O
MOUNT BLOCK WASHER	1	\$ 0.01	\$ 0.01	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
PIPETTE MOUNT SLIDE	1		\$ -	Make				Manipulator	Brad O
MOUNTING BLOCK	1		\$ -					Manipulator	Brad O
91239A136 M4 5MM LENGTH B	3	\$ 0.01	\$ 0.03	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
92095A192 M4 12 MM LENGTH	1	\$ 0.01	\$ 0.01	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
91292A013 M2 20 MM LENGTH	3	\$ 0.01	\$ 0.03	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
PISTON CYLINDER MOUNT	2		\$ -	Make				Manipulator	Brad O
PISTON CYLINDER	3	\$ 36.00	\$ 108.00	Buy	QUALITY AIR		10 DAYS	Manipulator	Brad O
PIPETTE SCREW	1	\$ 0.55	\$ 0.55	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
92095A190 M4 8 MM LENGTH	2	\$ 0.01	\$ 0.02	Buy	MCMaster		2 WEEKS	Manipulator	Brad O
Y-AXIS PISTON CYLINDER MOUN	1		\$ -	Make				Manipulator	Brad O
Y -AXIS SUPPORT BAR	1		\$ -	Make				Manipulator	Brad O
Z-AXIS SUPPORT BAR	1		\$ -	Make				Manipulator	Brad O

92605A113 M4 SET SCREW 8M	1	\$ 0.01	\$ 0.01	Buy	MCMASTER		2 WEEKS	Manipulator	Brad O
Motor Side Rail Mounting Block	3	\$ -	\$ -	Make				Pump	Rob H
Pump Lead screw	3	\$ -	\$ -	Make				Pump	Rob H
Motor Mounting Block	3	\$ -	\$ -	Make				Pump	Rob H
Cylinder support block	3	\$ -	\$ -	Make				Pump	Rob H
Base Jig Plate	3	\$ -	\$ -	Make				Pump	Rob H
Connecting Plate	3	\$ -	\$ -	Make				Pump	Rob H
Cylinder Side Mounting Block	3	\$ -	\$ -	Make		1865K1		Pump	Rob H
Modified Guide rail	6	\$ -	\$ -	Make		8600N9		Pump	Rob H
Bronze Bushing	6	\$ 0.94	\$ 5.64	Buy	McMaster Carr	6338K413	1 Week	Pump	Rob H
Lead Screw (inches)	18	\$ 2.00	\$ 36.00	Buy	Tompson BSA	SV2580	3 Weeks	Pump	Rob H
Lead Screw Nut	3	\$ 28.04	\$ 84.12	Buy	Tompson BSA	XCF-2580	2 Weeks	Pump	Rob H
Shaft Coupling	3	\$ 52.50	\$ 157.50	Buy	McMaster Carr	2463K11	1 week	Pump	Rob H
Guide rail	6	\$ 4.28	\$ 25.68	Buy	McMaster Carr	6061K413	1 week	Pump	Rob H
10-24 x 3/8 Set Screws (packs of 10)	4	\$ 4.91	\$ 19.64	Buy	McMaster Carr	92158A252		Pump	Rob H
Cylinder Assembly	3	\$ 65.00	\$ 195.00	Buy	CYLINDER AND VALVES	RC-300 3in Stroke		Pump	Rob H
6-32 x .25 screw	6	\$ -	\$ -	Make	0.5x0.5x6ft Aluminium			Pump	Rob H
1/4-20 x .5 screw	15	\$ -	\$ -	Buy	McMaster Carr		1 Week	Pump	Rob H
#4-40 x 1 screw	12	\$ -	\$ -	Buy	McMaster Carr		1 Week	Pump	Rob H
#4-40 nut	12	\$ -	\$ -	Buy	Shop			Pump	Rob H
#4-40 washer	24	\$ -	\$ -	buy	Shop			Pump	Rob H
Jig plate Base material 6x12x.5	3	\$ 90.00	\$ 270.00	Buy	McMaster Carr	3511T32	1 Week	Pump	Rob H
Motor Mounting Block Mat	1	\$ 38.65	\$ 38.65	Buy	McMaster Carr	8982K364	1 Week	Pump	Rob H
Syringe Support Material	1	\$ 10.81	\$ 10.81	Buy	McMaster Carr	9008K141	1 Week	Pump	Rob H
Connecting/Mounting Block Material	2	\$ 23.00	\$ 46.00	Buy	McMaster Carr	8975K423	1 Week	Pump	Rob H
4mm Bearings	6	\$ 9.95	\$ 59.70	Buy	VXB Ball Bearing	KIT9411	2 Weeks	Pump	Rob H
Syringe Lock Plate	3	\$ -	\$ -	Make	Shop Scrap			Pump	Rob H
Syringe Retaining Plate	3	\$ -	\$ -	Make	Shop Scrap			Pump	Rob H
Under Block (ft)	3	\$ -	\$ -	Make	0.5x0.5x6ft Aluminium			Pump	Rob H
			\$ -						

			\$ -						
			\$ -						
			\$ -						
			\$ -						
			\$ -						
			\$ -						
			\$ -						

\$ -
\$ -