Roboxsumo Components List – R3 081115

This list describes all of the standard components and sources that are used in the Roboxsumo program. No pricing has been included. In many cases, the materials listed are very common and may be sourced at many different locations and the vendor is listed as "various." In some cases, a vendor and part number has been listed just to provide an example. Roboxsumo leaders can get supplies from any source that best fits their needs. Vendor contact information is listed at the bottom. Please contact us if you have corrections, questions or concerns.

Table 1 - Standard Roboxsumo Student Kit – Consumables		
Part	Qnty.	Source
Motor/Harness Assembly	1	User Assembled – Parts list Table 3 below
Wheel set – 60 MM rubber tire	1	Pololu – #1420 60mm wheels for 3mm shaft
Cardboard box (1/2) – 12" x 12"	½	Uline – S4125 12x12x12 box
Ping Pong Ball – 40 MM	1	Various
Tape – Aluminum	6 feet	Lowes – 225505 (3M Foil tape 3381 1.88" wide)
Paper – 8 ½ x 11 sheet	2 sheets	Various
Zip Tie – 4"	10	Lowes – 76328
Zip Lock Bag*	1	Various

* A large zip lock bag provides a convenient way to keep all the parts together in one kit.

Table 2 - Standard Roboxsumo Student Kit – Tools and Re-Usables		
Part	Qnty.	Source
Sharpie Marker	1	Staples – Item 125328 (Fine point marker)
#2 Pencil - Sharpened	1	Various
Shears	1	Lowes – 382002 (382002 2 ½ bent handle scissors)
Utility Knife	1	Lowes – 197755 (retractable utility knife)
Hot glue gun	1	Various
Hot glue sticks	4-5	Various
12" Ruler	1	Various
Cutting board	1	Cutting board or table cover to prevent damage to table

Table 3 - Standard Roboxsumo Motor/Harness Assembly

Part	Qnty.	Source
Gearmotor - 120:1 3mm D shaft	2	Pololu #1125 4.5V 120 RPM Gearmotor
Lan Cable CAT 5E assembly	17"	Mono Price 11328 or equivalent – Makes two cables
Lan Cable CAT 5E 24awg stranded[1]	17"	Lowes – 303341 (25' roll listed – can buy 50' or 100')
Lan Connector – RJ 45 Male[1]	1	Lowes – 111346 (50 pack of RJ 45 connectors)
Zip Tie – 4"	1	Lowes – 76328 (100 pack of 4" zip ties)
Molex Connector – 2 Pin Male[2]	2	Digikey – WM3700-ND Receptacle - 2 pos male
Molex Pin – Female[2]	4	Digikey – WM2501-ND Terminal – Female 18-24 AWG

1. These parts are ONLY needed if you choose to make harnesses from scratch.

2. This list creates a motor harness with the Molex connectors to install the "accessory" motors. If teams are only using the two motor configuration, these are not needed. See Motor/Harness assembly instructions for further details.

Table 4 - Specialty Tools and parts for Motor/Harness Assembly

Part	Qnty.	Source
Soldering Iron – 40w or less	1	Radio Shack – 64-2802 – 30w soldering iron kit
Diagonal Wire cutters	1	Lowes – 464599 – 6" diagonal cutting pliers
Wire Stripper	1	Harbor Freight 36810 – Self adj wire stripper
Lan Connector Crimper	1	Lowes – 57620 – Ideal Data Crimper
Molex Pin Crimper*	6 feet	Digikey – WM9999-ND (Molex # 0638111000)
Molex Pin Removal Tool*	1	Digikey – WM9918-ND (Molex # 0011030044)

* These tools are expensive and will only work for the Molex connectors. If you are going to assemble the accessory connectors and motors, these are needed. Otherwise, they are not needed. See instructions on Motor/Harness assembly.

Table 5 – Accessory motor Assembly (parts for one assembly)

Part	Qnty.	Source
Gearmotor - 120:1 3mm D shaft	2	Pololu #1125 4.5V 120 RPM Gearmotor
Lan Wire 24 awg – stranded*	2 – 3"	Lowes – 303341 (25' roll listed – can buy 50' or 100')
Molex Connector – Female	2	Digikey – WM3600-ND Conn Plug 2 Position
Molex Pin - Male	4	Digikey – WM2500-ND Term Male 18-24 AWG

* Use two pieces of wire unbundled from a piece of the cat 5e cable. They should be about 2.5" – 3" long. See the instructions on Accessory motor assembly for more details.

Table 6 – Wired Controller Parts (4 Switch)

Part	Qnty.	Source
Toggle Switch	4	Jameco - 317498
9V Battery Connector	2	Jameco – 101470
RJ45 Female Connector	1	Lowes – 248242 (5 pack of connectors – Only need 1)
Plastic Case	1	Jameco – 18893 6"x3.5"x1.9" project box
Lan Cable – CAT5E	15 feet	Lowes – 303341 (25' roll listed – can buy 50' or 100')
Foam Padding	1	Various – foam cushion material – 6"x3.5"x1.5"

Table 7 – Wireless Control Parts (4 Channel) *		
Part	Qnty.	Source
CAT5E Female connector	1	Lowes - 248282 (5 pack)
Electronic Perfboard	1	Digikey - V1042ND or equivalent
2.1 mm DC power jack	1	Jameco - 101178
Tactic TTX410 RC	1	Servo City - TACJ2410
Sabertooth 2x12 R/C controller	2	Dimension Engineering

Creates a 4 channel – Wireless control system.

Vendor Contact list - Alphabetical		
Name	Phone	Web
Digikey	218-681-6674	www.digikey.com
Dimension Engineering	330-634-1430	www.dimensionengineering.com
Harbor Freight Tools	NA	www.harborfreight.com
Jameco	800-831-4242	www.jameco.com
Lowes Home Improvement	NA	www.Lowes.com
Pololu	702-262-6648	www.pololu.com
Radio Shack	NA	www.radioshack.com
Servo City	620-221-0123	www.servocity.com
Staples Office Supply	NA	www.staples.com