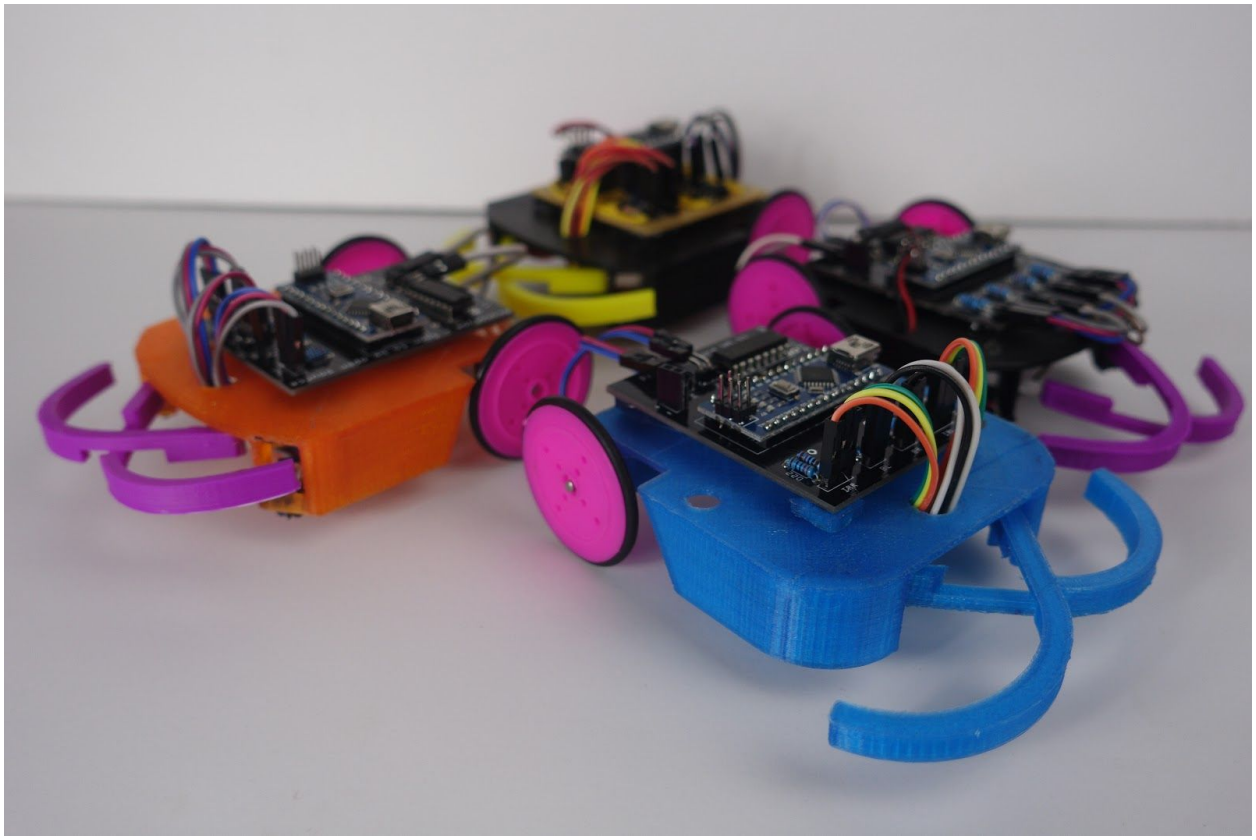

ProtoBot parts list:

(List includes everything needed for 20 complete robots, excluding batteries and 3D printed parts)

- 40 x N20 Gear motors (300RPM, 12V)
- 5 x Plastic Wheels (39mm dia, for D type axle - One lot is enough for 5 robots)
- 5 x Tactile Switches (Bump Sensors, One lot is enough for 5 robots)
- 2 x L293D Motor Driver IC (One lot is enough for 10 robots)
- 5 x Wires (Female to female jumper wires - One lot is enough for 4 robots)
- 2 x Headers (One lot is enough for 10 robots)
- 2 x 9V battery Clips (One lot is enough for 10 robots)
- 1 x 10K resistors (One lot is enough for 25 robots)
- 1 x 220 Ohm resistors (One lot is enough for 50 robots)
- 20 x Arduino Nano (ATEMGA328P module, not interface base module)
- 4 x Reflective IR optical sensor (Enough for 5 robots)
- 1 x Female header pins (One lot is about enough for 133 robots, unless you use them under the Arduinos)

Actual individual component cost :
(NOTE: Outdated, hasn't been updated for items that ended and were replaced)
(With manufactured board, results in per robot cost of $12.38 (excluding optional header pins))

- Wheels - 0.49 per wheel
- 10K Resistors - 0.01 per resistor
- 220 Ohm Resistors - 0.01 per resistor
- 9V battery clip - 0.10 per clip
- Microswitches - 0.12 per switch
- Arduino Nano - 2.74 per nano
- Header pins - 0.01 per pin
- l293D Motor Driver - 0.31 per chip
- Female jumper cables - 0.02 per cable
- IR reflective sensor (TCRT5000l) - 0.10 per sensor
- N20 gear motor - 2.60 per motor
- Female header pins - 0.02 per pin
- Custom manufactured PCBs - 2.60 per board

Ways to optimize cost:

- Design custom board with all in one functionality (Don't use seperate arduino)
- Source motors from non-ebay sources (1$ per motor, reduce cost by $3.20!)
- Source other components from non-ebay sources (as direct from manufacturer)
- Use different motor driver chip that's smaller and less expensive (IE DRV8802 or DRV8838/7, or DRV8835 (Dual H, 1.6A, 12 WSOP, $0.79 per chip) - fancy motor driver that's super cool!)

Current planned robot configuration:

- Arduino nano
- Custom motor driver board
- 2 tactile switches
- 2 IR reflectors on front corners for lines or edges (Note! Pololu has these on handy breakouts!)

Possibilities:

- Arduino Pro Micro (Better for final design? USB built in, smaller form factor)
- 90RPM/6V with Encoders (Expen$ive from eBay! Better to source elsewhere)
- 2x AA battery holder (for use with boost converter. Better than 9v battery)
- DC - DC Boost converter (To be used with 2xAA battery holder)
- ATTiny 84/44 (44A, 10pcs with sockets) Alternative to Arudino Nano but needs ISP (IE less cost to make but requires more external hardware/tools/knowledge)