Sample Snatchers - Bill of Materials

Components that come in bulk quantity have had their price modified to the amount that will realistically be used. This amount will generally be estimated to be higher than lower. Each section has a name scheme to identify components later on quickly. Quantities will be updated more accurately as the final design is developed.

Battery and Power Delivery (PDXX)

Item #	Part	Vendor	Description	Qty	Cost	Link for Purchase
PD01	22 awg Wire	Amazon	Wires for connecting components to circuit	1	CA$0.80	Generic
PD02	XT60 Connectors	Aliexpress	Connectors for battery pack	1	CA$1.60	Link
PD03	16 awg Wire	Amazon	Wires for 12v components	1	CA$0.80	Generic
PD04	P42A Molicel Battery 21700	18650 Battery	For battery pack assembly	3	CA$15.00	Link
PD05	3S Battery Management System	Aliexpress	For safety	1	CA$2.94	Link
PD07	LM2596	Aliexpress	Step down buck converter, 36V/24V/12V/5V/3V	1	CA$0.45	Link

Control and Logic (CLXX)

Item #	Part	Vendor	Description	Qty	Cost	Link for Purchase
CL01	ESP32-WROOM-C3	Elegoo	Controller w/ Wifi + BT	1	CA$9.99	Link
CL02	H-Bridge Motor Driver BTS7960	Aliexpress	Driving 12V motor for scraping	1	CA$7.41	Link
CL03	HX711 Sensor	Aliexpress	Strain gauge for mass analysis	1	CA$1.80	Link

Measurement (MXX)

Item #	Part	Vendor	Description	Qty	Cost	Link for Purchase
M01	100g Load Cell	Aliexpress	Strain gauge to measure mass	1	CA$4.93	Link

Structural Components (SCXX)

Item #	Part	Vendor	Description	Qty	Cost	Link for Purchase
SC01	PLA - ~0.5 KG	Bambu	Filament for chassis	1	CA$7.99	Link
SC02	M3 Female Threaded Insert	Aliexpress	Heat set threaded inserts for chassis	1	CA$0.80	Link
SC03	M3/M4 Machine Screws	Aliexpress	Various length M3 Machine Screws	1	CA$1.00	Generic
SC04	608 ZZ 608RS	Aliexpress	Ball bearings	3	CA$1.80	Link

Sampling Tooling Components (STXX)

Item #	Part	Vendor	Description	Qty	Cost	Link for Purchase
ST01	MGEHR1212 + Bits	Aliexpress	Lathe Bit and armature	1	CA$9.28	Link
ST02	GB37-520 7rpm 12v Motor	Aliexpress	For moving the armature with lathe bit	1	CA$11.28	Link

Total	CA$77.87

Equipment

	Part	Description	
	Soldering Iron	Used to connect electrical components together	
	Bambu Lab A1 3D Printer	Fused deposition modelling tool for additive manufacturing of chassis	
	Heat Gun	Used for shrinking heat shrink	
	Fume Extractor	Removes dangerous fumes created from soldering	
	Screwdriver	Connecting and disconnecting basic hardware	
	Breadboards	Useful for prototyping components, may be used in final design, cost will not be accounted	
	Multimeter	Helpful for testing the circuits and their connections	
	USB-C Chargers	Charges the devices used	
	USB-C Cables	Transfers data and power from charges and laptops to devices, used to flash microcontroller	
	Computer	For rendering and visualization	
	Spot Welder	For rendering and visualization	

Software

	Part	Description	
	Keyshot	For rendering and visualization	
	Onshape	CAD Modeling software with collaborative tools and version control	
	Arduino IDE	Programming environment with useful integrated libraries for compilation	
	Google Sheets	For creating tables, BOMs, and logging data	
	KiCAD	For creating custom circuitry and PCB designs	
	Python	Used for making scripts to read and file incoming serial data	