

Component	Quantity	Supplier	Link	Price(\$)	Tax(\$)	Justification
Tungsten drill manicure drill bit	1	Amazon	https://www.amazon.ca/Manicure-Tungsten-Grinding-Polishing-Electric/dp/B	8.09	1.05	Tool used to scrape the pipe and collect the required amount of sample
Breadboard	1	Makerlab		5	0.65	
Gearmotor	1	Makerlab	https://edu-makerlab.odoo.com/shop/gearmotor-2142?search=motor&order	4.5	0.59	Motor meant to move the drill bit to scrape the tube and collect the sample
Piping	15ft	Marketplace	https://makerstore.ca/products/pla-filament?variant=50851782000696	43	0	Telescopic Rod - The telescopic rod will be made in multiple different segments using the 3D printer and they will fit together to extend through the pipe
Arduino Uno	1	Makerstore	https://edu-makerlab.odoo.com/shop/arduino-1930?search=arduino&att=37	9	1.17	Necessary for constant feedback and determining the amount of collected sample
Filament	1	Makerstore	https://makerstore.ca/products/pla-filament?variant=50851782000696	0.3	0.04	Collection platform - Necessary for collecting and storing the sample as it falls from the pipe after it gets scraped
SJTW Cable						
(Orange Outer Insulation, 18 Gauge, 2 Wires)	10 ft	McMaster	https://www.mcmaster.com/7394K31/	7.4	0.96	Necessary for connecting the arduino uno to the sensors to obtain the feedback on the progress
Bolts (M3, 11/14mm long)	20 (15 avail.)	Makerstore	https://makerstore.ca/products/bolts?variant=50851843637304	2	0.26	Necessary for secure assembly and component integration
Heat Inserts (M3, 6mm long)	10	Makerstore	https://makerstore.ca/products/threaded-brass-heat-inserts?_pos=1&_sid=ef	1	0.13	Used to attach the scraping tool to the mount that will hold it in place
Arduino IDE	1	Arduino	https://www.arduino.cc/en/software	0	0	Used to code the arduino, to perform the tasks
Fishing wire	15ft	Home Depot	https://www.homedepot.ca/product/ook-15-ft-50-lb-max-invisible-hanging-wi	3.17	0.41	Used in the failsafe mechanism
Washers	30	Makerstore	https://makerstore.ca/products/washers?variant=50852009541688	1.5	0.2	
16 Pin LCD	1	Aliexpress	https://www.aliexpress.com/item/1005006140674321.html?src=google&gdp	1.5	0.2	Used to give us a display of the mass of metal sample collected
Load sensor 1kg ±Hx711	1	Aliexpress	https://www.aliexpress.com/item/1005005214543330.html?src=google&gdp	3.15	0.39	used to measure the weight of the sample collected
Breadboard	1	Aliexpress	https://www.aliexpress.com/item/1005005948880397.html?src=google&gdp	1.45	0.44	additional breadboard used to connect for the operator
Switch for arduino	1	Digkey	https://www.digkey.ca/en/products/detail/same-sky-formerly-cui-devices-ITS	0.16	0.02	switch operator presses to start the process
				Total Price	97.73	