Material	Description	Quantity	Cost	Source
Arduino Kit	Kit of various Arduino items, purchased as a kit	1	Approximate Cost: $50-$70 dollars	Student provided:
Stepper Motor	Used to open the sample knife valve, and two output valves	2	$8.00	https://makerstore.ca/shop/ols/products/small-reduction-stepper-motor-5vdc-32-step-116-gearing
Vibration Motor	Vibration motor to attach to pipe unit and vibrate	2	$6.20 (2-pack)	Bought at Accesstronik/Gervais Electronics
Vibration Motor (Stronger)	Vibration motor to attach to pipe unit and vibrate (The other wasn't strong enough)	1	$11.79	https://www.amazon.ca/Vibration-Electric-Vibrating-Eccentric-Instrument/dp/B07WSFYVFN/ref=sr_1_5?crid=3BBPC0I92UX21
Ultrasonic Range Sensor	Ultrasonic sensor for sensing the volume of dust/malt	2	$15.49 (1 shipment)	https://www.amazon.ca/Bolsen-HC-SR04-Ultrasonic-Detector-Distance/dp/B07HQG5K5T
Extension Cord	Extension cord from wall outlet output to	1	Approximate Cost: $15.00	Student Provided

	wall for hardwiring			
USB A to Wall Outlet Unit	Unit that goes from the USB to a wall outlet	1	Approximate Cost: $15.00	Student Provided
USB A to B Cable	Cable that goes from USB B (arduino) to USB A for hardwiring	1	See “Arduino Kit”	Student Provided (in kit mentioned above)
Malt (for testing)	Malt for testing threshold value outputs	1 (1 lb bag)	$14.99	https://www.amazon.ca/Briess-Pilsen-Brewing-Whole-Grain/dp/B007BV9NN6/ref=sr_1_6?crid=2V971IKGDV4U8&keywords=malt&qid=1677613377&sprefix=mal%2Caps%2C119&sr=8-6
LED’s	Status lights on the outside of the box	2	See “Arduino Kit”	Student Provided (in kit mentioned above)
PLA	Material for 3D printing	N/A	N/A	Provided in the MakerSpace
Threaded Rod	Rods for opening/closing valves (4in)	1	$1.69 x 1	Bought at Home Hardware
Hex Nuts	To hold the threaded rods on the chassis	1	$2.49 (1 pack)	Bought at Home Hardware
Op-Amp	For part of the circuit for sending the information to the existing system	1	$3.00 + $1.00 (one was fried during testing)	Bought at Accesstronik/Gervais Electronics
MDF	For covering of the wiring	1	$2.50	https://makerstore.ca/shop/ols/products

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Op-Amp (Fixed version)	For part of the circuit for sending the information to the existing system (Alternative Op-Amp didn't work)	1	$1.59	https://nextgenguitars.ca/products/ic-ne5532.html
Total Cost (Approximate cost of Arduino Kit and other already held items not included)			$68.74	
Total Cost (with taxes ≈ 13%) (Approximate cost of Arduino Kit and other already held items not included)			$77.68	