Target Specifications

	Functional Requirements	Relation	Value	Units	Verification Method
1	Measure specific gravity	=	Yes	N/A	Test
2	Measure temperature	=	Yes	N/A	Test
3	Communicate with central system	=	Yes	N/A	Test
4	Graph fermentation curve	=	Yes	N/A	Test
	Constraints	Relation	Value	Units	Verification Method
1	Weight	<	10	lb	Analysis
2	Cost	<	1562.50	CAD ($)	Estimate / Final Check
3	Diameter	<	3	in	Analysis
4	Length in tank	>	3	in	Analysis
5	Operating condition: temperature	=	15-25	^{0}C	Test
6	Withstand pressure	>	16	PSI	Test
	Non-Functional Requirements	Relation	Value	Units	Verification Method
1	Backup battery	=	Yes	N/A	Test
2	Withstand corrosive chemicals	=	Yes	N/A	Test
3	Food-grade materials	=	Yes	N/A	Analysis
4	Reliability	=	Yes	N/A	Test
5	Time to gain familiarity	<	1	Month	Test

	Fluid (Air / Water) Pressure Sensor Module in Canada Robotix		
3-inch gasket	3" PTFE Teflon Sanitary Tri Clamp Gasket, Brewing Tri Clover, Canada Shipped | eBay	1	5.65
Silicone	Electronics Grade Silicone Adhesive Sealant https://www.amazon.ca/Electronics-Silicone-Adhesive-Sealant-Squeeze/dp/B07PG9X9L8/ref=sr_1_1?keywords=chipquik%2Belectronic%2Bgrade%2Bsilicone&qid=1667949595&sr=8-1&th=1	1	9.74
Yeast mesh	https://www.amazon.ca/gp/product/B09C8F7WSR/ref=ppx_od_dt_b_asin_title_s00?ie=UTF8&psc=1	1	10.99
Total Cost ($):			98.82

Item	Description	Quantity	Cost ($) (CAD)
Arduino Uno	69 x 54mm Arduino | MakerLab (odoo.com)	1	9.00
Wires	20cm M-F jumper wire	10	1.00
Wires	20cm M-M jumper wire	10	1.00
USB Adapter	USB A-B adapter for Arduino uno USB cable | MakerLab (odoo.com)	1	7.00
Temperature sensor	Grove temperature sensor to measure temp inside tank Grove temperature sensor | MakerLab (odoo.com)	1	14.00
Display	20-character x 4-line LCD LCD screen | MakerLab (odoo.com)	1	12.06
Breadboard	Breadboard | MakerLab (odoo.com)	1	1.50
Case	The case of the computing center would be designed in the software Onshape then 3D printed.	1	0
Arduino IDE	Software | Arduino	-	0
Onshape	Onshape | Product Development Platform	-	0
3-D Printing Material	Material used for 3-D printing case	-	5.00
Pressure sensor	Fluid (Air/water) Pressure sensor	2	21.98

base for the computing center
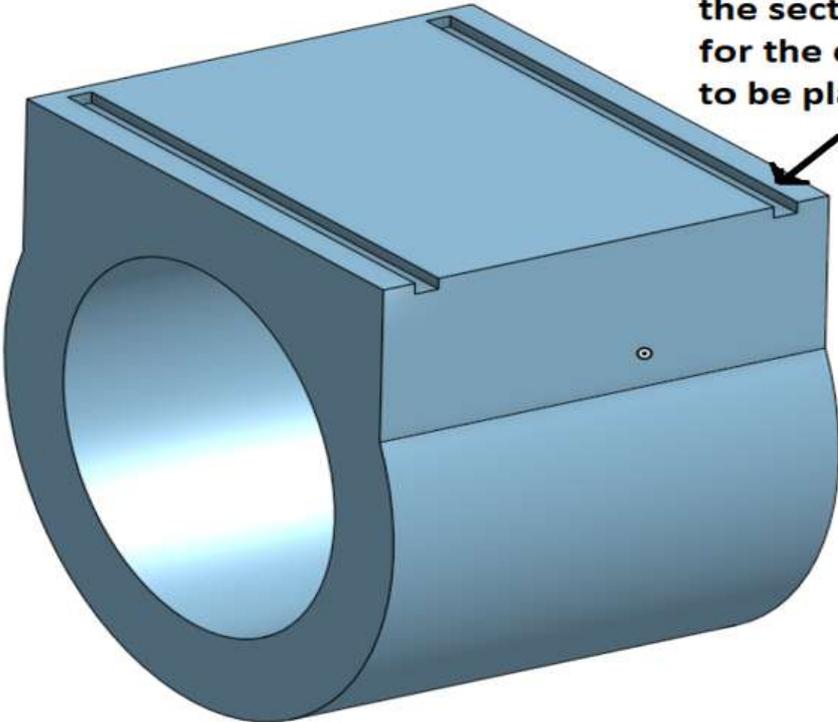
the section for the case to be placed

wall of the tank

side port of the tank