



Revolutionizing surgical tool management with
AI-driven precision to perform **more surgeries**





The Team Driving ORobot



Team Lead
Aly Khan

BASc Biomedical Engineering +
Minor in Commerce, UBC



Engineering Lead
Connor Johst

BASc Computer Engineering,
UBC



Product Lead
Isaac Dee

BASc Manufacturing Engineering,
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Business & Strategy Lead
Neil Thakur

BCom Entrepreneurship +
Business Analytics, UBC



Finance & Operations Lead
Ying Min Chong

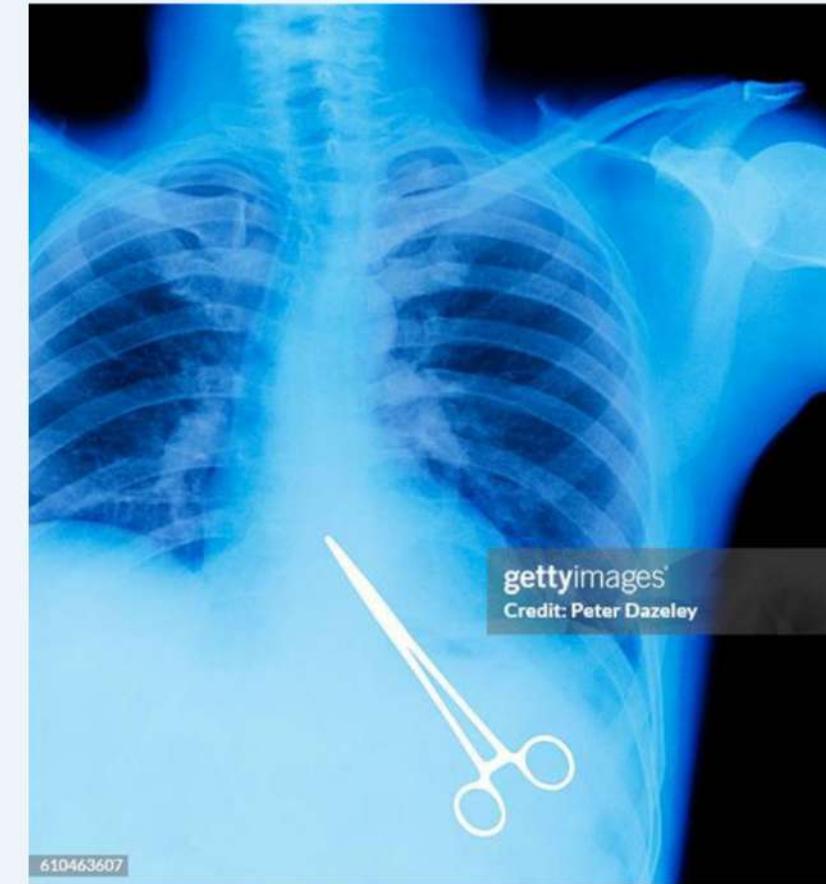
BCom Finance,
UBC



What's Happening in the OR



**Count Discrepancies Delay
Surgeries by ~ 27 Minutes**



**Risk of Retained Surgical Items
(RSIs)**



Why Count Discrepancies Happen



Manual Counting



**High Multitasking
Burden on OR Nurses**



**Severe Nurse
Shortages**



Who is Impacted



Scrub Nurses

High stress,
multitasking
overload



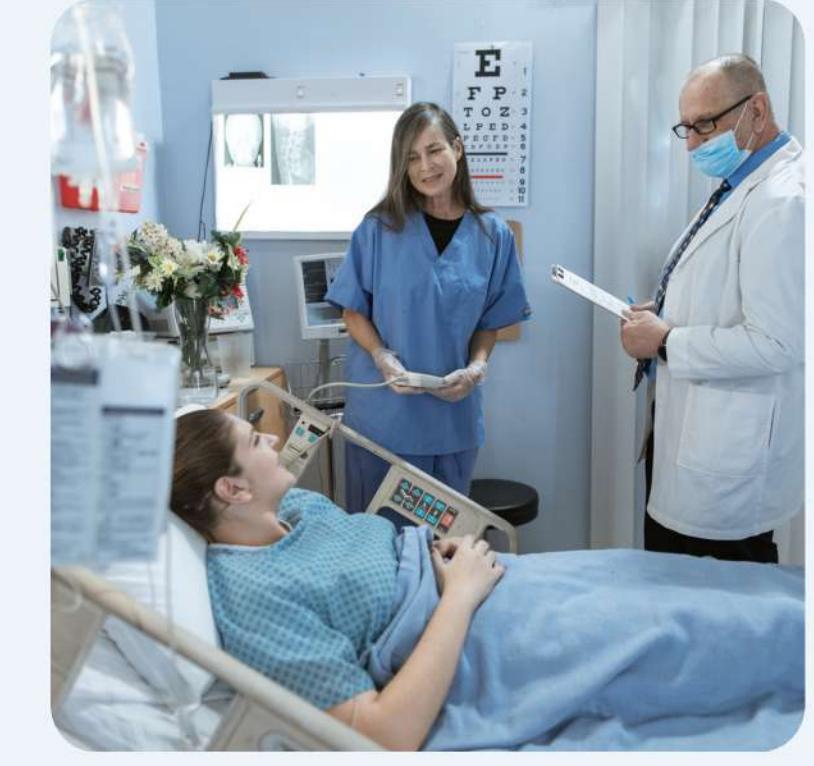
Surgeons

Delays,
reputation risk



Hospitals

Higher costs,
legal exposure



Patients

Safety risks,
longer wait
times

One high-throughput hospital loses \$40M per OR annually due to inefficiencies.



The Market is Asking for a Solution



40+ Interviews with
Industry Professionals



10+ Live Surgical
Videos & Day-in-the-Life



10+ Case Studies
& Experiment Reports



*“Counting keeps getting interrupted when passing tools.
Tech would make it smoother.”*

-S.K., OR Nurse



“85% of nurses **support** tech for better tool counting.”



ORobot is the Solution



Source: UBC Faculty of Medicine x BC Children's Hospital



ORobot Today



- ✓ Voice-controlled tool delivery
- ✓ Real-time tool counting
- ✓ Automated tool passing & retrieval
- ✓ Image-based tool identification

Full dispense and return demo available in appendix I.



ORobot Tomorrow



- Smarter voice recognition with larger AI models
- Support 100 tools + with UV sterilization
- Predict & dispense tools proactively
- Analytics to improve OR efficiency



ORobot Tomorrow



- Smarter voice recognition with larger AI models
- Support 100 tools + with UV

ORobot saves 27 minutes per surgery, allowing hospitals to perform 5,000 more procedures per year.



proactively

- Analytics to improve OR efficiency



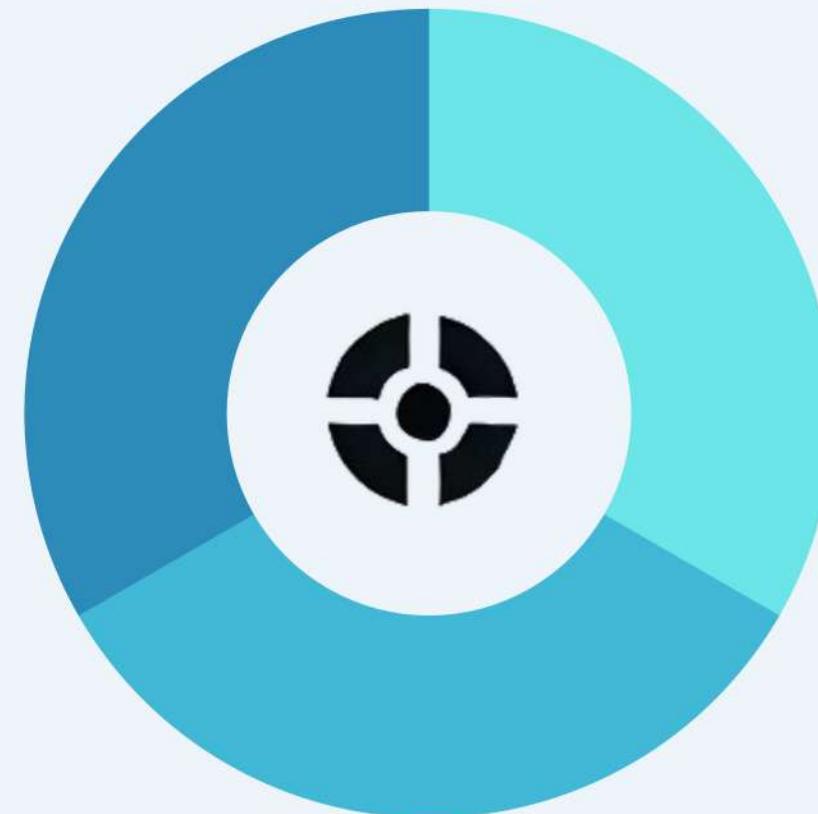
The Competitive Landscape

		Tool Tracking	Robotic Dispensing	Smart Storage	Seamless Workflow Integration
	Surgical Tool Dispensing System	✓	✓	✓	✓
Scrub Nurses (SNs)	Traditional Method	Manual	Manual	✗	Manual
	Tool Counting System	✓	✗	✗	✗
Gestonurse	Robotic SNs (R&D Stage, Not Commercialized)	✗	✓	✗	✗



What Makes ORobot Win

Seamless Workflow Integration



Patentable Innovations

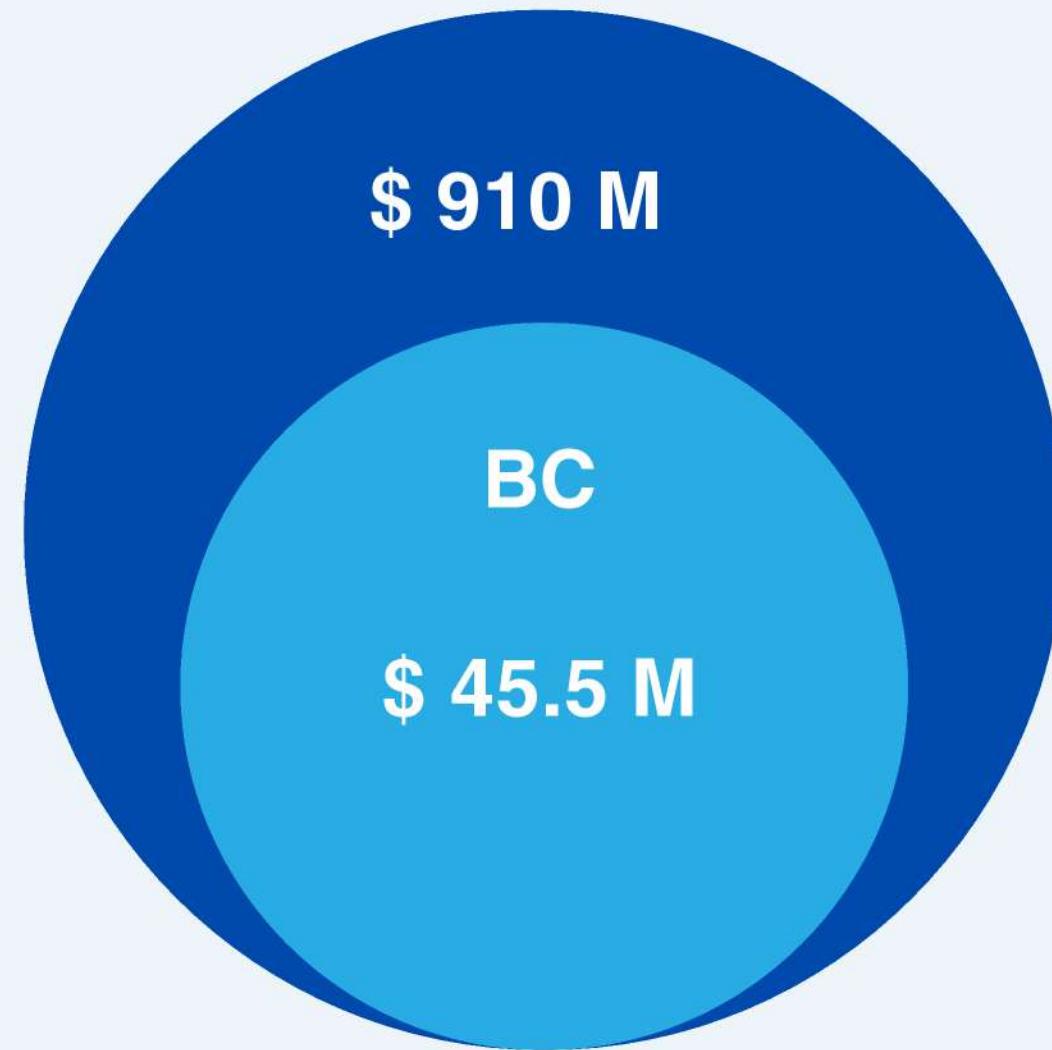
- Voice-Controlled Surgical Dispensing System
- AI-Powered Instrument Recognition & Mapping
- Rail-Guided Dual-Tool Retrieval & Dispensing Mechanism

First-to-Market Advantage

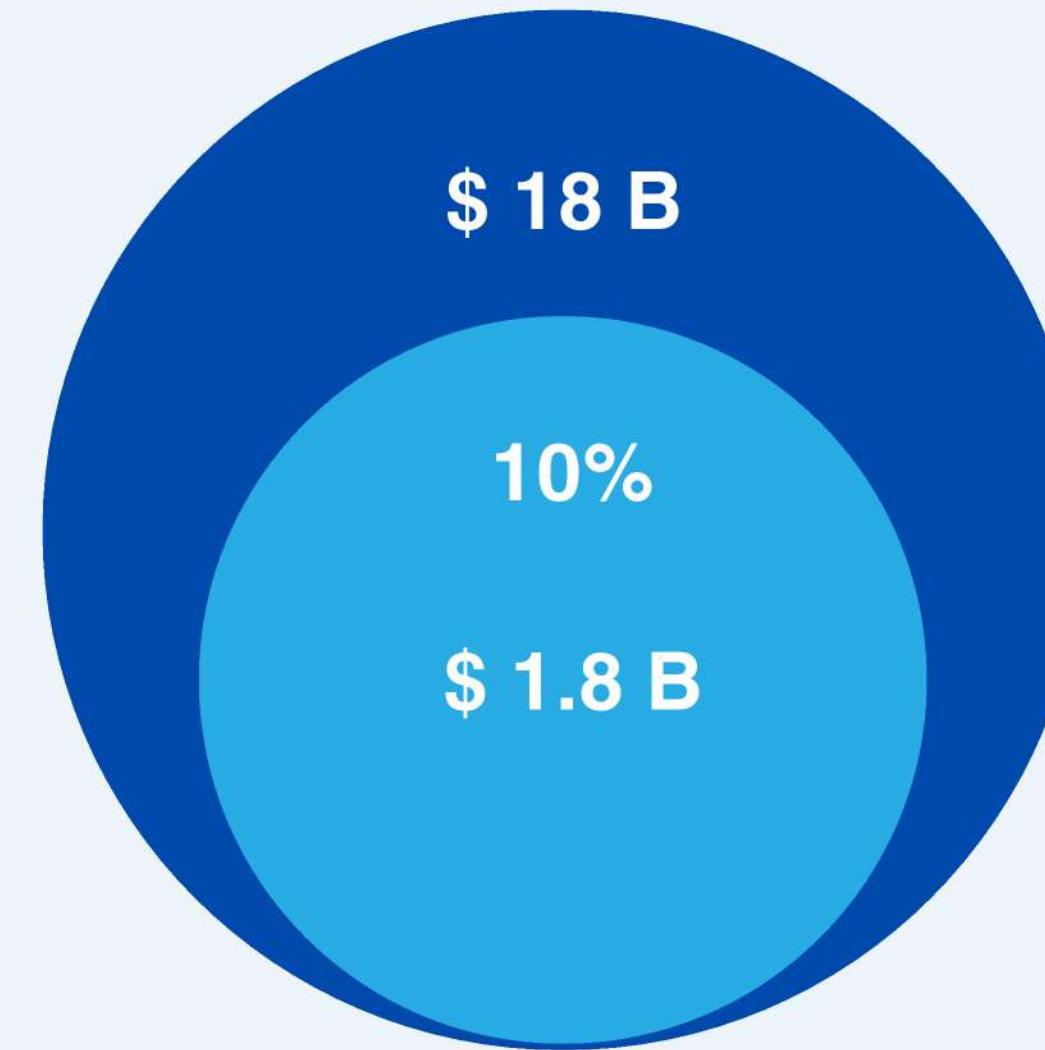


Bottom-Up Market Analysis

Canada



US

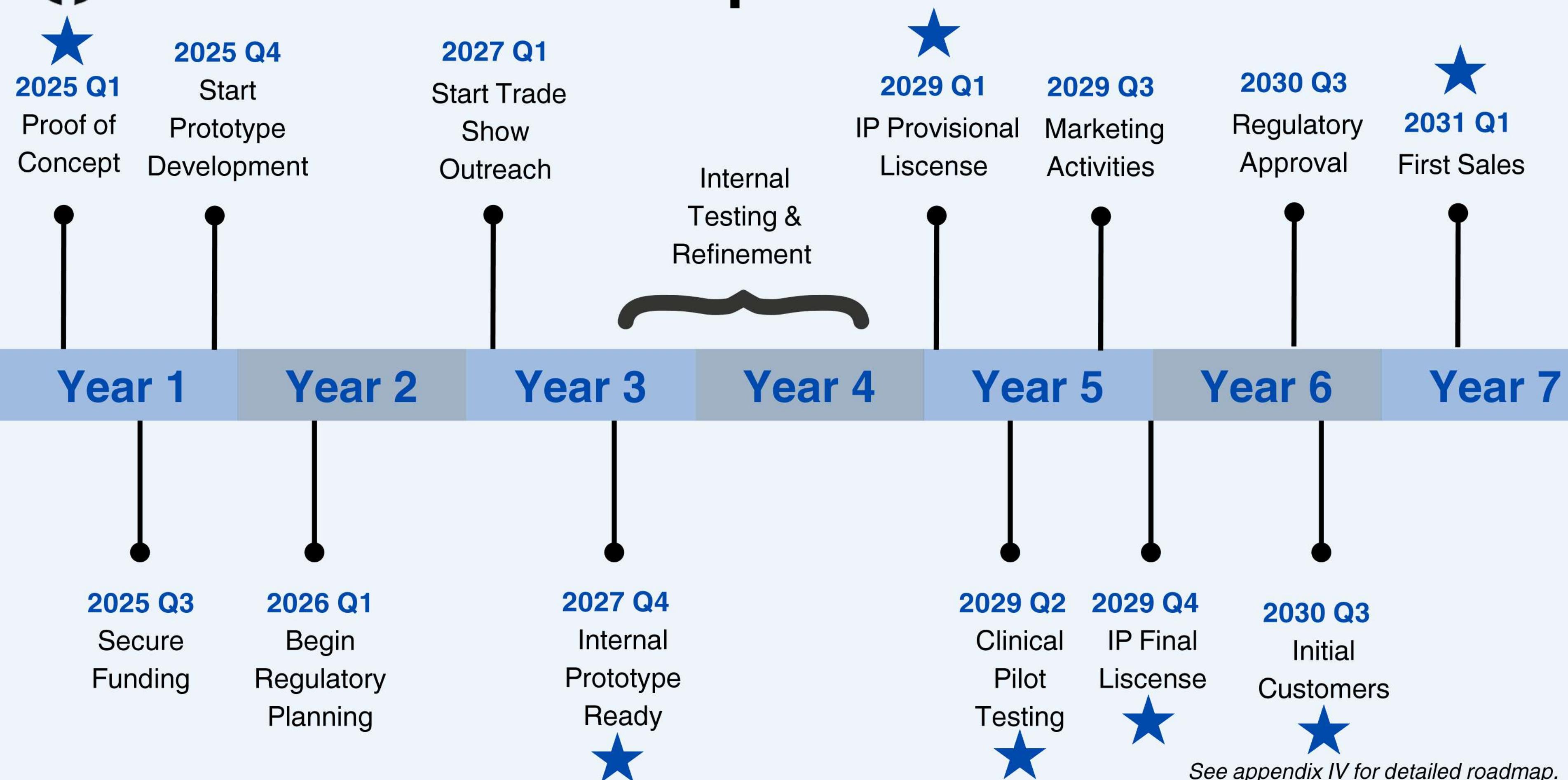


All figures are in USD

See appendix III for detailed calculation.



Executive Roadmap





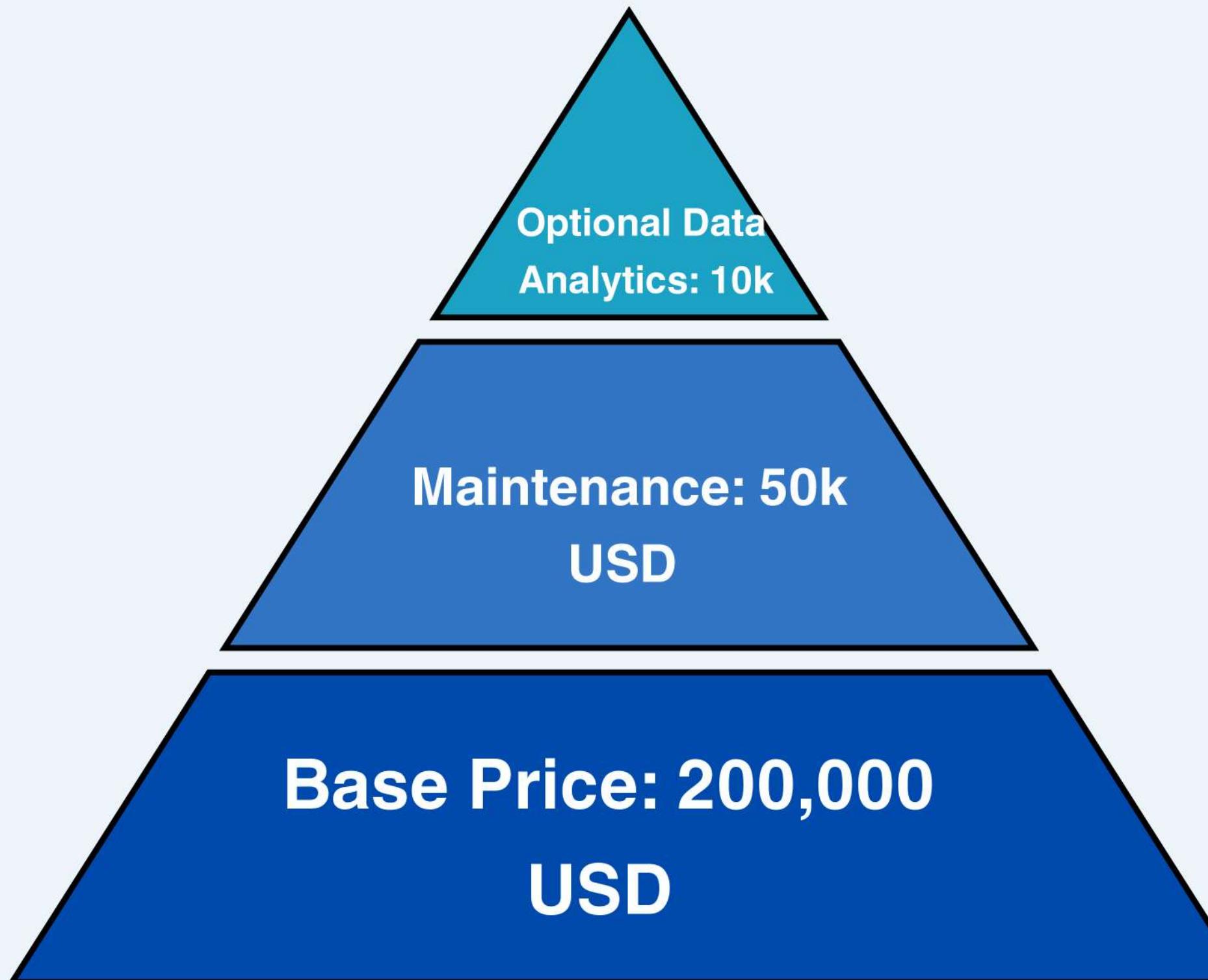
Go to Market Plan

We are here!





Revenue Model



**Final Base Price:
USD 250,000/unit**

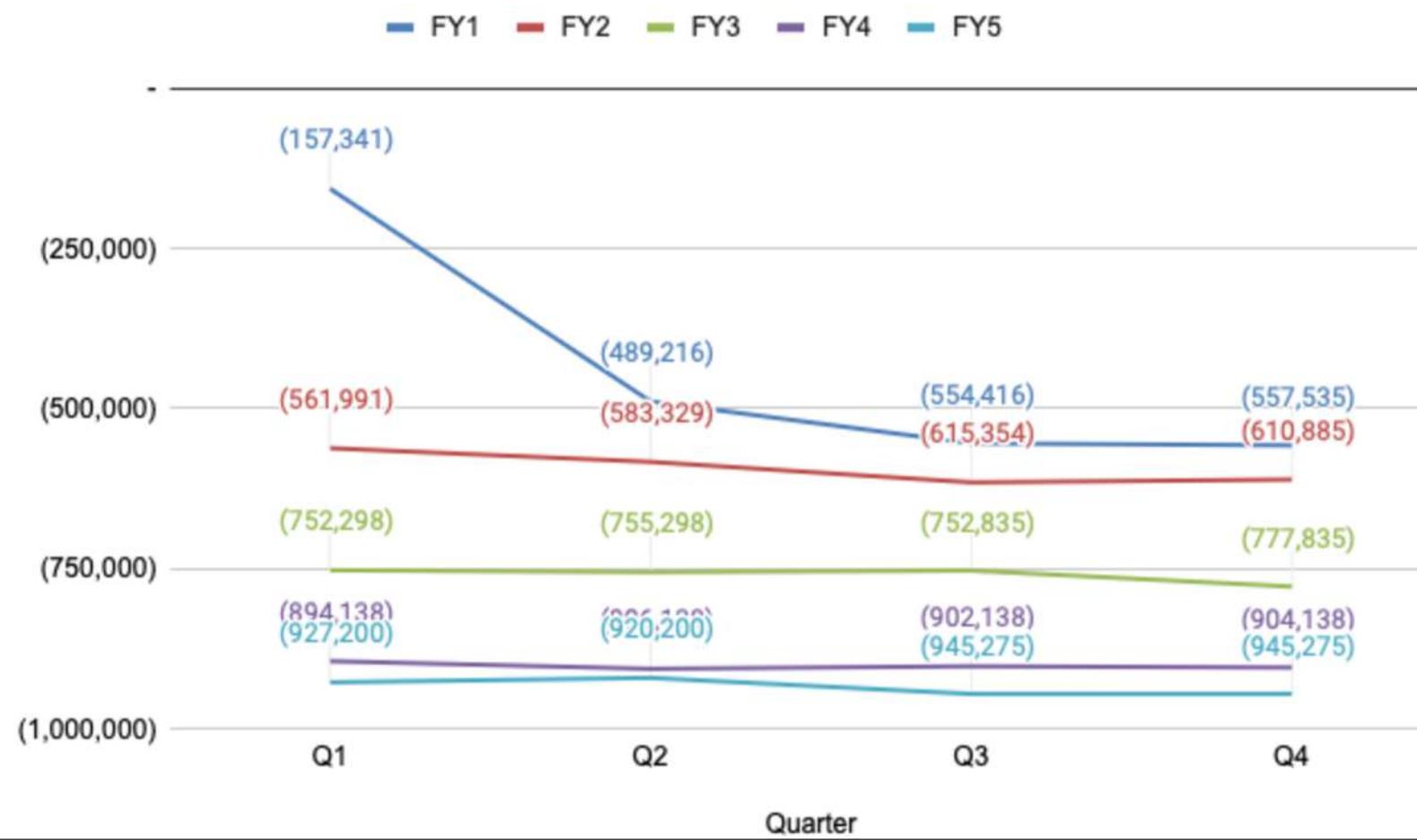
To be sold to hospitals on a 5-year contract basis (Revenue = \$4,166/month)

Channel: Direct Sales to PHSA & Regional Health Services

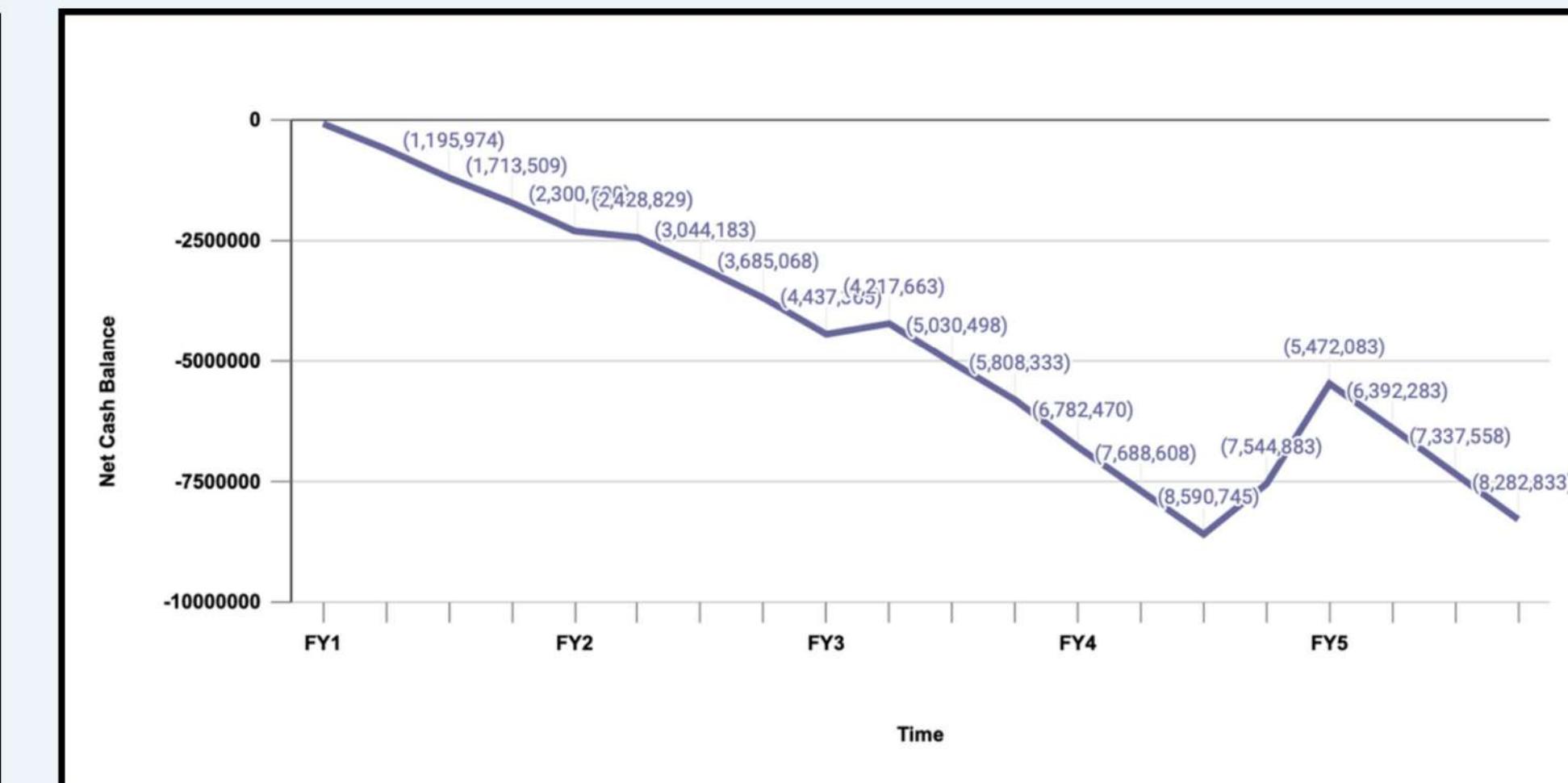


Financials (Year 1 - Year 5)

Net Income Statement



Cashflow Statement

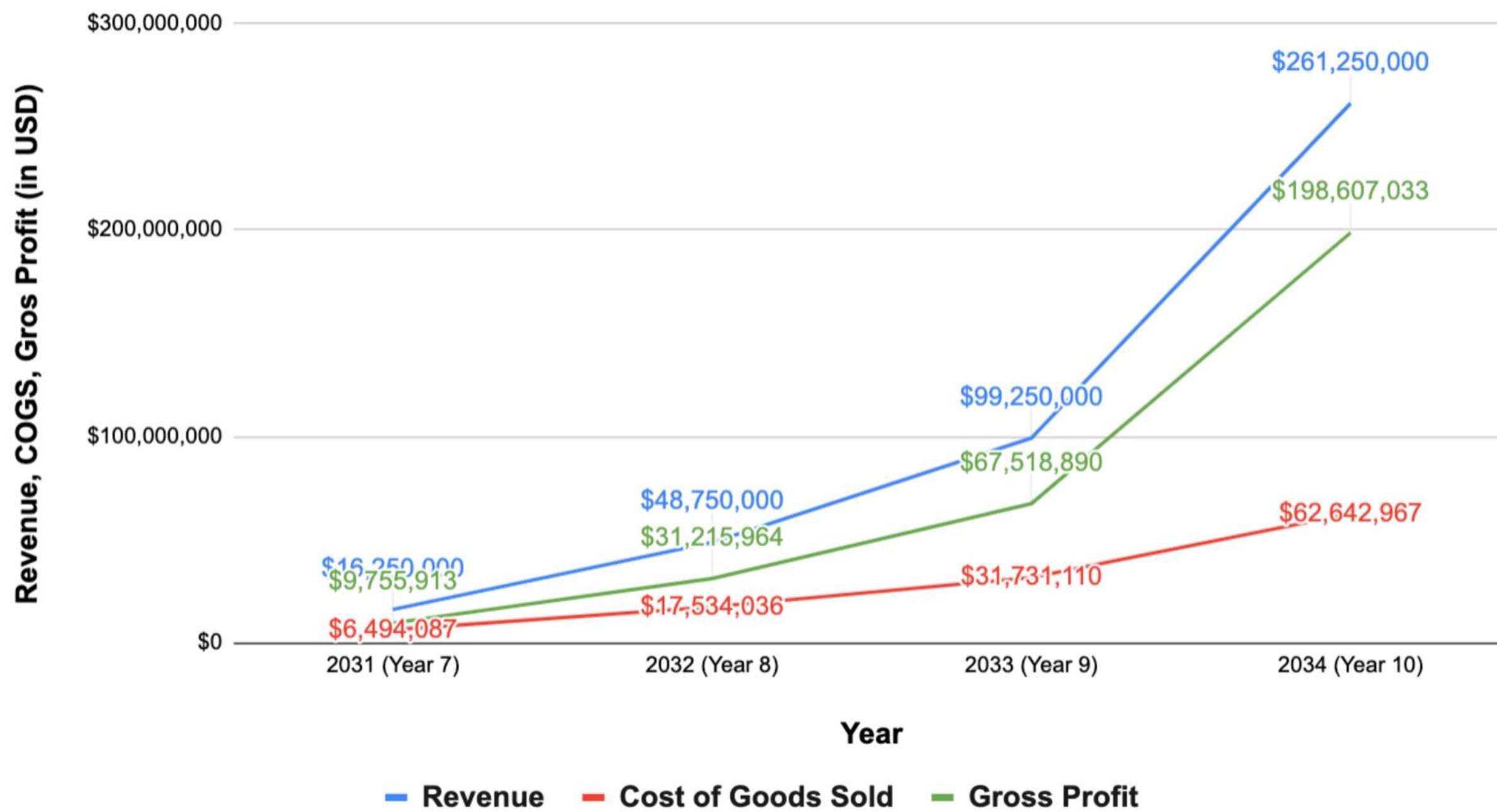


See appendix VII for detailed information.



Revenue, COGS and Gross Profit

Revenue and Gross Profit (Year 7–10)



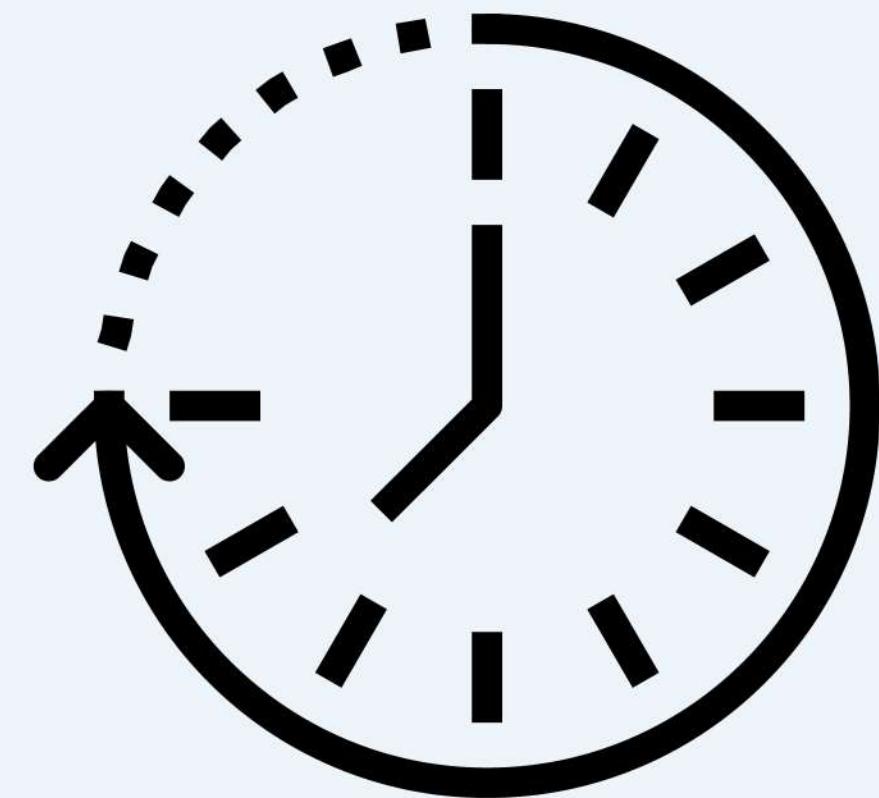
Gross Profit Margin

- Year 7: 60.04%
- Year 8: 64.03%
- Year 9: 68.03%
- Year 10: 76.02%

See appendix VIII for detailed calculations.



ORobot's ROI Impact



Time Saving



More Surgeries

ORobot can pay for itself in three months!

See appendix IX for detailed calculations.



The Advisors



Advisor

George Psiharis

CEO at ThoughtExchange | Mentor at CDL | Advisor at Bía Neuroscience



Advisor

Dr. Gautam Goel

Physician | Pharmacist | CIO at Hero AI | Clinical Informatics & IT Lead QCH ED



Advisor

Dr. Ram Nene

MD, FACS, Cardiovascular Surgeon, Healthcare Innovator, Founder, Investor



NVD Professor

Blair Simonite

Entrepreneur and Medtech Strategist, Neural Impact



NVD Professor

Bree Stanlake

Site Director, Creative Destruction Lab-Vancouver

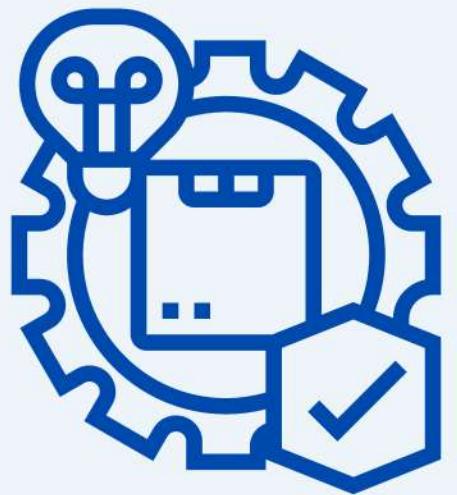
Key Expertise Needed:

Medical Regulations & Certifications Specialist



The Ask

\$ 150k USD



Prototype



Regulatory



Pilot Testing



Salaries for
Engineers and
Medical
Specialists



ROBOT[®]

Revolutionizing Surgical Tool Management

Get in touch!

alykhannuruddin@gmail.com (Aly Khan Nuruddin)

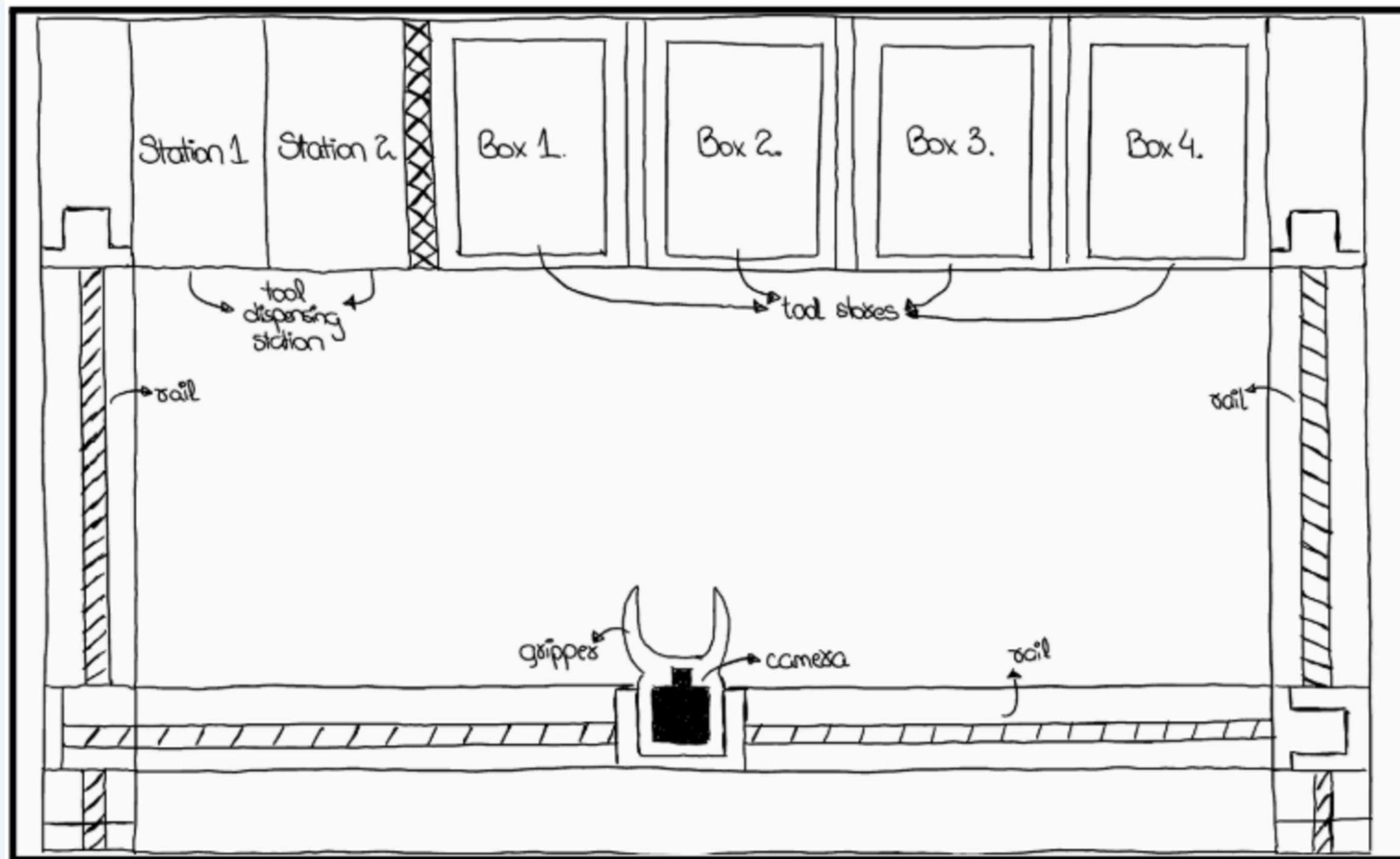


Appendix I: Full Demo Video of MVP





Appendix II: Sketch of Prototype





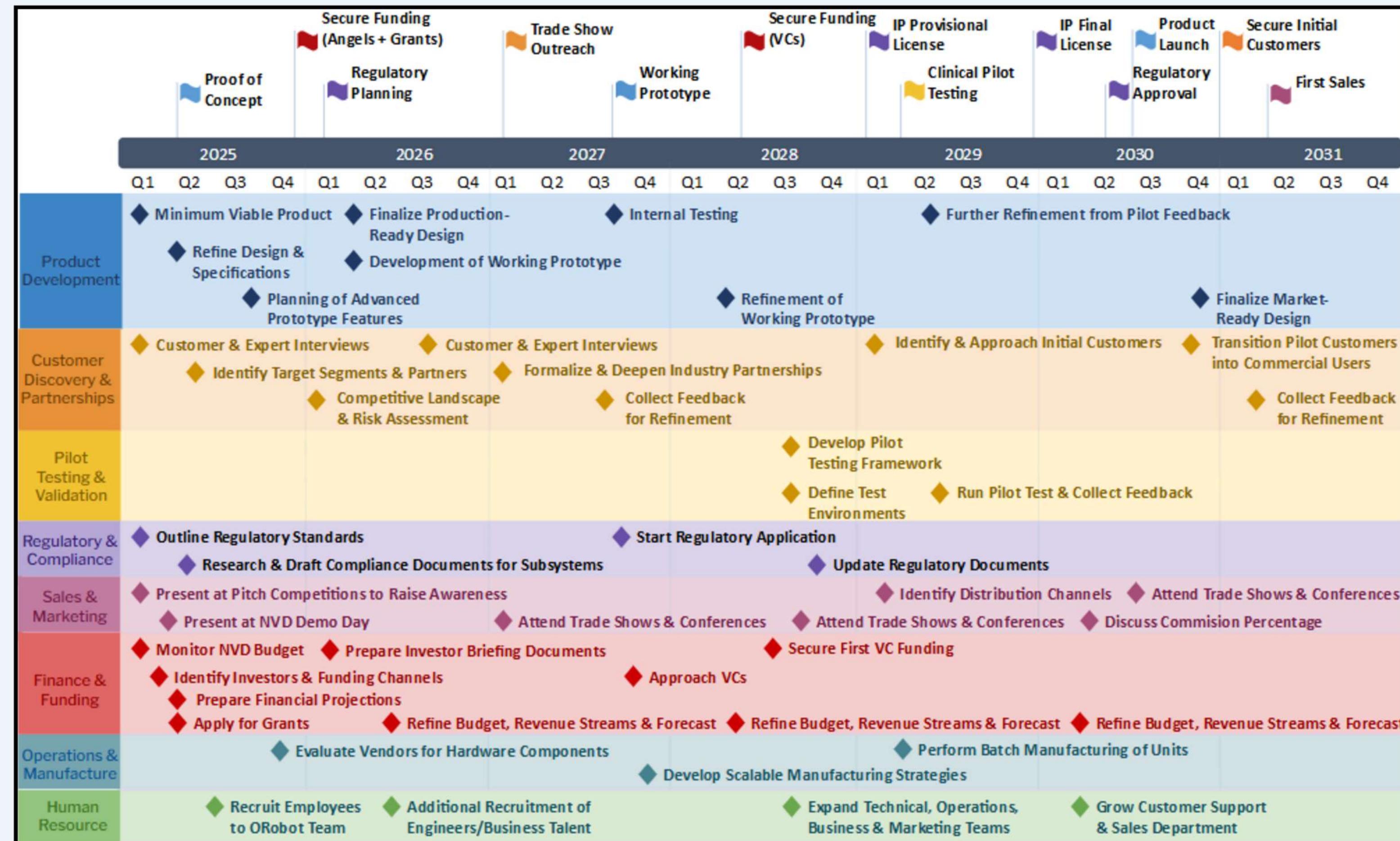
Appendix III: Bottom-Up Market Calculation

	Canada	BC	US	US (10%)
Hospitals	1300	65	6000	6000
Operating Rooms	6500	325	72000	72000
Per Unit Price	\$ 200,000.00	\$ 200,000.00	\$ 250,000.00	\$ 250,000.00
Adoption Rate	70%	70%	100%	10%
Market Size	\$910,000,000.00	\$ 45,500,000.00	\$ 18,000,000,000.00	\$1,800,000,000.00

- Initial Per Unit Cost: \$ 250, 000
- Canada Pricing Discount: 20%
- Number of ORs per Hospital (Canada): 5
- Number of ORs per Hospital (US): 12



Appendix IV: Roadmap





Appendix V: Cost of Goods Sold

Table1						
Operational Domains	Components	#	Unit	#	Per Unit Cost	#
						Estimated Per Unit Cost in Year 7
Mechatronics	Box	100		80		95
	Gripper	1		1,000		1,189
	Rails	5		1,000		1,189
	Extrusions	15		100		119
	Drivers	5		50		59
	Motor Controller	1		2,000		2,377
	Power Supply	1		300		357
	Wiring	1		300		357
	Cover	1		1,000		1,189
	Additional Hardwares	1		2,000		2,377
Software	Medical-Grade Anti-Static Wheels	4		300		357
	Dispensing Unit	2		1,500		1,783
	Camera	1		2,000		2,377
	Microphone	1		1,500		1,783
	Tool Counting Function and Display	1		2,500		2,972
Sterilization	Additional Software Components	1		2,000		2,377
	Jetson Nano	1		2,000		2,377
	Surgical Drape	1		500		594
	Built-in sterilization function - Autoclave (Steam) / Chemical	1		20,000		23,774
Manufacturing, Assembly, Compliance & Maintenance	Assembly Fee	1		10,000		11,887
	Compliance Fee	1		10,000		11,887
	Maintanance Cost	1		8,000		9,509
Total						99,909



Appendix VI: Per Unit Price

Cost of Goods Sold (in USD)	\$99,909.04
Mark Up %	100.00%
Price (Per Unit)	\$199,818.08
Fee allocation for maintenance (includes 2 years of free maintenance)	\$50,181.92
Final Price (Per Unit)	\$250,000.00



Appendix VII: Detailed Financials

ORobot in Pre-Sale Phase	FY1	FY2	FY3	FY4	FY5
	%	%	%	%	%
Revenues	-	-	-	-	-
Less Cost of Revenues	-	-	-	-	-
Gross Margin	-	-	-	-	-
Less Operating Expenses	(1,758,509)	(2,371,559)	(3,038,265)	(3,606,550)	(3,737,950)
Sales and marketing	250,035	580,391	715,685	779,045	822,450
R&D	847,608	705,483	1,023,715	1,423,125	1,507,000
Operating and G&A	860,866	1,325,685	1,578,865	1,724,380	1,728,500
Other	(200,000)	(240,000)	(280,000)	(320,000)	(320,000)
EBITDA	(1,758,509)	(2,371,559)	(3,038,265)	(3,606,550)	(3,737,950)

Element of Income	FY1					FY2					FY3					FY4					FY5					
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	
ITEMS																										
Revenues					-					-					-					-						
Cost of goods sold					-					-					-					-						
Gross Margin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ENSES					-					-					-					-						
Sales and marketing	41,196	59,759	70,759	78,321	250,035	143,809	143,809	143,809	148,965	580,391	177,671	177,671	177,671	182,671	715,685	190,261	190,261	198,261	200,261	779,045	199,175	192,175	215,550	215,550	822,	
Research & Development	33,324	262,261	276,011	276,011	847,608	148,824	177,511	194,574	184,574	705,483	261,179	264,179	249,179	249,179	1,023,715	355,781	355,781	355,781	1,423,125	376,750	376,750	376,750	376,750	1,507,		
General & administrative	132,821	217,196	257,646	253,203	860,866	329,359	322,009	336,971	337,346	1,325,685	383,448	383,448	395,985	415,985	1,578,865	428,095	440,095	428,095	1,724,380	431,275	431,275	432,975	432,975	1,728,		
Govt' Receipts (eg. SRED/IRAP)	(50,000)	(50,000)	(50,000)	(50,000)	(200,000)	(60,000)	(60,000)	(60,000)	(60,000)	(240,000)	(70,000)	(70,000)	(70,000)	(70,000)	(280,000)	(80,000)	(80,000)	(80,000)	(320,000)	(80,000)	(80,000)	(80,000)	(80,000)	(320,		
Other Expenses	157,341	489,216	554,416	557,535	1,758,509	561,991	583,329	615,354	610,885	2,371,559	752,298	755,298	752,835	777,835	3,038,265	894,138	906,138	902,138	904,138	3,606,550	927,200	920,200	945,275	945,275	3,737,	
Earnings (loss)	(157,341)	(489,216)	(554,416)	(557,535)	(1,758,509)	(561,991)	(583,329)	(615,354)	(610,885)	(2,371,559)	(752,298)	(755,298)	(752,835)	(777,835)	(3,038,265)	(894,138)	(906,138)	(902,138)	(904,138)	(3,606,550)	(927,200)	(920,200)	(945,275)	(945,275)	(3,737,	
(Deficit), beginning of period	-	(157,341)	(646,558)	(1,200,974)	-	(1,758,509)	(2,320,500)	(2,903,829)	(3,519,183)	(1,758,509)	(4,130,068)	(4,882,365)	(5,637,663)	(6,390,498)	(4,130,068)	(7,168,333)	(8,062,470)	(8,968,608)	(9,870,745)	(7,168,333)	(10,774,883)	(11,702,083)	(12,622,283)	(13,567,558)	(10,774,	
(Deficit), end of period	(157,341)	(646,558)	(1,200,974)	(1,758,509)	(1,758,509)	(2,320,500)	(2,903,829)	(3,519,183)	(4,130,068)	(4,130,068)	(4,882,365)	(5,637,663)	(6,390,498)	(7,168,333)	(7,168,333)	(8,062,470)	(8,968,608)	(9,870,745)	(10,774,883)	(10,774,883)	(11,702,083)	(12,622,283)	(13,567,558)	(14,512,833)	(14,512,	

Statement - Cashflow Estimate																				
	FY1				FY2				FY3				FY4				FY5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Netflows																				
Revenues																				
Gov't Receipts (eg. SRED/IRAP)	50,000	50,000	50,000	50,000	60,000	60,000	60,000	60,000	70,000	70,000	70,000	70,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	
Investment					70,000		500,000				1,000,000					2,000,000	3,000,000			
Total Cash Inflows	200,000	50,000	50,000	120,000	60,000	560,000	60,000	60,000	70,000	1,070,000	70,000	70,000	80,000	80,000	80,000	2,080,000	3,080,000	80,000	80,000	80,000
Outflows																				
Cost of Goods Sold (COGS)																				
Expenses (OPEX)	207,341	539,216	604,416	607,535	621,991	643,329	675,354	670,885	822,298	825,298	822,835	847,835	974,138	986,138	982,138	984,138	1,007,200	1,000,200	1,025,275	1,025,275
Capital Expenditures (CAPEX)	70,000	35,000	40,000	30,000	25,000	45,000	-	30,000	-	25,000	60,000	-	80,000	-	-	50,000	-	-	-	
Total Cash Outflows	277,341	574,216	644,416	637,535	646,991	688,329	675,354	700,885	822,298	850,298	882,835	847,835	1,054,138	986,138	982,138	1,034,138	1,007,200	1,000,200	1,025,275	1,025,275
Net Cashflow	(77,341)	(524,216)	(594,416)	(517,535)	(586,991)	(128,329)	(615,354)	(640,885)	(752,298)	(219,703)	(812,835)	(777,835)	(974,138)	(906,138)	(902,138)	(1,045,863)	(2,072,800)	(920,200)	(945,275)	(945,275)
Net Cash Balance	(77,341)	(601,558)	(1,195,974)	(1,713,509)	(2,300,500)	(2,428,829)	(3,044,183)	(3,685,068)	(4,437,365)	(4,217,663)	(5,030,498)	(5,808,333)	(6,782,470)	(7,688,608)	(8,590,745)	(7,544,883)	(5,472,083)	(6,392,283)	(7,337,558)	(8,282,833)



Appendix VIII: Revenue (Year 7-10)

	Canada	BC	US	
Hospitals	1,300.00	65.00	6,000.00	
Operating Rooms	6,500.00	325.00	72,000.00	
Price (Per Unit)				\$250,000
	2031 (Year 7)	2032 (Year 8)	2033 (Year 9)	2034 (Year 10)
Quantity Sold	65	195	397	1045
Revenue	\$16,250,000	\$48,750,000	\$99,250,000	\$261,250,000
Cost of Goods Sold	\$6,494,087	\$17,534,036	\$31,731,110	\$62,642,967
Gross Profit	\$9,755,913	\$31,215,964	\$67,518,890	\$198,607,033
Gross Profit Margin	60.04%	64.03%	68.03%	76.02%



Appendix IX: ROI Calculation

Price of ORobot	\$ 250,000.00
Profit Margin per CABG Surgery	\$ 17,000.00
Number of Additional Surgeries Needed	14.71
Assumed Duration per Surgery (hrs)	5
Total Time Required for 14.7 Surgeries (hrs)	73.53
Weekly OR Hours Saved from Miscounts (hrs)	7.90
Estimated Weeks Required to Complete 14 Surgeries	9.31

*Coronary Artery Bypass Graft (CABG)



Appendix X: Intellectual Property

1

US12070280B2 - Voice-Controlled Surgical System

2

US20240005662A1 - AI-Based Surgical Instrument Recognition

3

US20230245753A1 - AI-Assisted Surgical Systems

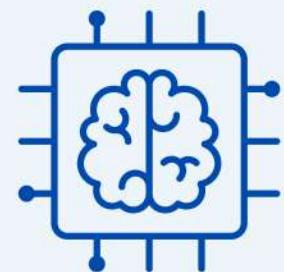
Robot's combination of voice-command tool dispensing, instrument tracking, and robotic retrieval is a novel system patentable via a utility patent.



Appendix XI: ORobot's Patentable Innovations



Voice-Controlled Surgical Dispensing System



AI-Powered Instrument Recognition & Mapping



Rail-Guided Dual-Tool Retrieval Mechanism



Appendix XI: Business Model Canvas

Key Partnerships Planned Strategic Partnerships: <ul style="list-style-type: none">Teaching hospitals & surgical centers in BCPHSA & public health authoritiesRegulatory consultants for Health Canada/FDA approvals	Key Activities <ul style="list-style-type: none">Prototype developmentPilot testingAI and mechatronics integrationRegulatory approvals and certificationSales, partnerships, and go-to-market execution Key Resources <ul style="list-style-type: none">Core engineering and design teamMedical regulatory expertiseIP assets (patentable innovations)Grants and early-stage funding	Value Propositions <ul style="list-style-type: none">Eliminates manual tool counting and miscountsReduces OR delays by 27 minutesImproves patient safety by reducing retained surgical itemsNo workflow disruptionAll-in-one smart systemEases nurse workload	Customer Relationships <ul style="list-style-type: none">Pilot programs to build trust and demonstrate valueOngoing support and training post-saleMaintenance and system upgradesClinical feedback loops to guide product improvement Channels <ul style="list-style-type: none">Direct outreach to hospitals and procurement teamsClinician-driven advocacyTrade shows and medical tech conferencesPartnerships with medical associations	Customer Segments <ul style="list-style-type: none">End User: Scrub NursesRecommender: SurgeonsInfluencer: Medical AssociationsEconomic Buyer: PHSA Supply ChainDecision Maker: Public Health Authority
Cost Structure <ul style="list-style-type: none">Cost of Goods Sold (COGS)R&D and prototype developmentEmployee Salaries (Engineering, clinical, and business staff)Sales & Marketing (Outreach, trade shows, promotions)Regulatory & Certification Costs: Health Canada, FDA, IP filings, licensing			Revenue Streams <ul style="list-style-type: none">Hardware sales (\$200K base, \$250K bundled per unit)Annual maintenance and software subscription (\$50K–75K)Optional analytics add-on (\$10K)	\$