

PlantBot

Commercialization
Strategy

Group 23

2022/04/04





PlantBot
Business Model

UAV-SUPPORTED FOREST REGENERATION

Global Value Proposition

▶ Canada's Lifeblood

- ▶ Canada is built on our forests: they're where we work, play, and live. Forestry alone is a \$23.7 billion dollar industry [1].

- ▶ Climate change and other threats are disrupting the way we manage this vital resource. To combat increasing afforestation, new methods of restocking need to be developed.

▶ Changing Environment

- ▶ Forest fires and invasive species have crippled nature's capacity to reforest. More than 2M hectares of forest have been lost in the past 5 years [2, 3].
- ▶ Existing methods of reforestation and nursery supply chains are not able to meet demand. Better tools are needed, and fast, as our forest ecosystems are strained.



Technical Value Proposition

Faster Reseeding

Saves valuable time by seeding a large area in a short timespan

Safer

- Easy access to hard-to-reach areas means that ground crews are less exposed to risks

Less Invasive

- Site access is not required as the drones can be piloted remotely

More Efficient

With the large area that a drone is able to cover, the cost to effectiveness is maximized.

Channels of Distribution

PlantBot will function as Business to Business (B2B) and Business to Consumer (B2C) service, which will provide services to businesses and customers. The paying customer will lease the drones and everything required for operation, such as drone operators and any software required for mapping and seeding.

Leasing physical drones to consumers

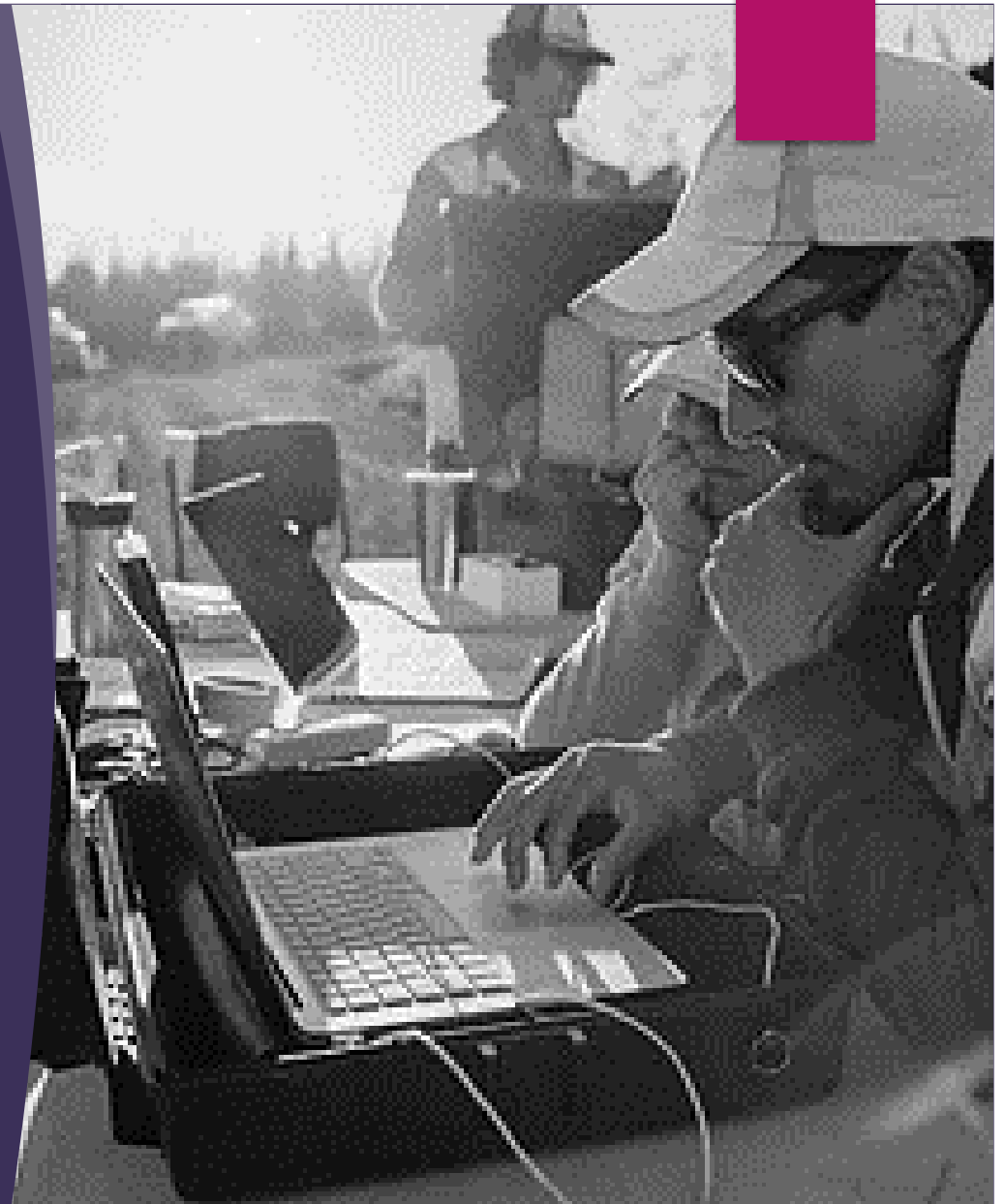
Distributing UAV Aerial Mapping services directly to businesses

Distributing Land Reclamation and Industrial to Agriculture businesses and international countries.

Distributing Wood Stocking services directly to businesses

Customer Relationships

- ▶ From small-scale private contracts to large commercial or government-funded contracts, PlantBot intends to create a strong connection with its customers, big & small, over a long-term and a wide geographic basis.
- ▶ For private property and small-scale services, personal assistance is the primary concern for us.
- ▶ For commercial woodlots planned for harvesting, optional planned future reforestation services are available.
- ▶ For natural disaster recovery, on-call services are also available.
- ▶ For land-reclamation services, local community interactions are vital to doing the job properly.



Revenue Streams

The revenue strategies for PlantBot entail relying upon contracts within each growing customer segment. As listed, we have four global industries that we would like to partake in: Commercial Logging, Aerial Mapping, Land Reclamation, and Wood stocking. We would like to rely upon extracting government contracts and private contracts within the private sector. In addition, we would also partake in international contracts with countries natural disasters rehabilitation I.e., forest fires.

For further information on funding, please continue to see the "Key Activities" section where we list our partnership strategies.

Commercial Logging Industry	\$18.6B market
Aerial Mapping Industry	\$6B market
Land Reclamation Industry	\$12.6B market
Wood stocking Industry	\$4.7B market

Key Resources

Physical Materials

- Metals and Plastics

Technology

- Camera, electrical, and aerial technical components

Logistical

- Storage, construction, transportation, and testing

Information

- UAV expertise (repair and use), mapping, and remote sensing



Key Activities and Partnerships

Transport Canada Pilot Certification

- ▶ Along with manual drone use comes the requirement to have a Transport Canada Drone Pilot Certification
- ▶ Canadian Drone operation laws are evolving very quickly in an effort to keep up with the UAV technology
 - ▶ Classifications are typically based on Visual Line of Sight (VLOS) or Beyond Visual Line of Sight (BVLOS) as well as characteristics of the location



Cost Structure

Variable Costs

- Initial Design and Construction of Drones
- Yearly UAV Pilot Certification
- Technical UAV Expertise & Training

- Drone Maintenance & Parts
- Costs via Economies of Scale
- Team Salaries

Fixed Costs

Key Partnership with TreeCanada and OneTree

- ▶ While breaking into the reforestation market, we intend to position ourselves as a supplement to manual reforestation methods.
- ▶ We aim to partner with some of the primary NGOs in Canada's reforestation effort: OneTree & TreeCanada.
- ▶ Relationships with NGOs will provide us with industry liaisons and customer contacts.



Strengths

- Innovation Value over Alternative
- Segment & Channel Depth
- Benefits to Environment and Sustainability
- Ethical Practices
- Market & Industry experience

Weaknesses

- Channel & Segment Diversity
- Lack of Alternative Markets
- Lack of UAV experience
- Lack of technical experience
- Scale of Startup business (i.e., business' initial capacity & reach)

SWOT Analysis

Opportunities

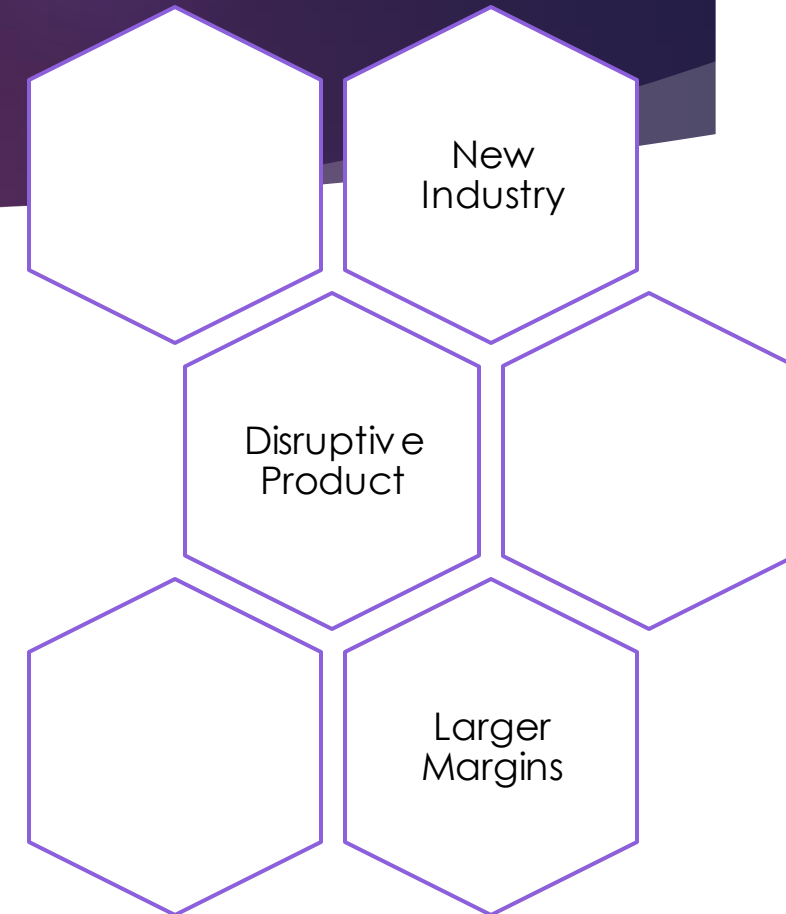
- Nationwide governmental support & funding based on climate commitments
- High Commercial & Industrial Viability
- Long-term repeat business of Commercial Woodlot Contracts

Threats

- External Economic Incentives towards Manual Reforestation
- Future legislation on drones
- Technical Issues
- Privacy laws on UAVs

Market Analysis

- ▶ 320 million trees per year planted at \$0.43/tree in Canada
- ▶ Total Canadian market valuation of \$137.6 million
- ▶ Underexplored market segments in carbon credit sales, seed pod production, and government wildfire contracts
- ▶ PlantBot will be an early adopter in a disruptive industry
 - ▶ Market is currently unsaturated
 - ▶ Business model decreases operating expenses as compared to conventional reforestation



Customer Segments

Natural Disaster Recovery

Governmental contracts to restock forest fires and invasive species

Commercial Logging

Reforestation of harvested areas

Land Reclamation

Increasing disused industrial and agricultural sites' reforestation rates

Woodlot Restocking

Reforesting private woodlots following harvest

		DroneSeed	FlashForest	AirSeed	Drone Deploy
Company Specific	# of Employees	60	26	25	228
	Funding Type	Series A	Series A	Series A	Series E
	Revenue (USD)	\$ 1,000,000.00	\$ 5,000,000.00	\$ 5,000,000.00	\$ 55,000,000.00
	Product	Drone Reforestation	Drone Reforestation	Drone Reforestation	Drone Mapping Software
Customers	Primary Buyer	Logging Industry	Government Contracts	Charity/Non-Profit	Academic Research
	Secondary Buyer	Government Contracts	Charity/Non-Profit	Government Contracts	Private Businesses
	Tertiary Customer	Charity/Non-Profit	Logging Industry	Logging Industry	Government Contracts
Product Specific	Product Specific Features	Each drone is able to carry 57 lbs of seeds, designed to cover 3/4 of an acre per flight.	Drone designed specifically for reforestation of ares damaged by environmental disasters, usually forest fires.	Autonomous drone originally designed to reseed areas affected by forest fires in the 2017-18 Austrailian wild-fires.	A user friendly software that is able to map out areas with the use of ordinary drones.
	Product Strengths	Large company with a proven reputation, works at a 6x efficiency of a regular laborer. Very efficient software that helps with the reseeding process.	Able to plant the seeds at 10x normal rate and 80% cost of a laborer.	Autonomous drone significantly reduces the need for skilled labourers, therefore reducing costs.	Very user friendly and works with a multitude of products. The software produced by the company is industry leading.
	Product Weaknesses	Long and expensive setup costs associated with reseeding. The drones used require several operators.	Small company can only focus on a few projects at a time and lacks the infrastructure to take on large projects.	Much slower reseeding time compared to operator-flown competitors.	Series E funding means that the company failed to meet expectations. The company can be a risky investment.

Competitor Analysis Framework

Competitor Analysis: DroneSeed

- ▶ DroneSeed is the largest company in the competitive market right now with 60 employees.
- ▶ The company has a competitive advantage due to the already-established relationships with target customers of PlantBot.
- ▶ PlantBot has a competitive advantage because DroneSeed has a low revenue model, with a low return-on-investment for the upcoming future compared to PlantBot.



Competitor Analysis: Flash Forest

- ▶ Flash Forest has a profitable business model and subsidies from governments. Based out of Toronto
- ▶ Flash Forest focuses on Government reforestation projects and contracts. Competitive disadvantage in securing logging industry contracts.



Competitor Analysis: AirSeed

- ▶ AirSeed is a small start-up based in Australia
- ▶ The Australian based company is not well-established in the North American market and is not as competitive in the market as the Canadian based PlantBot.



Competitor Analysis: Drone Deploy

- ▶ Different market than PlantBot, but a similar business model and technology.
- ▶ Larger company with significantly larger profit margins.



DroneDeploy

Financial Plan

Required Vendor Funding

- We plan to acquire vendor financing from commercial banks specializing in small-medium size businesses to finance our plant in Alberta. We will pay an

Financial sponsors

- We plan to raise additional equity financing through accredited private investors towards upfront capital expenditure costs, and NWC. The terms of the agreement will be provided that the investors will receive the proceeds from their investment at the end of year 4 as per our proforma income statement.

Repayment of proceeds to investors

- In year 4, we plan to pay the proceeds of profits towards our financial sponsors in dividends to increase their IRR. After a four-year period, they will receive a positive return on their investment.

Projected Revenue Model

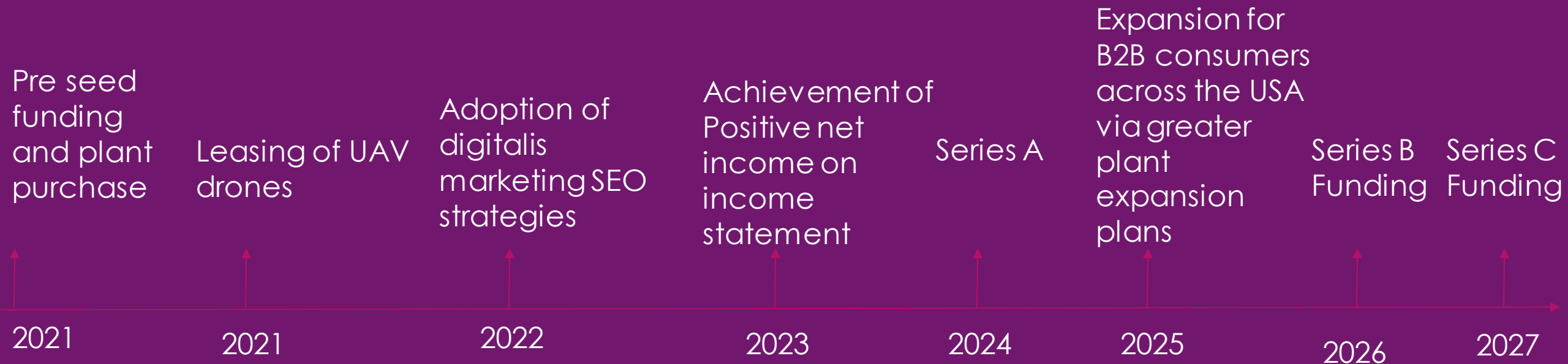
Proforma Income Statement	Units	2022 % change		2023 %change		2024 % change		2025				
Sales	150	\$	3,750,000.00	15%	\$	4,312,500.00	15%	\$	4,959,375.00	15%	\$	5,703,281.25
Less variable expenses												
COGS \$150/sale	150	\$	300,000.00	15%	\$	345,000.00	15%	\$	396,750.00	15%	\$	456,262.50
Delivery of Drones to customers \$150/delivery	150	\$	22,500.00	15%	\$	25,875.00	15%	\$	29,756.25	15%	\$	34,219.69
Contribution margin		\$	3,427,500.00	15%	\$	3,941,625.00	15%	\$	4,532,868.75	15%	\$	5,212,799.06
Less fixed expenses												
Advertising		\$	10,000.00	0%	\$	10,000.00	0%	\$	10,000.00	0%	\$	10,000.00
Employee salaries		\$	3,412,500.00	0%	\$	3,412,500.00	0%	\$	3,412,500.00	0%	\$	3,412,500.00
Utilities		\$	5,000.00	0%	\$	5,000.00	0%	\$	5,000.00	0%	\$	5,000.00
Office equipment		\$	40,000.00	-88%	\$	5,000.00	0%	\$	5,000.00	0%	\$	5,000.00
Insurance		\$	15,000.00	3%	\$	15,450.00	3%	\$	15,913.50	3%	\$	16,390.91
Transportation Vehicles \$50,000/vehcile	25	\$	1,250,000.00									
Headquarters plant		\$	1,000,000.00									
Net Income		\$	(2,305,000.00)	121%	\$	493,675.00	120%	\$	1,084,455.25	63%	\$	1,763,908.16

Cost Structure

- ▶ 95% of the costs associated with the project are associated with fixed costs.
- ▶ 5% of the costs are due to variable costs i.e. costs of goods sold and delivery of the drones to the customers.
- ▶ We plan to have upfront costs in acquiring a headquarter plant, and transportation vehicles in 2022 as a one time cost. We also plan to decrease our office equipment costs from \$40,000 to \$5,000 each year to 2025.
- ▶ Insurance costs will increase by 3% each year as we plan to acquire more drones.
- ▶ Variable costs will increase by 15% as we plan to acquire more drones. Advertising costs will stay flat at \$10,000 per year

Cost Structure	2022 % change		2023 % change		2024 % change		2025
Variable Costs (COGS)	\$300,000	15%	345000	15%	396750	15%	456262.5
Delivery of drone to customers	\$22,500	15%	25,875	15%	29,756.25	15%	34219.69
Total Variable costs	\$322,500	15%	370,875	15%	426,506.25	15%	490482.19
Fixed Expenses:							
Advertising	\$10,000	0%	\$10,000	0%	\$10,000	0%	\$10,000
Employee salaries	\$3,412,500	0%	\$3,412,500	0%	\$3,412,500	0%	\$3,412,500
Utilities	\$5,000	0%	\$5,000	0%	\$5,000	0%	\$5,000
Office Equipment	\$40,000	-88%	\$5,000	0%	\$5,000	0%	\$5,000
Insurance	\$15,000	3%	\$15,450	3%	\$15,913.50	3%	\$16,390.91
Transportation Vehicles	\$1,250,000	-100%					
Headquarter plant	\$1,000,000	-100%					
Total Fixed Costs	\$5,732,500	-40%	\$3,447,950	0%	\$3,448,414	0%	\$3,448,891
Total Cost	\$6,055,000	-37%	\$3,818,825	1%	\$3,874,920	2%	\$3,939,373

Market Plan (go-to-market timeline)



Projection Assumptions

- ▶ The business revenue is assumed to increase by 15% annually based on our current cost of service of \$25,000 per drone. Our price is based on the margins required to achieve a profit, and the price of the drones being \$2000 each on average.
 - ▶ As the company grows and matures, the company drone output is expected to grow at 15% annually, at the same rate as the hardware and employee expansion.
- ▶ Secure subsidies from the Canadian government as a large portion of funding for PlantBot.
 - ▶ Much of the competitors funding (apprx. 30%) is secured through subsidies from the government for ecological.
- ▶ The company is expected to break even in the second half of year 2.
 - ▶ Early projections estimate that PlantBot will operate with a ~2.3 million loss in the first year, bouncing back to a total gross profit of ~500k in year 2 and ~1.1 million in year 3.

Sensitivity Analysis

- ▶ The chart shows the sensitivity analysis volume of drones that the company would purchase with the fluctuating price of each drone.
- ▶ The goal for the fixed cost of drones is 300k USD.

		Volume of Drones				
		120	135	150	165	180
Price/Drone	\$ 1,800.00	\$ 216,000.00	\$ 243,000.00	\$ 270,000.00	\$ 297,000.00	\$ 324,000.00
	\$ 1,900.00	\$ 228,000.00	\$ 256,500.00	\$ 285,000.00	\$ 313,500.00	\$ 342,000.00
	\$ 2,000.00	\$ 240,000.00	\$ 270,000.00	\$ 300,000.00	\$ 330,000.00	\$ 360,000.00
	\$ 2,100.00	\$ 252,000.00	\$ 283,500.00	\$ 315,000.00	\$ 346,500.00	\$ 378,000.00
	\$ 2,200.00	\$ 264,000.00	\$ 297,000.00	\$ 330,000.00	\$ 363,000.00	\$ 396,000.00

- ▶ The current price is \$2000 per drone which allows for 150 drones to be purchased.
- ▶ If the price drops to \$1800 dollars, an investment into 165 drones can be made with the same capital, while a price increase to \$2200 permits only 135 drones to be purchased for the same investment capital.

Venture Legal Structure

- ▶ PlantBot will incorporate into a Canadian-Controlled Private Corporation (CCPC) after funding rounds
- ▶ Incorporation provides liability protection and allows for greater funding through shareholders
- ▶ PlantBot will incorporate federally to allow for international operations

Equity Distribution

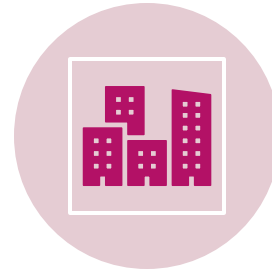
- ▶ Founder stake divided evenly between cofounders
- ▶ Less than 5% equity given away pre-seed to avoid founding team dilution

Stage	Investor Stake	Founder Stake	Allocated to Employees
Seed	23%	65%	12%
Series A	45%	45%	10%
Series B+	60-80%	35-19%	5-1%

Funding



Funding to be raised through private equity and public grants



Round capital raised based on industry averages

Seed

- Funding Goal: 100K

Series A

- Funding Goal: 10M

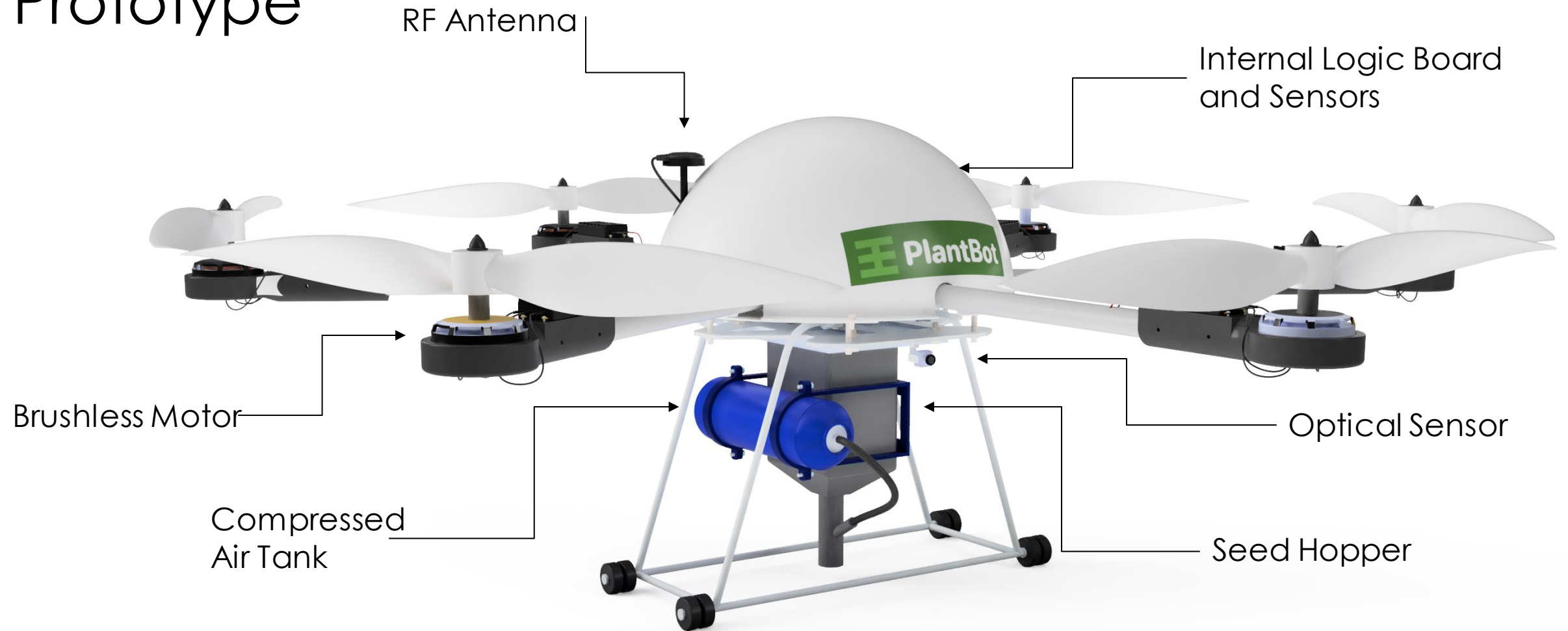
Series B

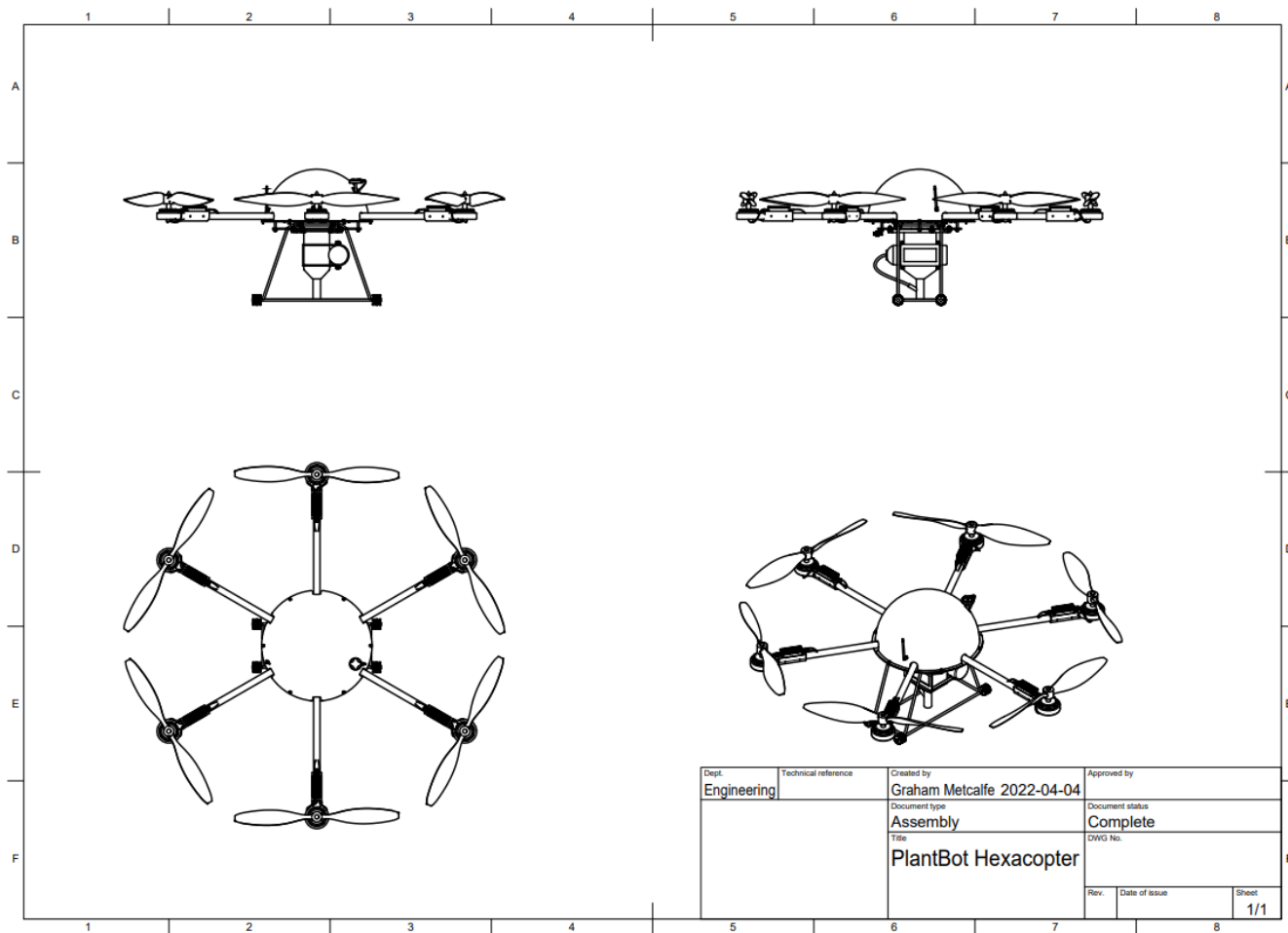
- Funding Goal: 40M

Series C

- Funding Goal: 120M

Prototype





Technical Specifications

Citations

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