

Vizia

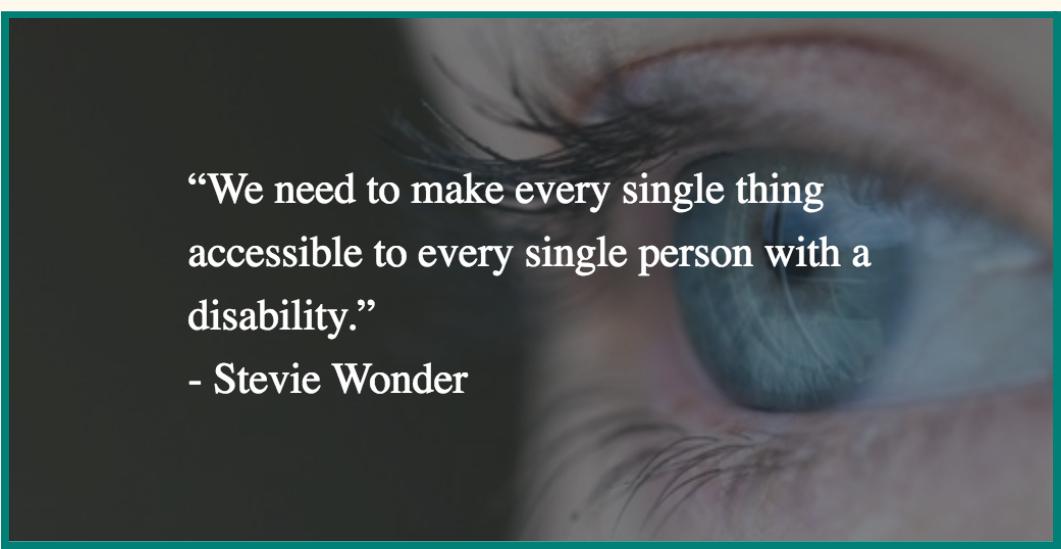
Augmented Perception for the Visually Impaired

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START-UP BUSINESS PLAN

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A close-up photograph of a person's eye, showing the iris and eyelashes. The eye is looking slightly to the right.

“We need to make every single thing
accessible to every single person with a
disability.”

- Stevie Wonder

Vizia’s mission is to enable blind people to perceive the environment.

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1. Executive Summary

Business Overview

Vizia aims to help blind people perceive the environment through audio descriptions using real-time, machine-learning techniques. We are seeking an initial investment of **\$250K**, and with our strong team and alliances plan to accelerate our growth to a **\$930M revenue by year 5**.

Problems

Blind people are unable to perceive the environment.

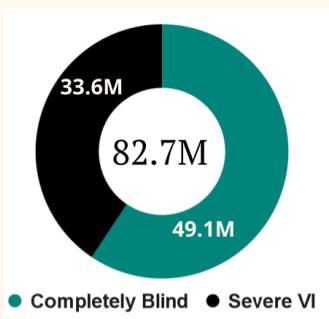
Results in:

- Natural Isolation & Loss in productivity
- Limited Job Market, Poverty

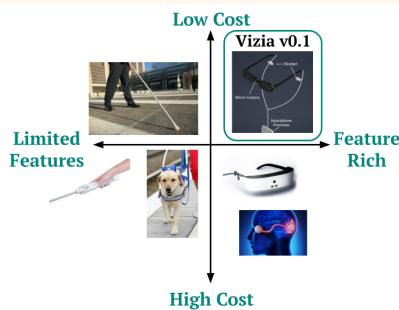
Vizia Solutions

- **Live Video Camera:** captures full field of view
- **Machine-Learning Audio Descriptions:** interpret and relay audio descriptions to user
- **Software-based Solutions:** subscription model with easy expansion of feature set

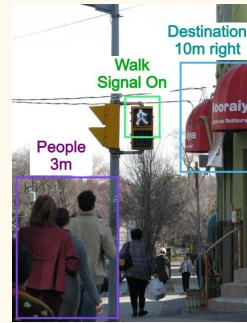
Market



Competitive Advantage



Vizia in Action



Vizia Prototype



Financials

Vizia aims to generate revenues through product sales (glasses), subscription fees, and ad-supported income. Year 5 revenue is projected at **\$930M** driven by **9M subscribers (7% TAM)**, resulting in profits of **\$259M**.

Investment/ROI

A total investment of **\$25M** leads to profitability by year 3. We are seeking a **Seed Investment of \$250K for 10% equity** for product development. Given our year 5 projected revenues this leads to a **220x return**.

Above all, Vizia's passion is driven by the social impact of our product to the visually impaired community.

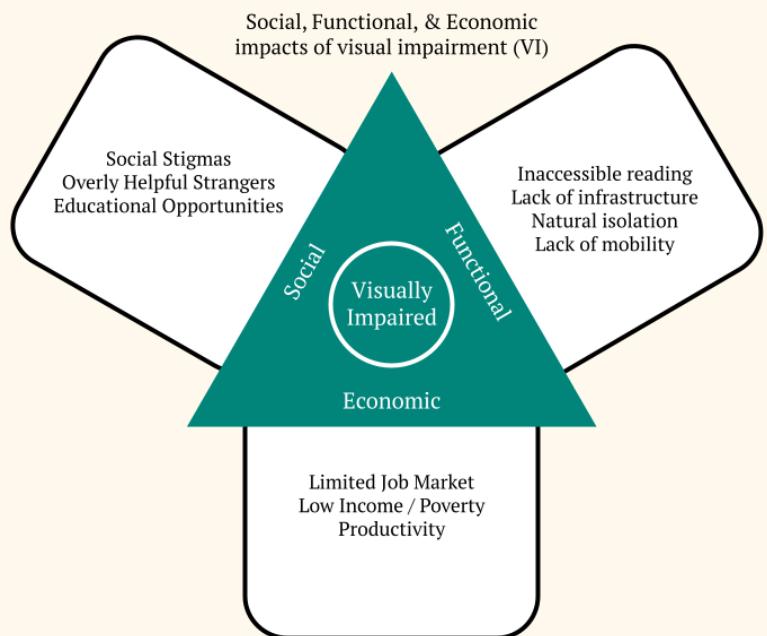
2. Problem

There are greater than 80 million people in the world who are either blind or live with severe visual impairment (VI). A vast majority of people lose their eyesight due to macular degeneration, glaucoma, and other age-related diseases.



The loss of eyesight can affect social, economic, and functional well-being. In general, blindness can influence one's mobility and productivity, leading to an isolated lifestyle. Social stigmas and functional limitations also lead to heavy economic impact.

The mobility of blind consumers is also limited due to a lack of infrastructure in pedestrian and transportation systems. For example, many intersections have not adopted auditory cues for walk signs, bus/train arrivals, etc.



These problems are currently addressed through assistive devices such as guide dogs, white canes, and caregivers. However, the utility of these aids are limited to ground obstacle detections and basic navigation.

Using advanced machine learning techniques with integrated electronics, Vizia aims to bring a perception of the surroundings through audio descriptions.

3. Customer Segments

The primary customer segment for our launch product is all consumers with severe visual impairment or complete blindness. Our go-to market will target the U.S. consumer base and will expand to a worldwide market segment. Our product also has applicability as a prompting device for Alzheimer's patients. We plan to examine this market segment starting Year 3.

Statistics:

World Scale (2020):

- 1.1 Billion with Moderate to Severe Visual Impairment
- 82.7M with uncorrectable Visual Impairment
 - 49.1M Completely Blind
 - 33.6M Severe Visual Impairment

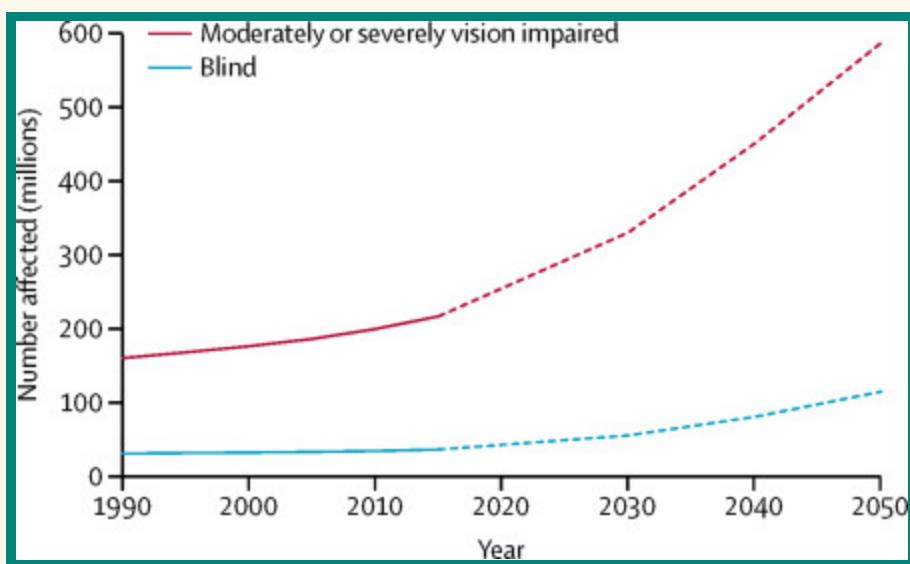
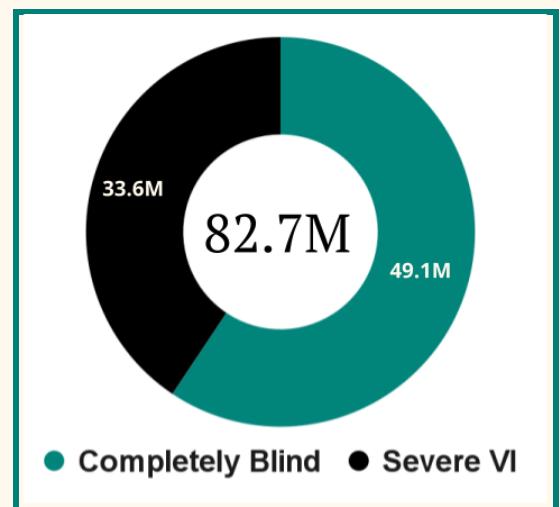
By Age:

- 73% of legally blind are over age 50

By Earnings:

- Median Annual Earnings: \$38,500
- Number living below the poverty line: 1.04M (27.7%)

Future Projections for MSVI / Blind (2017):



The number of blind people is expected to increase by 1.5x by 2050.

4. Unique Value Proposition

Our product aids visually impaired / blind consumers to perceive the environment through real-time, machine-learning generated audio descriptions of a live camera feed.

5. Solutions

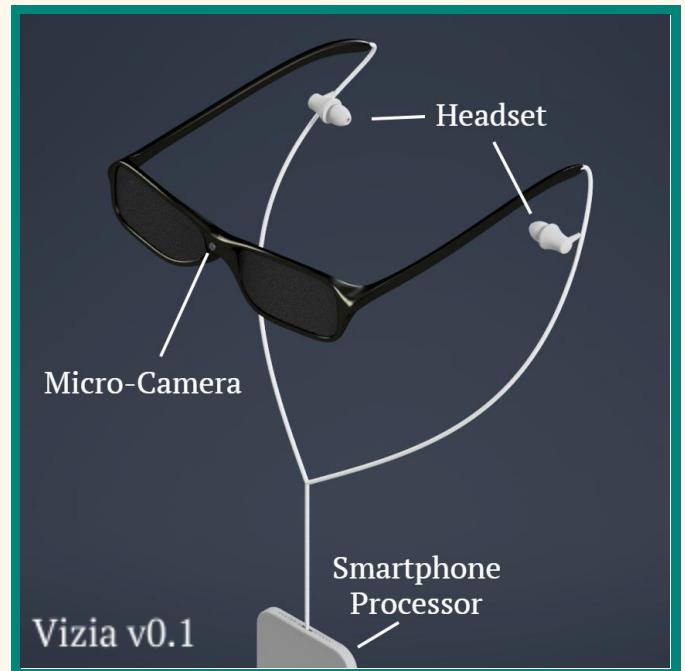
We use a camera mounted to a pair of glasses, connected to a smartphone processor to produce real-time audio descriptions of the environment, and then convey the audio through a pair of headphones.

Hardware Features:

- HD Micro-Camera with wide FOV
- Processor in smartphones
- Real-time software analytics engine
- Headset to relay audio descriptions

Usability Features:

- Facial recognition + Object detection
- Location / distance measurements
- Traffic Lights, crosswalks, bus arrivals
- Direction / navigation using GPS
- Text to Speech (food labels, signs, etc.)
- Intuitive software interface
- Integrated with existing assistive devices
- Customizable speaking tone, speed
- Processing done periodically and on-demand



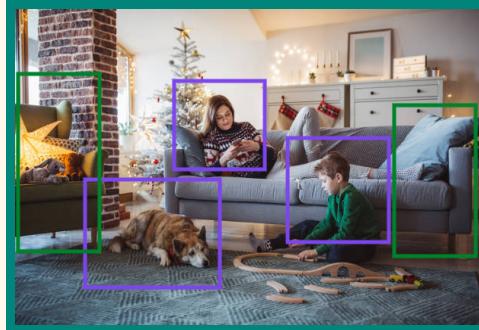
Vizia Functional Prototype (Wireless)

Vizia in Action:

Using machine learning algorithms and image learning techniques, the scene captured by the video would be narrated as demonstrated below. Click each box to hear a possible audio description (if you are using Adobe Acrobat Reader).



- "People 3 meters ahead"
- "Walk sign is on ahead"
- "Destination 10 meters away on the right"

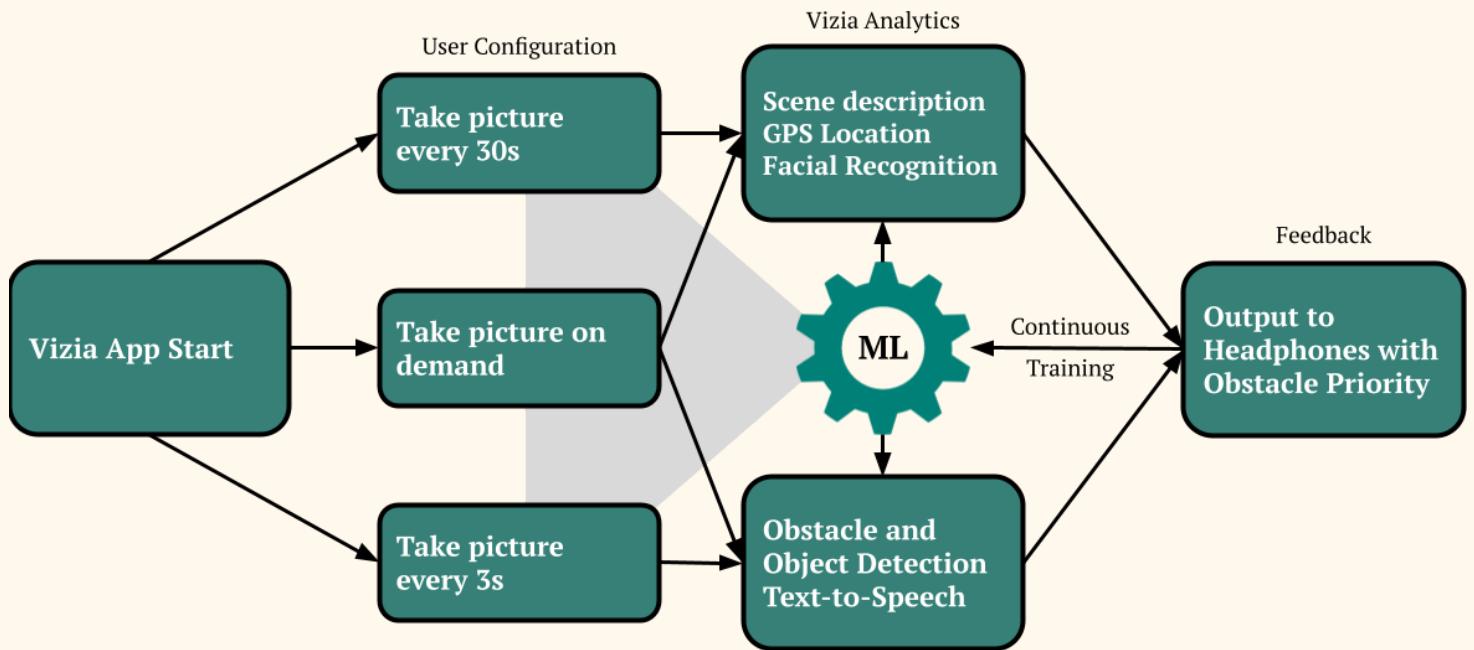


- "A living room with two couches"
- "Lisa is sitting on the couch"
- "Roger is playing on the floor"
- "Dutch the dog is 3m ahead"



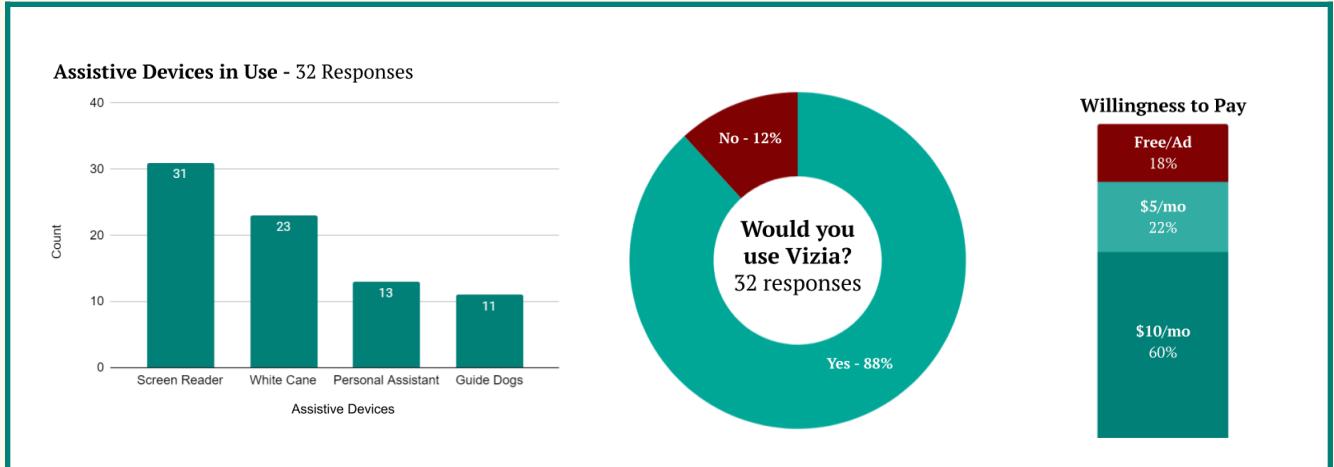
- "Supermarket Fruits and Vegetables Area"
- "People 7m away on the left"
- "Avocados 3m front, 88 cents"
- "Tomatoes 3m front, 99 cents"
- "Oranges 12m to the right"

Flowchart of Data Processing:



Market Research:

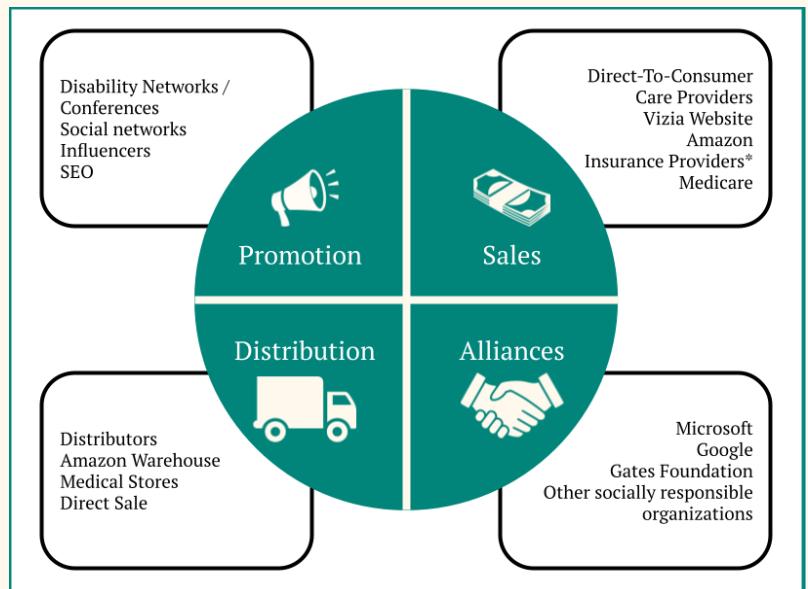
Vizia undertook a market survey by contacting three foundations for the blind and encouraging them to distribute a survey through their membership. A total of 32 responses prove an overwhelming positive response to our product idea. Key survey results are shown below.



6. Channels

Using social media and other promotional channels, Vizia aims to inform consumers about our product's capabilities using real customer experiences. We will also form alliances with several socially responsible organizations for both promotional and research & development purposes.

In addition to selling directly to the visually impaired consumers, we aim to reach their friends and family, who have significant influence on their purchasing decisions and may buy our product as a donation or a gift. Consumers can order our product through our blind-accessible website, local care providers, or Amazon.



* Our product has been designed to fit the criteria of most health insurance providers, including Medicare, to drastically increase affordability for our customers.

7. Revenue Streams

Vizia aims to grow rapidly by selling through the channels listed above. The sources of revenue include hardware sales (Camera, Glasses, Headset), our software subscription model (ML algorithms, object detection), and embedded ad revenues in our app.

We aim to include a dual pricing structure to drive market penetration. Our premium subscription model will start at \$10/month while the regular subscription model (with ad-support) is priced at \$5/month. Over time, we anticipate competitive entries. Hence, we scale our prices down over time while investing heavily into R&D to maintain market share with a differentiated product. We anticipate an equal adoption between our premium and regular pricing tiers based on the ability to pay / coverage by insurance.

Year 5 Estimates:

Sources of Revenue	\$ per User	# Users	Year 5 Revenue *
Glasses / Hardware Sales	\$100	6.02 M	\$602 M
AI/ML Software Subscription	\$2.25 / month (Average)	9.1 M	\$246 M
Ad Revenue	\$1.50 / month	4.5 M	\$82 M
Year 5 Total Revenues:			\$930 M

* Refer to Appendix for Full Income Statement / Projections

8. Cost Structure

Vizia plans to cover our startup costs through investments from friends & family, venture capitalists, and corporate/government grants for social good.

Being a software-based company with a wearable device, we have modeled our cost structure after related companies in the industry. We expect significant spend in years 1-2 on R&D, Product Release, and Customer Acquisition. Over time, our COGS, Cloud Computing and CAC costs are expected to lower to the industry averages. One important note is that our R&D Costs increase after Year 3. This is because we plan to invest more money into our product for those with Alzheimer's and Dementia, who could use our product as a prompting/memory aid.

	Year 1	Year 3	Year 5
COGS (%)	64%	48%	38%
R&D (%)	>100%	10%	14%
CAC (\$)	\$102	\$20	\$12
SG&A (%)	>100%	20%	20%

* Full Income Statement in the Appendix

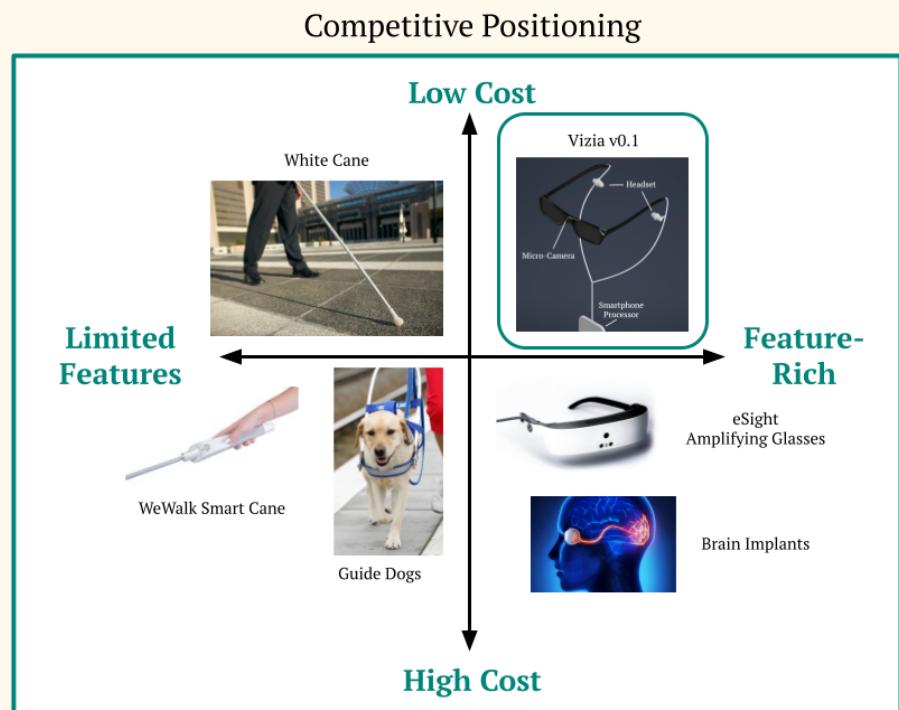
9. Key Metrics

Along with standard metrics such as revenue growth and product adoption, the following key metrics would be carefully monitored to ensure Vizia's success.

R&D / Product Launch Metrics:	Sales Metrics:
<ul style="list-style-type: none"> • Time to prototype release • Field test results from early adopters • Latency of results (algorithm execution time) • Diversification to new markets (Alzheimer's) 	<ul style="list-style-type: none"> • Product sold (divided into each channel) • Acquisition costs • Revenue growth over time • Subscription retention period / Attrition

10. Competitive Advantage

The current market is under-served. The current consumers rely on low-feature canes and their own senses to navigate the environment. While there are many startups dedicated to improving the lives of the visually impaired, many of them aim to address the problem by helping people see, through brain implants or amplifying glasses, and many of these solutions are costly



and too complex for the average consumer.

Broadly, most advanced products on the market fall under two categories:

Assistive Devices	Med/Tech Innovations
Solutions to assist the visually impaired in perceiving the environment <ul style="list-style-type: none"> • Vizia • Smart Canes 	Solutions that help the visually impaired see. <ul style="list-style-type: none"> • eSight Amplifying Glasses • Brain Implants

Competitive Differentiation of Vizia:

- Entering an under-served, niche market with limited competition
- Utilizes common smartphone processors, for easy lifestyle integration
- Self-learning algorithms for continuous improvement
- Integration of low-cost components for a durable, consumer-friendly device
- Alliances with Microsoft and Google's AI infrastructure
- Barriers to Entry: Patent Pending, Early Mover Advantage, Strong Team, Alliances
- Diversification to other markets (Alzheimer's, Amnesia, etc.)

11. Conclusion

Vizia has demonstrated a durable, investable value proposition with a clear path to success. The market is under-served and in dire need of a technological disruption. Current advances in machine learning techniques will enable Vizia to grow significantly and deliver a differentiated assistive device to the public. Our strong team and industry alliances will accelerate product adoption through our channels.

The social impact of our product is more significant. Bringing assistive vision to the blind through an affordable product is expected to provide a dramatic improvement in quality of life and an increase in productivity, reduced dependency and overall happiness.

Vizia is seeking an initial investment of \$250K for prototyping and finalizing our initial product. We will raise \$25M total investment to cover costs for the first two years, in 2 stages, and reach profitability in year 3 with a year 5 revenue projected at \$930M.

"Empowerment and independence to me means being able to do whatever my peers are able to do,"
George Abbott, President & CEO of The Lighthouse for the Blind, Inc.

12. Bibliography

- **iapb.org:** Vision Atlas
- **nei.nih.gov:** Visual impairment, blindness cases in U.S. expected to double by 2050
- **iovs.arvojournals.org:** Global Prevalence of Blindness and Distance and Near Vision Impairment in 2020: progress towards the Vision 2020 targets and what the future holds.
- **fb.org:** Blindness Statistics
- **sciencedirect.com:** Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis
- **Assistive device for the Visually Impaired:** self-conducted survey for feedback on this product idea (Available upon request).

13. Appendix

Income Statement (\$ in thousands):

	Year	1	2	3	4	5
Revenue Streams	Product Sales	\$124	\$1,044	\$126,543	\$255,618	\$602,406
	Subscription Sales	\$74	\$549	\$54,470	\$96,614	\$246,300
	Ad Revenue	\$25	\$183	\$18,157	\$32,205	\$82,100
COGS	Product Costs	\$52	\$474	\$64,575	\$117,398	\$249,000
	Customer Acquisition	\$84	\$418	\$25,309	\$35,786	\$72,289
	Cloud Computing Costs	\$8	\$64	\$6,627	\$16,979	\$33,296
Totals	Total Revenues	\$223	\$1,777	\$199,170	\$384,436	\$930,806
	Total COGS	\$144	\$955	\$96,511	\$170,163	\$354,585
	Gross Profit (\$)	\$79	\$822	\$102,659	\$214,273	\$576,221
	Gross Profit (%)	35.51%	46.25%	51.54%	55.74%	61.91%
	COGS (%)	64.49%	53.75%	48.46%	44.26%	38.09%
Operating Expenses	R&D	\$3,000	\$6,000	\$19,917	\$49,977	\$130,313
	Marketing	\$3,000	\$8,000	\$19,917	\$38,444	\$93,081
	SG&A	\$1,000	\$5,000	\$19,917	\$38,444	\$93,081
	Total Operating Costs	\$7,000	\$19,000	\$59,751	\$126,864	\$316,474
Profit	Net Profit (\$)	-\$6,921	-\$18,178	\$42,908	\$87,409	\$259,747
	Net Profit (%)	-	-	21.54%	22.74%	27.91%
	Cumulative Profit	-\$6,921	-\$25,099	\$17,809	\$105,218	\$364,965