BUSINESS PLAN
Team Leader: Daniel Stevens
Project Manager: Leah Vaughan
KJ Butler
Lael Lum
Rayven McMillian
Advisor: Lalitha Dabbiru

1.   Strategy and Implementation

1.1.   Strategic Goals

Ison's strategic business goal is to deliver an effective and discrete solution to those with visual impairments, learning disabilities, and language barriers who are unable to read physical text. To achieve this goal while remaining profitable, Ison hopes to use low-cost parts in production, while still creating a high-quality product. Another strategic goal is to make work life on the team welcoming and balanced in terms of workload and effort according to everyone's skill sets. While the design team isn't very large currently, Ison hopes to grow the number of employees in the coming years. Creating a welcoming environment keeps the number of turnovers to a minimum, allowing Ison to retain valuable employees.

1.2.   Tactical Plans

Ison's tactical plans to achieve their strategic goals involve meeting together regularly to discuss progress and establishing clear communication among the team as to where there may be a workload imbalance or dissatisfaction. The company doesn't want any team members to be afraid to speak out when they feel dissatisfied. This is an important tenet of Ison's philosophy, as it reinforces the team's goal to make work life at Ison enjoyable. To make the product as discreet as possible, the team has selected the smallest parts currently available on the market that will still achieve the main goal of delivering an effective, user-friendly solution to those with visual impairments, learning disabilities, and language barriers. As new products come to market, the Ison team will be closely monitoring any hardware components that may serve our purpose better for future iterations of the glasses.

1.3.   Risk Management

Though there is no risk of bodily harm expected by the Ison team, there is the potential for component failure during testing, which would delay the design of the Ison glasses. To minimize this risk, the Ison team has a supply of spare parts to ensure that no time may be wasted in waiting for replacement parts to arrive. Additionally, whenever a component is ordered, at least one similar component is also ordered to ensure time isn't wasted in case the ordered part doesn't integrate well with the other components in the glasses.

2.   Management Summary

2.1.   Team Composition

The management team must provide the business with a sense of direction by actively seeking new opportunities to grow. To accomplish this goal, the key roles in the management team are filled with the team member that best suits that position's needs. Daniel Stevens has assumed a leadership role over the

management team because he successfully led the team during the design process. This role includes communicating current project updates to the team and marketing existing products to the public. Two distinct sections involve the production of different aspects of the Ison glasses: the hardware design section and the software development section. Each of these sections is further broken up into two more subsections.

Rayven McMillian leads the Structural Integrity team in the hardware design section because of her experience with designing reliable glasses frames, and Lael Lum is in charge of the Circuit Implementation team in the hardware design section because of his experience with advanced circuit design. Leah Vaughan is in charge of the Application Development team in the software development section because of her experience with smartphone application design and integration, and KJ Butler is the manager of the Neural Network Integration team because of his experience with neural network design and training. Each of these leaders oversees the day-to-day activity within their team and communicates the current progress with the rest of the management team to ensure the successful integration of the product.

2.2. Market Fit

According to the Perkins School for the Blind, only about 10-15% of people considered legally blind see nothing at all [1]. This means many can still see lights, colors, or shapes, but they can not see well enough, even with glasses, to do many everyday activities. Even though many of the legally blind can tell there is text on a restaurant menu or a flyer, they can not see well enough to read the text. According to the American Foundation for the Blind, many screen readers allow visually impaired people to read text on their phones and computers, but these do not help them with reading physical text in the real world [2]. Some devices can read physical text aloud for visually impaired people [3], but they tend to be bulky and cost thousands of dollars. The Ison glasses help visually impaired people with reading in the everyday world. Built-in translation features in the app also allow translations of English text to other languages, so foreign tourists in the US will also greatly benefit from the Ison glasses.

2.3. Development Stage

The current stage the Ison team is at in the design process is slightly ahead of the anticipated schedule. The team initially expected to have the prototype of the glasses ready in November, but the prototype is already ready, and the app is close to full integration.
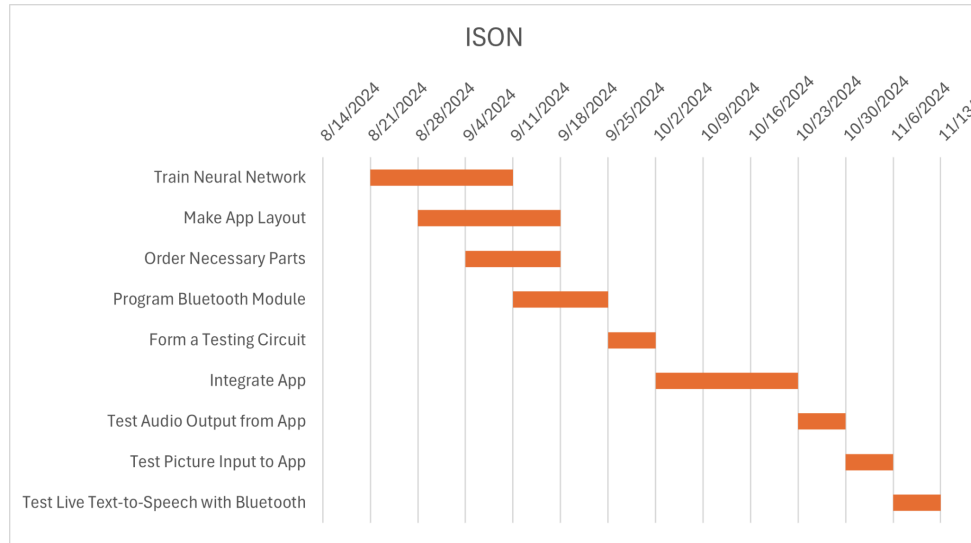
Figure 1: Gantt Chart of Progress Timeline

The Gantt chart above shows the team's anticipated timeline from the start of the semester, but the team has already reached the "Test Picture Input to App" phase of development as of October 24. The team overestimated the difficulty of the challenges faced so far in this semester, which luckily put us ahead of schedule. However, the final challenge of full integration of the neural network within the smartphone application to allow live text-to-speech is the greatest one yet, and the team underestimated the difficulty of this challenge. The skills of each team member have allowed them to successfully design and prototype their subsystem, but the lack of team members' expertise on the other team members' subsystems makes complete integration very challenging. However, the team still anticipates a completed product in early November because of the flexibility given by the quick progress so far.

3.   Financial Plan

3.1. Revenue Projections

Ison's standard features will cover the essential functions to read to users, and the bare-bones model will be appropriately priced for just the essentials. This allows the Ison team to cover costs and fund new feature development. More options would roll out once most planned features reach the last stage of the development cycle and would be priced accordingly to cover production costs. Any adjustments to the base model would be to remain competitive within the market.

The Ison team has been able to cover the essential functions using less than half of the budget provided by the ECE department. The demand for smart reading glasses is projected to grow rapidly by 2030 [4] meaning Ison's pricing will reflect not only production costs but also the potential for high demand and growth. The amount of revenue to break-even is roughly plus the cost per unit times the number produced plus about $500, which is roughly the amount of the budget used for testing, research, and development.

3.2. Cost Structure

In developing a cost structure for smart reading glasses for visually impaired individuals, it is essential to account for all relevant expenses. Cost components involve materials like frames, batteries, Bluetooth,

bone conduction transducers, and embedded technology for text-to-speech, as well as assembly labor. Production costs might fluctuate with materials sourcing. To address cost control measures, ISON proposes strategies like bulk purchasing and reusing old electronic modules. This comprehensive cost structure aims to keep the project financially feasible while maximizing accessibility for visually impaired users.

3.3. Development Stage

The development stage for ISON glasses requires careful planning around funding, including design, testing, production, and marketing. Funding is necessary for research and development, prototype creation, and market testing. ISON does receive $1000 in funding from the ECE department to produce a product to showcase future innovations. For long-term financial sustainability, the focus is on managing resources effectively and lowering production costs as the project develops.

4.   Executive Summary

Many people with visual impairments struggle to read physical text that they encounter in their day-to-day life, like restaurant menus and billboards. This struggle affects their quality of life. Ison helps people with visual impairments by providing them with more independence. Ison is a pair of smart reading glasses that converts printed text into speech for the user to hear. Similar products are already on the market, but they are much larger and attract unwanted attention. Unlike the competitors, Ison offers discreet reading assistance with other convenient features, like translation and extended battery life.

Ison's main goal is to assist individuals with visual impairments, learning disabilities, and language barriers. We aim to deliver a product that achieves this goal while maintaining an inclusive and innovative workplace. To preserve a welcoming and close-knit team atmosphere, we plan to keep the company small. Ison will be divided into two main teams: hardware and software, which will be further divided to focus on specific areas—Structural Integrity, Circuit Implementation, Application Development, and Neural Network Integration. Moreover, Ison will prioritize inclusivity both internally and externally through our product. The Ison glasses will be available both online and in stores and will be competitively priced. Our target audience is broad, encompassing consumers of all economic classes and backgrounds. Product packaging will include instructions in English, Spanish, and French. Additionally, our commercials and advertisements will be ethnically inclusive to reach consumers from various language backgrounds. To keep unit prices low, we will focus our marketing efforts on website sales and outreach advertising.

Ison offers a wearable solution for those who have difficulties with reading. Ison also offers translation capabilities with support for three languages, but the language selection will be expanded upon in the future to accommodate more languages. The companion application has an easily traversable user interface with options to change language, setup Bluetooth, and adjust volume. Furthermore, Ison will offer a variety of frame sizes and styles to accommodate the user's preferences. Ultimately, Ison aims to increase user independence, and the design team plans to add more frame customization options and built-in features, such as a smart assistant, a Global Positioning System (GPS) navigator, and more.

References

[1]   "10 little-known facts about blindness," Perkins School for the Blind,
        https://www.perkins.org/10-little-known-facts-about-blindness (accessed Oct. 19, 2024).

[2]   "Screen readers," American Foundation for the Blind,
        https://www.afb.org/blindness-and-low-vision/using-technology/assistive-technology-products/scr
        een-readers (accessed Oct. 19, 2024).

[3]   A. Al-Heeti, "Envision glasses for the blind can read documents, Scan Faces, aid navigation,"
        CNET, https://www.cnet.com/tech/mobile/envision-glasses-for-the-blind-can-read-documents-sca
        n-faces-and-help-navigate (accessed Oct. 25, 2024).

[1]   "Smart Glasses Market Size & Share Analysis Report, 2030," *www.grandviewresearch.com*.
        https://www.grandviewresearch.com/industry-analysis/smart-glasses-market-report