**GNG 2101 Deliverable L**

**Economics Report**

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**Table of Contents**

[1.0 Introduction](#_euy1d61101e3) 1

[2.0 Exploring Intellectual Properties](#_d2aonzd6cuhd) 2

[Patent 2845406: Wireless Push Button Device For Pedestrian Crosswalk Signal System](#_h208c39tj8vp) 2

[Patent 3014980: Image-Based Item Identifying System and Method](#_6bzfjyohrw3i) 2

[Patent 2671680: Real-Time Tracking System](#_gr35dxa7xrm5) 3

[Copyright © 2020 Apple Inc.: MIT License (BreakfastFinder)](#_rvkjtqexr6of) 3

[US Patent 10,572,072: Depth-based touch detection](#_49pt1hv1de3u) 3

[3.0 Importance of these intellectual properties](#_dmfb65t4jrra) 4

[4.0 Our Team’s Intellectual Property Strategy](#_q04gp7ag0r4e) 4

[5.0 Conclusion](#_rgzo5la5t8q8) 5

# 1.0 Introduction

This part of the project will see research done into the Intellectual Property (IP) of three projects that in some way relate to our project’s concept and the prototypes created. It will describe the way in which and the extent to which they relate to our project, and the importance of these IPs on these projects and on the potential success of our project. Finally, this stage will discuss the way that we intend to manage our own IP should we decide to market our product.

# 2.0 Exploring Intellectual Properties

# Patent 2845406: Wireless Push Button Device For Pedestrian Crosswalk Signal System

This patent relates to our project because a former design for our product, that we have since moved away from, was quite similar to this model and would have run the risk of conflicting with it. It still relates to our current model because it attempts to solve a similar problem, the problem being that visually impaired users need a better way to locate automatic buttons without touching surfaces with the potential to give them COVID-19, and for general convenience.

It is, however, relatively insignificant because it involves crosswalk buttons, whereas our design is focused exclusively on elevator buttons, and because it involves a physical device in the button to push it remotely, while our design requires no such device and does not push the button remotely but simply notifies the user when a button is located.

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# Patent 3014980: Image-Based Item Identifying System and Method

This patent uses camera feed input to take pictures of a desired object. The image of the object is then uploaded online to a search engine to be analyzed. The identified image is then returned to the mobile device and displayed in real time. Both this patent and our product’s goal is to use camera feed to identify objects. However, our product uses video feed that is specifically designed for the guidance of users towards elevators and possibly other accessibility buttons in the future. Whereas, this patent uses an image that the user wants to identify or collect more information about. Our app is trained to recognize buttons using the live camera feed provided and Core ML model, while the patent uses an external search engine to help recognize their image.

# Patent 2671680: Real-Time Tracking System

This is a patent on object tracking, where a real-time tracking system tracks objects moving in a physical region. Objects interesting its plane of sight will be detected and identified. Our product tracks the elevator button found in view. The difference between the two is the fact that our product moves and tracks a still object, when their product is still and scans for moving objects. An aspect that is very interesting is that they can find the position of an object. We want to incorporate something like this to help determine the distance between the user and the button.

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# US Patent 10,572,072: Depth-based touch detection

Currently an issue we have with our app is that we can’t detect distances, such as the distance between the user and the wall that has the elevator button. This is not ideal since it can be a hazard when using our app, especially since our app is for visually impaired users who want a high degree of confidence that our app will give them detailed navigation while keeping them safe. Thus, in the future we will need to venture out and potentially use Apple’s AR Kit to try to detect measurements using just virtually augmented software. Apple has created a technique to improve distance detection of an object relative to a surface using machine learning as covered by this patent. In the future, when we plan to implement a distance detection feature in our app we will have to keep in mind this patent to use their findings without being liable by the patent.

# 3.0 Importance of these intellectual properties

As the patents listed above do not directly relate to the software we have developed, any future modifications to the software would have to avoid infringement with said patents or other similar patents. The copyright from Apple Inc. allows us to legally modify and use the sample code provided in our application with the original copyright included in our software. This however has no impact on the success of our application because it would still allow us to sublicense our application, distribute copies, and use the software/code for commercial purposes (such as our Freemium based model).

# 4.0 Our Team’s Intellectual Property Strategy

At our current stage of development, we won’t be patenting our product. The app will inevitably change and include more features that won’t be covered in a patent, should one be filed for the product as it is presently.

As the team made the machine learning model from scratch, there aren’t any licensing agreements the team needs to abide by. Additionally, to ensure our software doesn’t infringe on Apple’s copyright on the used sample code in their Vision Framework documentation, our software must include Apple’s copyright.

We will be trademarking the name “Elevaider” and our app’s logo so there is some proof of ownership and to ease the licensing process

# 5.0 Conclusion

This research of related patents suggests some very interesting conclusions. Theya uniqueness in the design that keeps our project outside the bounds of legal pursuit and shows the value in the difference in our design in comparison to other existing products. Some also show interesting ideas for further development of our design and remind us of the legal restrictions that may be placed on us should we pursue similar ideas. Finally, we outlined our own plan for maintaining and managing the IP of our design should we ever choose to market it, which could be very useful depending on what we actually want to do with the project once the course finishes.