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Development of an AI app to help those who experience panic or anxiety while being in the car, feel more relaxed

Commercialization Plan

Elevator Pitch: About 40% of car accident survivors undergo phobias related to driving or being in the car. Creating an app that works with Alexa and helps people to feel more relaxed while being in the car can reduce the rate of car anxiety. The app would be a program that takes in the user's information and uses that to help the user to relax using the functions of AI via Alexa.

Part 2: Executive Summary

My plan is to create an app where, when you first download it, it asks the user questions concerning whether or not they experience panic or anxiety while just being in the car, driving, or both. Then it will ask whether they already have techniques to help themselves relax, or if they don't. If the user doesn't have any techniques, the app will give the user a list of techniques to choose from. In the moment of anxiety, the app is activated by a key phrase that "wakes up Alexa" and starts the process of the app. This makes it hands-free and safe while driving.

Part 3: Problem Summary and Proposed Solution

The top three mental health issues victims face after a car accident are PTSD, Acute Stress Disorder, and persistent anxiety. Around 66% of Americans undergo driving anxiety and 55% of Americans say they experience it while doing regular driving maneuvers. My proposed solution is to create an app that will be structured to where the user can put in information regarding whether or not they experience anxiety while being in the car, driving, or both. The app will also ask the user if they already have techniques to help them relax. For example, if talking helps the user to relax, they could put that in the app. So, whenever they start to panic or experience anxiety, the user could say something along the lines of "Alexa, help me," and then the wireless button would start a conversation with the user to take their mind off of what they are experiencing.

Plan Part 4: Summarize the STEM Concepts and Principles Underlying the Overall Plan

The technology that goes into the making of Alexa is natural language processing. Natural language processing (NLP) transforms speech into sounds, words, and ideas. Sound source localization (SSL) integrated with computer vision (CV) is also involved with the making of Alexa. The application of SSL uses acoustic-wave-decomposition and machine-learning strategies to decide the direction in which the user is most probably located. Then, the SSL measurements are combined with the CV algorithms. CV algorithms can recognize objects and humans in the field of view, allowing the device to differentiate between sounds coming from people and those from reflections off the walls and other sources.

The CV algorithms turn the camera image into hundreds of data points representing edges, shapes, general coloring, and facial landmarks. Eventually, the image is deleted permanently. These data points are not able to be reverse-engineered to the original input, and there is no facial recognition technology used. All of this processing occurs in a matter of milliseconds. The device's computer vision service (CVS) can dynamically alter the frame rate, the number of frames per minute, and it works with over 95 percent precision at distances of up to 10 feet. Java is a type of technology used in the making of an app. This is an object-oriented programming language, it helps keep your app extensible, flexible, and modular.

Part 5. Commercialization Assessment of the Overall Plan

Proposed solution: My proposed solution is to create an app to work with Alexa that gives the user techniques and ways to relax, while also talking with them through it. While also having an app where you first put in information regarding whether or not you panic or get anxiety while just being in the car, driving, or both. Then you could put in what works best for you to remain calm or relaxed. For example, if music helps someone remain calm, the user could put that in,

along with the type of music that helps them relax. So, the next time they start to panic or experience anxiety, they can say “Alexa, help me;” which automatically plays that type of music. Also, if someone doesn’t know what helps them to relax while being in the car, the app could talk with that person and help them focus on something else, so that they won’t focus solely on their anxiety.

Target customers and intended users: My users will be those who experience panic or anxiety while just being in the car, driving or both. However, my user will also have to be someone who frequently experiences panic or anxiety while being in the car. This is because, if someone only experiences panic or anxiety while being in the infrequently, they most likely wouldn’t need the product, or want to buy it. My user would also be someone who is willing and able to buy it.

Competitors: The only competitors I could find are counseling or therapy, and medications, specifically for driving anxiety. Although I wouldn’t call counseling or therapy my competitor, I would encourage it. I guess I would have indirect competitors such as Alex Carswell, who created the stress balls. There aren’t many products that are directed towards car anxiety.

Customer value proposition and competitive advantage: What would make my user want to buy my product is that it caters to everyone’s needs centered around car anxiety. What would also make my user want to buy my product is that it’s coming from someone who personally experienced this. Also, when choosing my solution, I wanted to incorporate something that usually helps me when I’m in the car, and that’s talking with someone. So, that’s why I wanted to incorporate a connection to Alexa so that if someone is in the car driving by themselves, they won’t feel alone. They can have someone to talk them through what they’re experiencing until they’re able to either pull over or get to their destination. Also, what makes my product different is that I put my heart into this.

Principal revenue streams expected: If the purchase of the app costs \$1.99, and 20 people purchased it, the profit would be \$40. The total cost to create, and gather everything would maybe be around \$100. This is not including advertising. Advertising might cost around \$20 or less.

Principal startup and operating costs expected to be incurred: The operating costs expected to be incurred are purchasing the Alexa dots. I don’t expect to pay for the making of the app, but there may be some additional costs. To create an Alexa skill, it is free, however, there are subscriptions where you have to pay to utilize full functionality. Also, you do have to pay to host a skill. This is either through Alexa’s cloud-based web service, or privately.

Part 6: Science and Technology Proof of Concept

Review and assessment of the scientific literature: A blue bar lights up whenever you say “Alexa,” to any Echo Show device. The part of the blue light bar that is lighter, indicates the direction the device focuses on. To differentiate ambient noise, and reduce it, the device has seven microphones that are used to recognize where the signal is coming from. Then, there is “Wake Word Detection.” This decides whether or not the user says one of the words the device

needs to turn on. An example of this would be “Alexa,” which is required to reduce false negatives, and false positives. That could therefore lead to accidental purchases, which also leads to upset customers. This is very complex since it needs to “identify pronunciation differences,” and this needs to occur on the device, where the CPU power is limited (Gonfalonieri, 2018).

Discussion of your findings with relevant cited references: When someone is talking, and the Echo Show device recognizes the wake word, this signal gets sent to the speech recognition. This is where the speech gets translated into text format. The output space is so big here that it looks at the whole English language, and only the technology of the cloud is qualified for scaling enough. This gets even more complex by the number of people who use the Echo Show device for music. This is because numerous artists use different spellings for their names than there are words for (Gonfalonieri, 2018).

Hypothesis: If I create a hands-free device and an app that are calming and effective while driving, then 60% of people who usually experience panic or anxiety while being in the car will be able to remain calm.

Inquiry or design-based discussion: My solution involves a wireless button, that when the user speaks and says something along the lines of “Alexa, help me,” Alexa will then turn on, and give the user techniques and ways to relax. While also talking with them through it until the user is fully relaxed, able to get to their destination, or able to pull over. My solution also involves having an app where you first put in information regarding whether or not you panic or get anxiety while just being in the car, driving, or both. Then you could put in what works best for you to remain calm or relaxed. For example, if music helps someone remain calm, the user could put that in, along with the type of music that helps them relax. So, the next time they start to panic or experience anxiety, they can press a button on the app that automatically plays that type of music. Also, if someone doesn’t know what helps them to relax while being in the car, the wireless button could talk with that person and help them focus on something else, so that they won’t focus solely on their anxiety. The app and the button are connected.

There are five E’s of my user’s experience, these five E’s stand for entice, enter, engage, exit, and extend. My user will be enticed to use my product through its aesthetic, advertisement, and it being a possible solution for what they are experiencing. To enter, my user will have to first download the app, and click on the icon to view the home screen. My user will engage with the app by first answering whether or not they panic, or get anxious while being in the car, driving, or both. Then they could put in what works best for them to remain calm or relaxed. For example, if music helps someone to remain calm, the user could put that in, along with the type of music that helps them to relax. So, the next time they start to panic or experience anxiety, they can press a button on the app that automatically plays that type of music.

If someone doesn’t know what helps them to relax, the app could help the user try out different relaxation techniques to see what works best for that person. Some of these techniques are deep breathing, visualization, and just talking. I find talking about something that has nothing to do with the situation helps. So, the app will ask the user questions concerning

some of their favorite things. So, when they start to experience panic, Alexa would begin to talk to the user about the topics that they mentioned.

My user would exit the product when they start to feel more relaxed and calm in the car. So, they could just close out of the app, or something around the lines of, "Alexa, thank you." What extends my user's experience is if they are noticing a positive impact in how they are feeling in the car, after using the product. I will be able to test my product by making Alexa skills that align with my project and testing out the wake words with the app.

Data tables, graphs, charts, sketches, engineering drawings or photos of prototypes or models, and cited references:

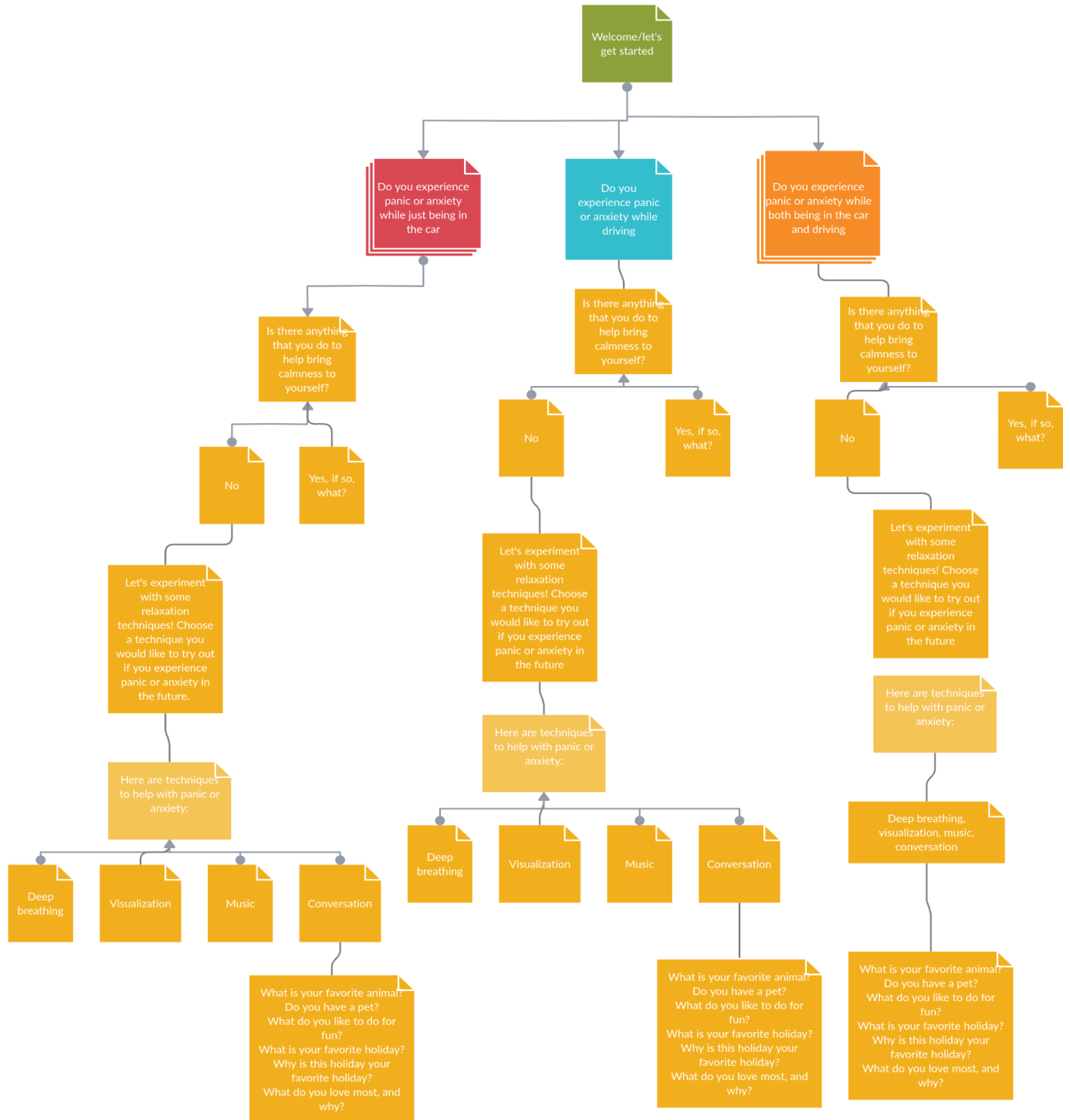


Figure 1: This is a flowchart of what my app will look like inside

Part 7: Acknowledgements

I would first like to thank my Capstone teacher Coach Kathleen Metcalf for helping me every step of the process, giving me feedback, answering all of my questions, and making this

process understandable. Furthermore, I would like to thank Coach Johnathan Holtz for providing me feedback and answering any questions that I had. Additionally, I would like to thank the teachers and students at my school who filled out my google forms concerning car anxiety. I would also like to thank the community partners who came to our school and provided me with information and feedback, to better my project. Lastly, I would like to thank Coach Brian Bennet for helping me with my sketch of the wireless button.

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