

Team 9 WellHealth

Project Name: Anxiety Aid

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Project Overview

Our project tackles the issue of the current mental health crisis, specifically, with anxiety. It would incorporate the use of wearable technology and artificial intelligence to provide a resource for those suffering from anxiety to eliminate or lessen these feelings. Overall, we would use past personal medical data including normal sweat levels and heart rate to be able to identify when the user is starting to feel anxious. This would then prompt an AI chatbot or offer breathing exercises and other techniques to combat these feelings. Lastly, the user will be able to log their anxiety levels and how they are feeling daily in a journal to check their progress.

Problem Significance

This problem is important because many people suffer from anxiety and do not have an effective way to deal with the symptoms and come down from high levels of anxiety. Many other applications that are available today rely on the user to actively set aside time to work through their anxiety. However, this becomes overwhelming or stressful for many people and they end up falling off the habit of using these apps. Creating this app where the user is automatically prompted to work through these techniques to calm down based on their physiological metrics is much more effective because it hits the anxiety exactly when it appears, as opposed to waiting to do breathing exercises later.

Current Solutions

There are currently many applications that can help with anxiety. Calm helps with guided meditation and breathing exercises, What's Up? helps users track their mood, Moodnotes is helpful for journaling, and MindShift uses cognitive behavioral therapy to help those who suffer from anxiety. In addition, there are also wearable devices for anxiety treatment. Apollo is a wearable band that uses vibrations to help your body and mind calm down, Muse is a wearable headband that can help guide your mind to safe spaces, and Oura is a ring that helps improve the circadian rhythm when sleeping. These apps and devices all have their own advantages, yet none of them combine tracking stress levels with guided meditation and AI chatbots when the anxiety peaks.

Project Outcomes

The outcome of the project is to reduce anxiety levels of patients willing to utilize the app and wearable tech. By giving a biometric analysis, the patient can be sure that the activities to calm them down is also making them biologically less anxious, or indicate whether they need immediate medical attention. Furthermore, through this app, patients can visualize their improvement over several days as their biometric data and self-reflections will be recorded. This app would hopefully serve to better mental health.

Initial project milestones: specification, design, prototyping

Some project milestones are a basic layout and design of the interface that the user will be able to see. We want to aim for this app to be inclusive of people with disabilities so they are also able to participate. First we will decide on the metrics to work upon for deciding anxious behavior through an API. We want to focus on the chatbot and backend aspects of the app working first then start focusing more on the front end interface once we can test some features of the services. We can then prototype the app once we have all of these basic features implemented and from here work on making the app as user friendly as possible.

Implementation platforms

- VSCode or XCode
- Will be implementing an iOS app on the iPhone; iOS app on Apple Watch will be more simple just to collect health data and connect to the iPhone app

Technologies

- Wearable technologies (Apple watch / bracelet / ring)
- Swift or React Native for app development
- Apple HealthKit API to gather data from watch, or other APIs available
- Node or Python libraries for speech to text, AI to create a chatbot, data visualizations
- SQL for database storage

Process model

We will be using agile development including sprints every two weeks, a backlog, and retrospective to keep us on a working timeline. By mid december, have a working prototype that works behaviorally, but does not need to be fully implemented. With this working prototype, we'll be able to see if we need to pivot our objectives for the project. Throughout January and February, we will continue working on the application and ask users for feedback in order to iteratively improve on the existing model.