

Implementation of AAGILE using Android Application

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The main goal for this capstone design project is to develop an android application that builds upon the AAGILE system created by Professor Patricia Burbank. The app will not only make the exercise reminder system more compact and mobile, but it will also be more sophisticated and user friendly. Utilizing smartphone hardware such as the built-in accelerometer and speakers, the application will encourage the user to exercise if they are sedentary for a specified period of time. The app will also be linked to Bluetooth speakers that can be placed in designated locations to reinforce the reminder to exercise. This android implementation of AAGILE will hopefully improve the health of the elderly and also encourage a more independent lifestyle.

Current project goals include stimulating user interaction through a simple but effective interface and also establishing a user-friendly application that will not confuse people who may not be as familiar with smartphones and modern technology. The application will have an option for the user to program into a schedule when they want to exercise. There will be pop-up notifications with pictures of different exercises to encourage the user to follow their workout routine. These notifications can be toggled by touch to confirm that the exercise has been completed, or to delay the exercise (similar to a snooze button on an alarm clock). If the exercise is completed, positive feedback will be given and displayed on the screen. If the goal has not been met, the notification will reappear after a certain amount of time to prevent constant delay and there will be either a limited number of delays or a time constraint to ensure that the workout has been completed.

The accelerometer on the phone will be utilized by the app to check for movement or activity. Ideally, the accelerometer can be accessed and used to confirm physical activity. If possible, the wearable device will be able to monitor the heart rate, or have a more accurate measurement or judgment of actual physical activity/ completion. For the different exercises, specific voice recordings will be used for

encouragement. There can also be voice playback during the workout and post workout that would assist with proper exercise and cool down.



For high hopes of the application, the team can also implement MRAAGILE into the system. Principles of these two performances would be similar. This could be accomplished with a side/top bar that will have two selections, medication and exercise. Like AAGILE, the medication can be programmed into the phone, and possibly into a personal drug library. When notifications appear, the app will also display the necessary pill(s) that needs to be taken. If the hardware is available, we can incorporate an LED system on the weekly pill organizer to ensure users take the correct pill(s). This is all done in safety of the user. Another idea, which may be achieved depending on the complexity of the coding would be to have a checklist of pills displayed on the screen and if multiple pills need to be taken at a time, the user can touch whichever one(s) have already been taken. This would alert the system that the pill(s) have been consumed and coordinate with the LED alert. Voice playback will also be utilized here to ensure the proper consumption and to continually remind the user to check off the pill notification. By doing so, it will hopefully promote proper consumption and safety.