Wi-C.A.R.E.: Wifi Computer-Assisted Remote Eldercare (Year 3)

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As America ages, it's estimated that by 2024, nearly 45% of the country's population will be over the age of 50. While retirement years may be filled with travel, hobbies, and time with family, it is also traditionally a time of increasing healthcare needs and decreasing independence. COVID-19 has challenged the congregate care model, making finding effective solutions for independent senior living even more crucial. The engineering goals of this project are to enhance the quality of life for seniors by expanding the Wi-C.A.R.E. App to: Include fall assistance that alerts a caretaker, incorporate hand motion sensors that will communicate with Alexa, and proceed with user testing for feedback and ideas for future improvements. Focus on these tools arose from survey feedback I received from senior adults and their caregivers. Falling and receiving help quickly after a fall was a high priority for all survey respondents. Additionally, Alexa-based assistance also ranked high. I successfully achieved the project goals and created a fall sensor that includes a panic button feature. In an emergency, a text message is immediately sent to a designated caregiver. Additional features of this sensor include tracking sleep patterns and bathroom-use statistics. The Alexa-based hand sensor successfully allows users to direct Alexa through hand gestures. It was developed using MicroBit, Image Processing and VoiceFlow integrated with the Cloud. User testing of both tools was completed after they were developed, and next steps include refining the tools and increasing their effectiveness based on user testing feedback.

Awards Won:

Patent and Trademark Office Society: Second Award of $500