Vest One: A Hidden Markov Machine Learning Model Enabled Vest to Support Independent & Safe Living Among Older Adults

Kashyap, Amogh (School: Urbana High School)

Independent and safe living is an aspiration for many elderly people; however, it is a luxury that most are unable to attain. Falls, heart conditions, and mental health issues are some of the major reasons that older adults are unable to live independently. Combined, they kill nearly 1.25 million elderly Americans a year (and more worldwide). This number is going to increase as the elderly population is expected to increase by 200% in the next 30 years. Research has shown that if help is available sooner when adults face these challenges, the chances of recovery and the ability to live an independent life will increase. The aim of this project was to develop a way to send alerts for help sooner, without human intervention. Creating an intelligent vest based on a Hidden Markov based machine learning model to detect such falls, heart abnormalities, or wandering due to Alzheimer's and send out a notification to loved ones or to medical dispatchers, was the goal of this project. This vest would provide an opportunity for them to recover from these life-threatening issues and continue to lead a safe and independent life. Unlike other devices, like smartphones/watches, a vest with these features is simple to be used by older adults. For many older adults, getting help early can mean the difference between living an active life and death/disability and this vest is a step in that direction.

Awards Won: