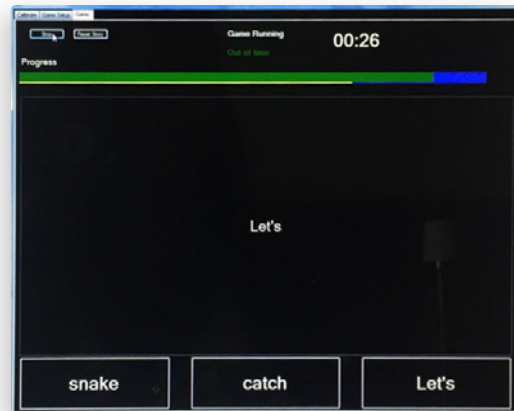
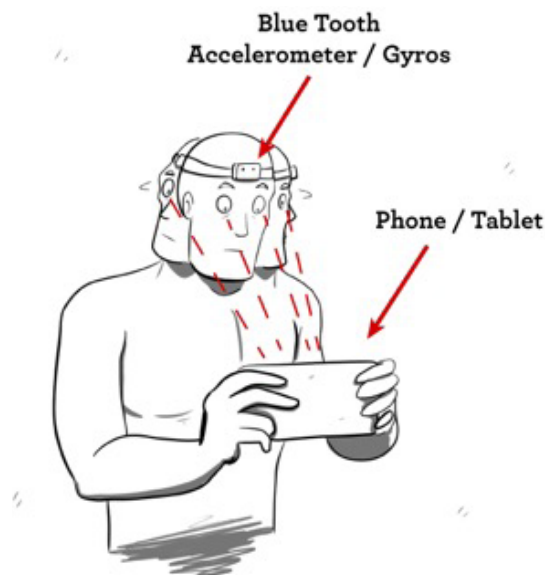


Vestibular Dynamic Compensation

ALLIANCE FOR INNOVATIVE MEDICAL TECHNOLOGY – AIMTECH / REHAB ENGINEERING



Vestibular rehabilitation therapy (VRT) is a time intensive and tedious process and is required for treatment of most vestibular dysfunction disorders. VRT requires continuous shaking of the head while looking and reading from a stationary card. Some patients, especially children, stop treatment before complete rehabilitation. This invention will integrate head sensors combined with mobile phone based app/game that will reduce or eliminate the tedium of performing the exercises and will allow faster rehabilitation.

■ **Technical Readiness Level**

TRL 4 (Component and/or breadboard validation in laboratory environment) A laptop-based system has been developed that shows a word only when the sensor on a headband indicates that the head is shaking above a selected speed. The program advances to the next word when the user correctly says the word.

■ **Intellectual Property Status**

Patent application filed (PCT/US2017/014227).

■ **Inventor**

- Jennifer Braswell Christy, Ph.D., PT
- UAB Department of Physical Therapy

■ **Competitive Advantages**

The vestibular compensation technology offers benefits over the manual card system. The user cannot cheat the therapy by slowing his or her head to read the word. The system can evolve to incorporate voice recognition to advance the words when the user says the correct word

shown. Gamification of the system will allow for a more interactive and rewarding experience that will also offer the clinician diagnostics as to how the patient responded. More elaborate systems that involve rotating chairs are more expensive and are not conducive to home use. Several software systems are available to diagnose vestibular disorders but do not have the therapeutic features of the vestibular compensation system.

■ **Market Overview**

Vestibular disorders effect millions of people a year and an estimated 1 out of 5 children. Depending on the particular cause of the dysfunction, the typical therapy utilized is vestibular rehabilitation therapy (VRT). VRT involves moving the head in a specific pattern and speed to induce dynamic compensation, which ultimately reduces symptoms. The process of VRT can be tedious and time consuming. The proposed technology intends to provide a means of integrating a headset and mobile app, with an entertainment component, to increase participation and completion of VRT.

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