OFFICIAL ABSTRACT and CERTIFICATION

A Comprehensive, Cost-effective, Customizable Device to help People With ALS (PALS) Communicate

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Category

Biomedical Engineering

Amyotrophic Lateral Sclerosis (ALS) is a neurodegenerative disease that progresses differently in every person and can present unique challenges when designing assistive devices. People living with ALS (PALS) maintain cognitive function but lose the ability to speak, write, type, and gesture. This communication barrier can present a real challenge for PALS - especially in the case of an emergency. Many current assistive devices to help ALS patients communicate are either expensive, complicated, bulky, or non-adaptable. Even with the most advanced technology available, PALS will still need some low technology systems in place depending on the place where they plan to use it, the needs of the situation, and their resistance to technology. To fix this problem, we designed a fully customizable, portable, 3D-printed, cost-effective, rapid access assistive device to help PALS enjoy independence and easily communicate about their feelings, requests or simply say, “I love you”. Our simple user-friendly device can perform multiple functions such as displaying common phrases used in daily living activities, a yes/no/maybe system, texting loved ones, buzzing to call for help at home, setting alarms for medications and showing accurate date/time. This device is not only adaptable and easy to use but also inexpensive to make. It overcomes a major barrier to patient care, since families can customize this single device to improve a patient's quality of life.

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