Poster Presentation

Automated Vibrator for Bell's Palsy and Mouth Stroke Patient

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Abstract

The "Automated Vibrator for Bell's Palsy and Mouth Stroke Patients" is an innovative therapeutic device designed to address the unique needs of individuals affected by Bell's Palsy and Mouth Stroke. This automated vibrator aims to provide targeted muscle stimulation and relaxation to the facial muscles affected by these conditions. With customizable settings for intensity, users can personalize their experience for optimal comfort and effectiveness. The device offers a gentle and non-intrusive solution, promoting muscle stimulation and relaxation to aid in the rehabilitation process. Portable and versatile, it caters to the needs of users on the go. Moreover, built-in safety features ensure that the device is used responsibly, preventing overuse and ensuring the well-being of the users.

Introduction

Bell's Palsy and Mouth Stroke are neurological conditions that can significantly impact facial muscle function, leading to difficulties in speech, eating, and facial expressions. Individuals affected by these conditions often require specialized therapies to promote muscle stimulation and rehabilitation. Traditional methods of treatment may have limitations in terms of accessibility, comfort, and effectiveness. In response to these challenges, we present the "Automated Vibrator for Bell's Palsy and Mouth Stroke Patients," a novel therapeutic device. This automated vibrator offers customizable settings for intensity, ensuring a personalized and comfortable experience for users. By delivering targeted vibration to affected facial muscles, the device aims to promote muscle stimulation and relaxation, aiding in the rehabilitation process. Portable and versatile, it provides users with a convenient solution for at-home therapy sessions or on-the-go use. With built-in safety features to prevent overuse, the device offers a gentle and non-intrusive approach to muscle rehabilitation.

Objectives

- **Facilitate Muscle Stimulation: Provide targeted vibration to facial muscles affected by Bell's Palsy and Mouth Stroke for rehabilitation.**
- **Personalize Therapy: Offer customizable intensity settings to accommodate varying levels of muscle impairment and ensure user comfort.**
- **Enhance Accessibility: Develop a portable device for convenient therapy sessions at home or on-the-go.**

Proposed Methodology

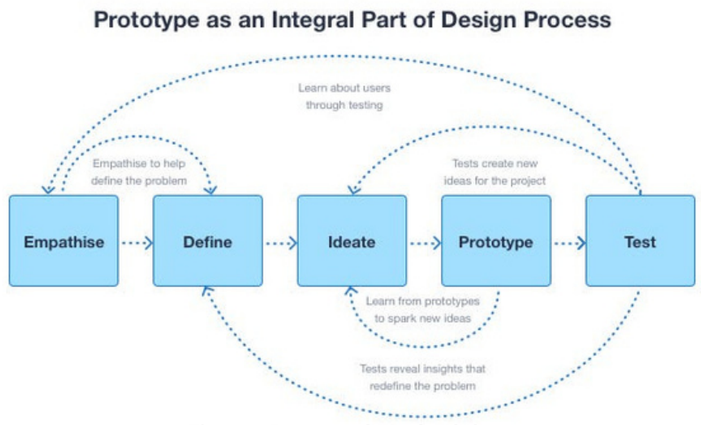


Figure : Proposed Methodology

Circuit Design

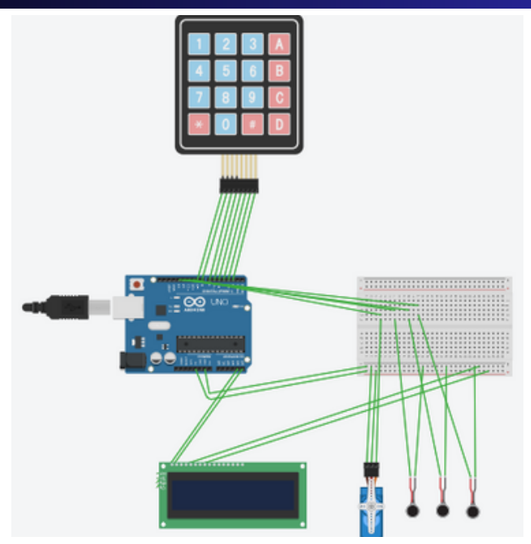
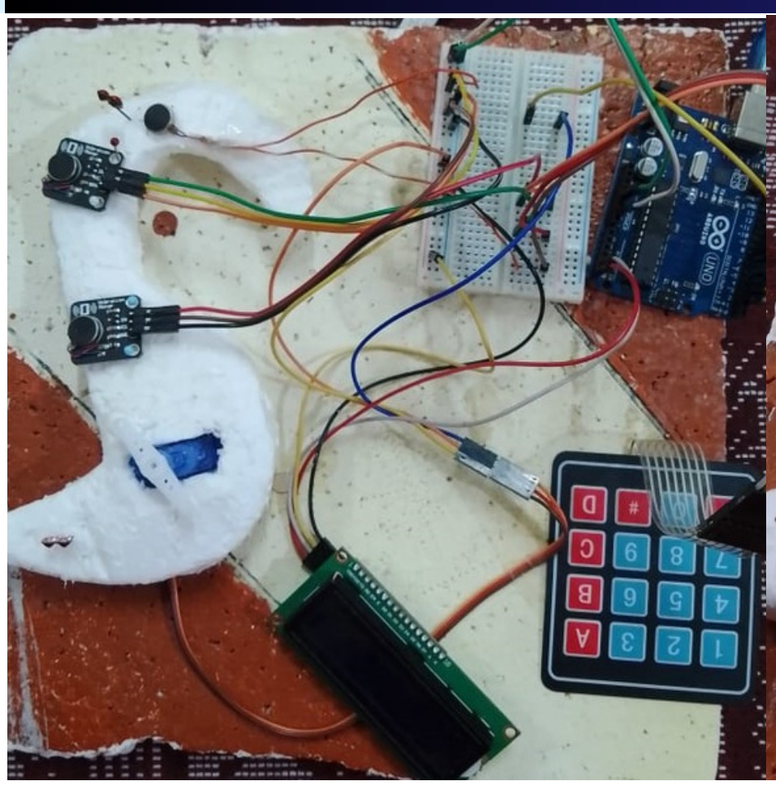
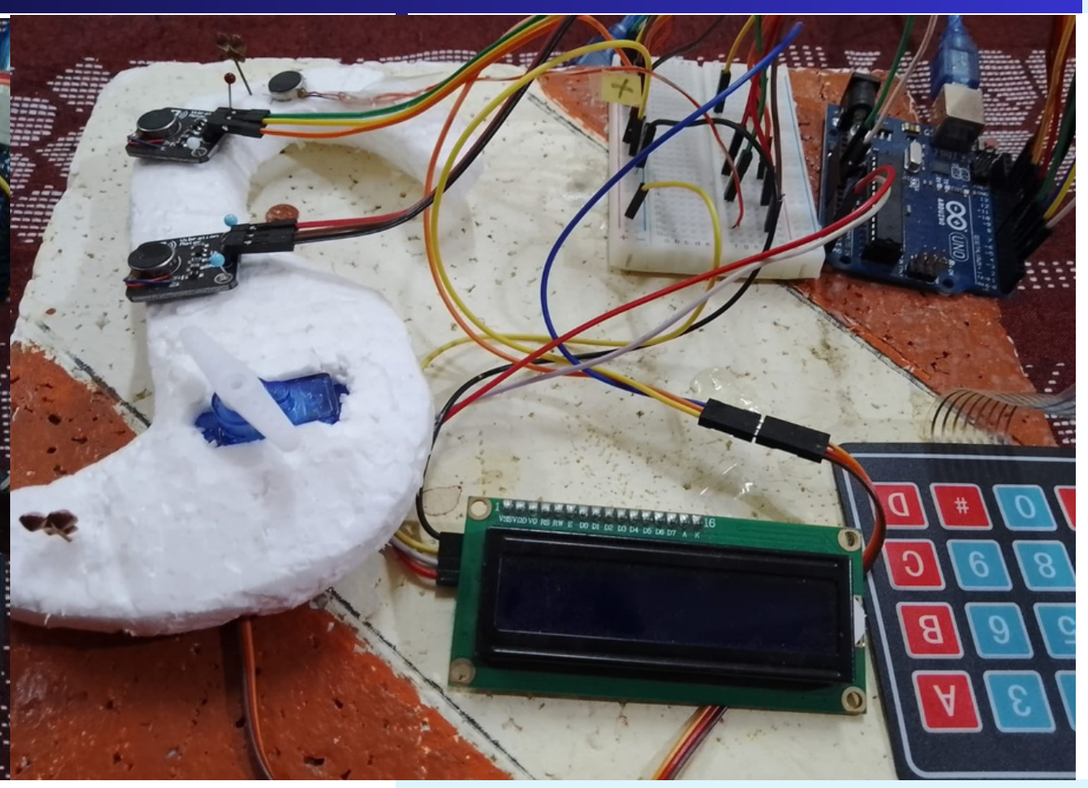
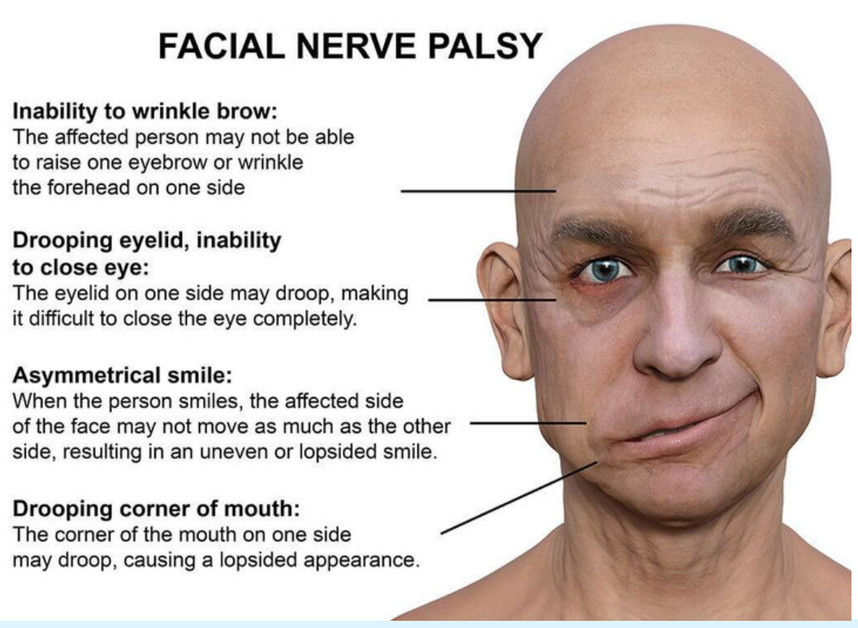


Figure : Circuit design of Automated Vibrator for Bell's Palsy and Mouth Stroke Patient

Concrete Progress







Preprocessing:

- **Input Validation: Ensure that keypad input is validated to prevent errors caused by incorrect key presses. Implement checks to confirm that only valid characters are accepted.**
- **Buffer Management: Implement buffer management techniques to prevent buffer overflow.**
- **Error Handling: Develop error-handling routines to gracefully manage unexpected situations, such as communication errors with external components or sensor malfunctions.**

Augmentation

- **Variable Intensity Levels: Support adjustable vibration strength for user comfort.**
- **Customizable Vibration Patterns: Offer various vibration patterns for user preference.**
- **Progress Tracking: Record user metrics for performance monitoring.**
- **User Feedback Mechanisms: Provide real-time feedback for user engagement and motivation.**

Conclusion and Future work

The "Automated Vibrator for Bell's Palsy and Mouth Stroke Patients" project presents a promising solution for individuals affected by these conditions. By providing targeted muscle stimulation and rehabilitation, the device aims to improve facial muscle function and enhance the quality of life for patients. With customizable settings, portability, and safety features, it offers a convenient and non-intrusive therapy option. Moving forward, ultimately benefiting patients and caregivers alike.

Future Work

- **Enhanced User Interface**: Develop a more intuitive user interface with touchscreen capabilities or voice commands for easier interaction.
- **Machine Learning Algorithms**: Implement machine learning algorithms to analyze user data and optimize therapy settings based on individual response patterns.
- **Integration with Wearable Devices**: Explore integration with wearable devices to monitor muscle activity and provide personalized feedback.