UNIVERSITI TEKNOLOGI MARA

SMART TRANSLATOR AND MONITORING GLOVE

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ABSTRACT

The Smart Translator and Monitoring Glove project is an innovative venture that seeks to break down communication barriers for individuals with speech impairments. By leveraging advanced technology, this project translates sign language into speech, enabling more seamless and easier communication. Despite technological advancements, problems like guaranteeing translation accuracy and considering the variety of sign languages still exist. The necessity for such a project is more than ever in the current digital era. Speech-impaired people face a possibility of loneliness and reduced opportunities without it. This project aims to address these issues by providing a platform for these individuals to express themselves freely and effectively. Moreover, the project also seeks to raise awareness about the challenges faced by speech-impaired individuals. It encourages the use of simple communication techniques, creating a sympathetic and understanding society. This, in turn, helps to reduce the stigma often associated with speech impairments. In essence, the Smart Translator and Monitor Glove project is not just about developing a technological solution. It's about creating a world where everyone, regardless of their abilities, can express themselves and be heard. It is evidence of how technology can help close gaps, promote accessibility, and improve the lives of those who have speech problems.

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CHAPTER ONE: INTRODUCTION

1.1 Background Of Study

Communication with others daily is typically difficult for those who have speech impairments or paralyzed patients. They can only communicate with others mostly through sign language. It is quite challenging for these people with impairments to express their intended message because language and a select few other people cannot grasp it. As a result, flex sensor gloves were created to overcome the difficulties of bedridden patients and those who suffer limitations in speech. This smart glove will translate Sign Language, which is the hand or to be precise the finger movements, that is understood by the user into Common Language, which is understood by everyone in general. With the flex sensor on the glove as an exception, data is processed in accordance with the angular or degree motion of the flex sensor itself made or moved by the wearer's finger. Depending on the angle or degree to which the wearer moves, the flex sensor's resistance varies; the more the finger moves, the higher the resistance value is generated. The microcontroller will then turn the output into digital form, and the user will receive responses via an application in their phone. In addition, the glove will function as a heart monitor to track the user's heart rate, which is helpful for private bedridden patients. The heartbeat sensor will gather data every minute and send it to the app that is already installed on their phone. In addition, if the heartbeat is higher or lower than the normal heart rate, a warning signal will be sent via Wi-Fi into their guidance phone.

1.2 Problem Statement

Due to language barriers and the limited understanding of some others, bedridden patients and those with speech impairments have difficulty communicating what they want to say. Therefore, an intelligent glove was made with the presence of flex sensors that will translate finger movement into a language that people can understand. The glove was equipped with a heartbeat monitor that automatically recorded the patient's heart rate every minute and sent the information to an app. The typical monitoring whereby the patient's heart rate must be measured manually using a check-up routine requires regular presence of the guidance by side; therefore, this method is simpler. The guidance of the patients could not feel worried anymore because all the heart rate data is recorded on an app.