



VEL TECH HIGH TECH

Dr. RANGARAJAN Dr. SAKUNTHALA ENGINEERING COLLEGE

An Autonomous Institution

Department of ECE

Mini Project Review

Smart Glove for Sign Language Translation for Disabled Person

Pandian.M (VH No.11229)

III Year, Electronics and Communication Engineering

Supervisor

Name :Mr.M.Parthiban

Designation :Asst.Professor/ECE

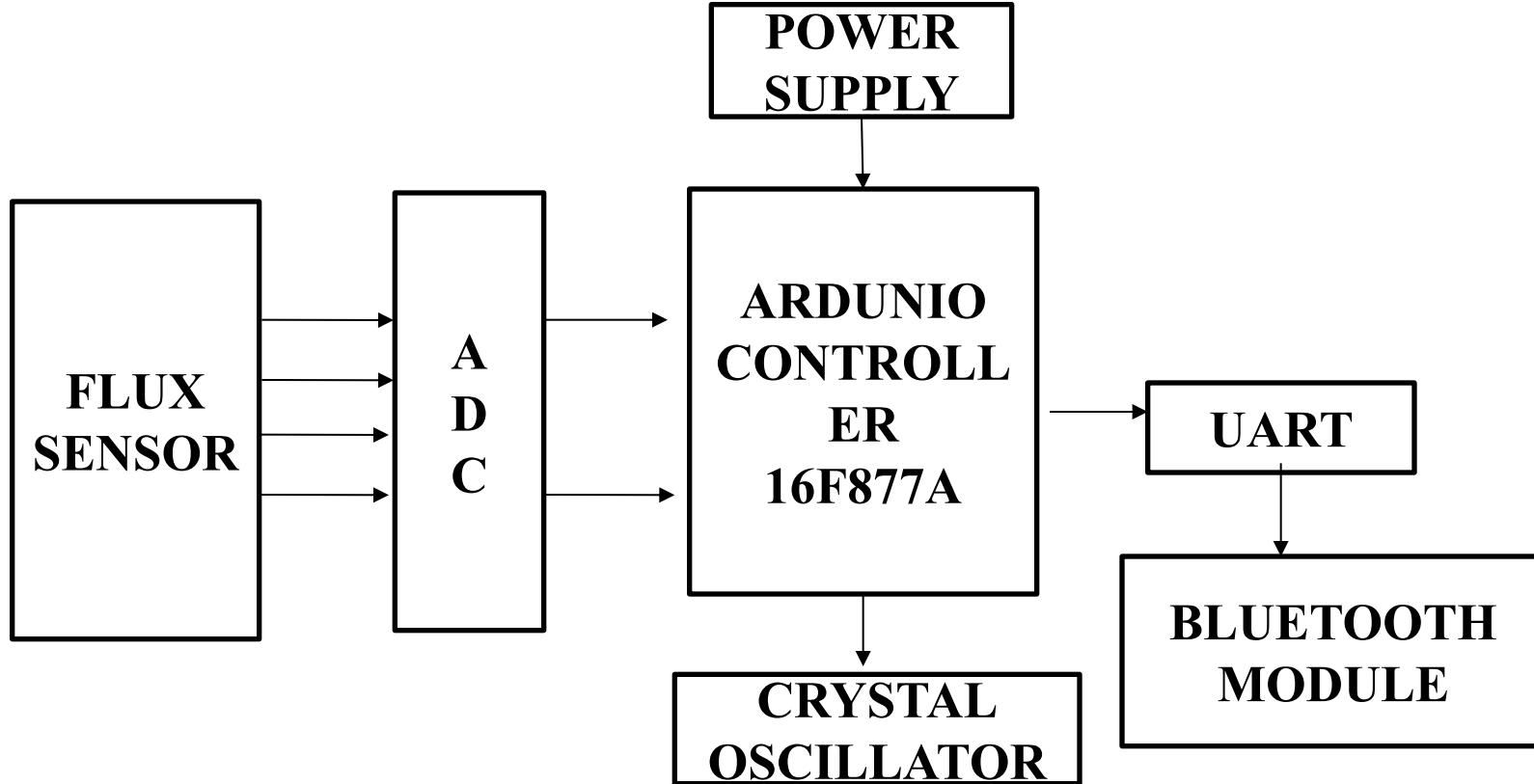
Introduction:

- Speech impaired people use hand signs and gestures to communicate. Normal people face difficulty in understanding their language.
- Hence there is a need of a system which recognizes the different signs, gestures and conveys the information to the normal people.
- It bridges the gap between physically challenged people and normal people.

Objective

1. To address how the system ensures accessibility and usability for physically disabled users by Considering the factors like ease of use, adaptability to different disabilities, and user feedback.
2. To explain how the system facilitates communication between the disabled person and others and to discuss the user interface, which could involve text-to-speech synthesis, visual displays, or haptic feedback.

Block Diagram/Flowchart:



RESULT:



Result:



Work Flow:

- **Sign language recognition systems using flex sensors** have been developed to assist deaf and mute individuals in communicating more effectively.
 1. This system utilizes a **wearable hand device** equipped with **five flex sensors**.
 2. The components include a **PIC microcontroller** and programming in **Python** and **C language**.

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3.The real-time **Sign Language Recognition system** interprets hand gestures captured by the flex sensors.

4.The system successfully recognizes up to **thirty-one phrases**.

5.Another project proposes a **bidirectional flex sensor** along with an **MEMS accelerometer, Bluetooth module, and Arduino Mega**.

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6.This combination creates a **Data glove** capable of recognizing **International Sign Language** based on hand motion.

7.To enhance sign language applications, a **gesture recognition system** was designed.

8.It relies on **multiple sensors** and aims for portability, real-time processing, reliability, and stability.

Methodology:

- Choose appropriate sensor technology to capture sign language gestures. Options may include motion sensors, gloves with sensors, or computer vision-based solutions.
- Gather a comprehensive dataset of sign language gestures performed by individuals with varying signing styles and abilities. This dataset will be essential for training and validating your system.

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- Implement real-time gesture recognition to provide immediate feedback to users. This may involve optimizing the performance of your models for low-latency inference.

References:

1. Hodgson, D.E., and Brown, J.W. "Using Nitinol Alloys," Report of Shape Memory Applications Inc., 2000.
2. Maji, A.K., and Negret, I., "Smart Prestressing with Shape-memory Alloy." Journal of Engineering Mechanics, Vol.124, No.10, Oct. 1998, pp.1121-1128.
3. DesRoches, R., "Application of Shape Memory Alloys in Seismic Rehabilitation of Bridges," Technical Report NCHRP-IDEA project 65, Feb. 2002.
4. ATA-UR-Rehman, Salman Afghani, Muhammad Akmal, RaheelYousaf "Microcontroller and Sensors Based Gesture Vocalizer", Proceedings of the 7th WSEAS International Conference on signal processing, robotics and automation (ISPRA '08) ISSN: 1790-5117 8 2 ISBN: 978-960- 6766- 44-2, University of Cambridge, UK, February 20-22, 2008.

Continued.,

5. Kanika Rastogi, Pankaj & Bhardwaj, "A review paper on smart glove", International Journal on Recent and Innovation Trends in Computing and Communication, Vol: 4 Issue:5
6. K.V.Fale, Akshay Phalke, Pratik Chaudhari & Pradeep Jadhav, "Smart Glove: Gesture Vocalizer for Deaf and Dumb People", International Journal of Innovative Research in Computer and Communication Engineering (An ISO 3297: 2007 Certified Organization) Vol. 4, Issue 4, April 2016
7. M.S.Kasar, Anvita Deshmukh, Akshada Gavande & Priyanka Ghadage, "Smart Speaking Glove Virtual tongue for Deaf and Dumb", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering. (An ISO 3297: 2007 Certified Organization), Vol. 5, Issue 3, March 2016

Continued.,

8. Kiran R. "Digital Vocalizer System for Speech and Hearing Impaired", International Journal of Advanced Research in Computer and Communication Engineering. Vol. 4, Issue 5, May 2015, Copyright to IJARCCCE DOI 10.17148/IJARCCCE 2015.4519 81, Digital Vocalizer System for Speech and Hearing Impaired
9. P.Abhay, L.Dhawal, S.Harshal, A.Praful, P.Parmeshwar, "Smart Hand Glove For Disable People", International Research Journal of Engineering and Technology. issue:4, April 2018. volume:5,
10. Adarsh Ghimire, Bhupendra Kadayat, Aakriti Basnet and Anushma Shrestha, "Smart Glove", Conference January 2019. paper,

Thank you