SAMVAAD SAARTHI

SIGN TO SPEECH SMART GLOVE

CPG NO: 73

MENTOR: DR. VAIBHAV PANDEY

Computer Science and Engineering Department,
Thapar Institute of Engineering and Technology

SEZALPREET KAUR 102103531
YATHARTH GAUTAM 102103550
MANNAT SADANA 102103561
ARSHIYA KISHORE 102103565
AAKARSH WALIA 102153005

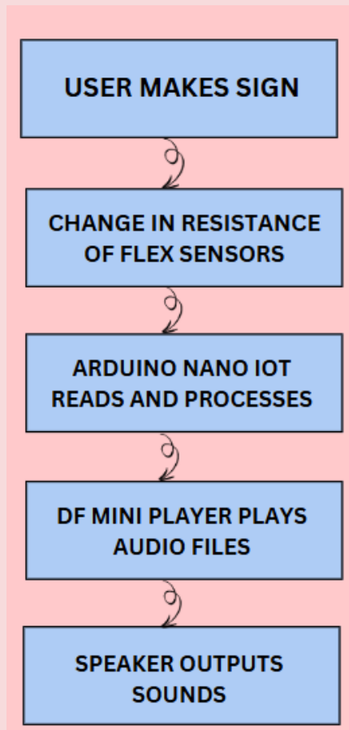
1 OBJECTIVES

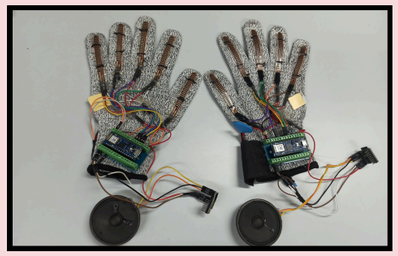
- Development of a **gesture recognition system** that interprets Hindi Sign Language.
- To **bridge the communication gap** between individuals who rely on sign language and those unfamiliar with it.

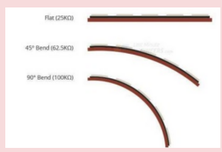
2 TECHNICAL COMPONENTS AND ALGORITHMS

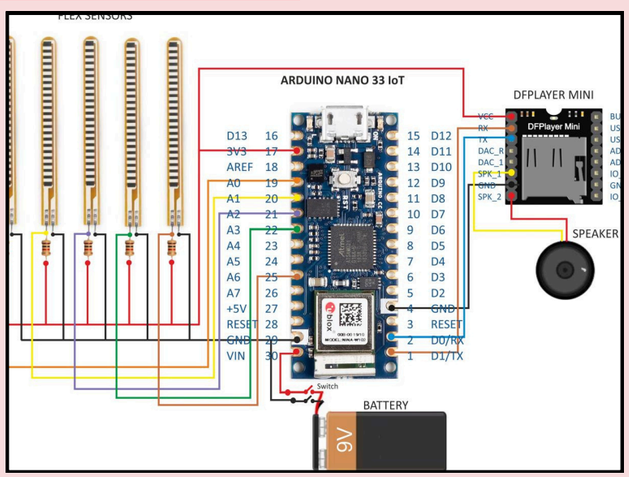
- Gesture Recognition
- Arduino Nano IoT
- Flex Sensors
- DF Mini Player
- Serial Communication
- SD Card
- Pattern Matching
- Threshold-Based Decision Making
- Iterative Learning

3 WORKFLOW AND DESIGN INSIGHTS









4 RESULTS

- **Accuracy:** 92% in controlled environments, 88% in real-world testing.
- **Latency:** Minimal, enabling near real-time translation.
- **User Feedback:** High satisfaction with glove usability and comfort.

5 FUTURE WORK

- **Recognition:** Use machine learning for better gesture accuracy.
- **Functionality:** Support multiple languages and sign languages. Wifi and Bluetooth connectivity between gloves or other output devices over a distance
- **App:** Develop a mobile app for enhanced access.
- **Experience:** Improve glove comfort and customization.