HAND TALK GLOVES USING FLEX SENSOR WITH IOT

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Abstract : In general, speech impaired people have difficulty in communicating with each other who has no knowledge of sign language. The past implementation of this project involved using image processing concept and accelerometer. But the drawback of the implementations of that projects were non portable and too expensive. Our project involves an IOT based hand glove which is fitted with flex sensors. Flex sensors are the input sensors which provides input to the arduino, these sensors vary the resistance value based on the degree of bend made by the fingers, that is the more the bend, the more the resistance value. The output from the sensors is in form of analog and is converted to digital and further processed by the microcontroller. In this project we have used hardware components like arduino uno, speaker for audio output, flex sensors, audio recognizer, breadboard. The programming platform used in this project is arduino ide.

IndexTerms – **Hand gloves, Sensors**

I. INRODUCTION

Among various ideas, we selected a project that will help a group of speech impaired people who are barely able to speak like common people. Normal people do not understand the signs made by the speech impaired people. For their disability, they are almost ignored in our society. But we believe they can contribute in our society. We try to solve this problem for speech impaired people by our device. Our project is to convert finger gestures movements into audio as an output. We have come up with a novel idea of a glove named HAND TALK that will convert the hand movements into a corresponding message and allow the individual to express themselves better. A sensor equipped glove needs to be worn on the hand. The heart of the system i.e. Flex Sensors fixed on a hand glove picks up the signal generated by the gesture made by an individual and with the help of Arduino the analog input signal is converted into a digital and for various gestures there is specific output which is converted into a specific message. When the person performs a particular gesture, the predefined message for that gesture is given in audio as an output through speaker.

II. RELATED WORK

[1] Signs were recognized by gestures that were captured by a camera and image processing was used to outline the gesture and and the gesture is mapped to a binary code which is in turn mapped to a text and the text is displayed.

[2] Sign recognizing sensor glove was used to recognize and display English words here the team used artificial neural networks to perform the task and all also this project has limited to American English alphabet and sentences.

[3] A system that could send data wirelessly using a Bluetooth module and the device using the synthesizing software could recognize the gesture and display it on the device.

[4] A system was proposed to use accelerometer, gyroscope, flex sensor and send the gestures to a mobile device using which the data was displayed on the device where the data was mapped to a text and was displayed.

III. EXISTING SYSTEM

The existing system implemented using image processing concept and accelerometer. But the drawback of the implementations of that projects were non portable and too expensive. Our project involves an IOT based hand glove which is fitted with flex sensors which is portable and user-friendly.

IV. PROPOSED SYSTEM

There are 2.78% of the total population in India who can't speak. Sign language is a nonverbal form of communication method which is found among all speech impaired communities in world. The Hand Talk glove is a normal, cloth driving glove fitted with flex sensors which translates the sign language into speech, through speaker and also it is displayed on led basically this system bridges the communication barrier between speech impaired and normal people and also this system is not only used by speech impaired people, hand gloves has many applications in various fields.

V. RESULTS AND DISCUSSION

In this proposed system we collect the information from the hand gestures moments made by the speech impaired people and translates the action performed by the speech impaired people using flex sensors into a speech. The ADC converter converts the analog signal into a digital by calculating the resistance value. The resistance value is measured by the degree of bend made by speech impaired people further processed by the microcontroller. When the person performs a particular gesture, the predefined message for that gesture is given in audio as an output through speaker.

VI. CONCLUSION

In this proposed system we collect the data from the hand gestures made by the speech impaired people and this proposed system translates the sign language into speech with the help of sensors such as flex sensors, accelerometer and gyroscope. The analog signal sent by the flex sensors is converted from analog signal to digital data, when the audio is mapped based on the digital data then it emits the audio.

VII. ACKNOWLEDGMENT

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[5] Talking Hands – An Indian Sign Language to Speech Translating Gloves S Yarisha Heera1 , Madhuri K Murthy1 , Sravanti V S1 Department of Information Science and Engineering, Nitte Meenakshi Institute of Technology, Bengaluru, India.