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Voice Assistance for Dumb People Based on Hand Gestures

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ABSTRACT

It could be very tough for dumb human beings to deliver their message to regular human beings. Since normal human beings aren't educated accessible signal language, the verbal exchange turns into very tough. When a dumb individual journeying or amongst new human beings verbal exchange with close by human beings turns into very tough The number one intention of this paper is to introduce a problem to successfully translate language gestures to each textual content and sensibility voice. The device uses a hand movement analyzing device geared up with movement and flex sensors together with a PC unit. The device includes numerous saved messages like "want assist", "in which is the washroom" and so forth that assist dumb human beings to deliver simple messages. The device reads folk's hand motions for specific versions of hand movement. The laptop/PC continuously gets enter sensor values after which strategies it. Now it searches for matching messages for the set of sensor values. Once it's miles observed in reminiscence this message is retrieved and is spoken out through the usage of textual content to speech processing thru the interfaced speaker. The message may be spoken out in specific languages relying on the languages regarded via way of means of a normal individual. It speaks out in four Indian languages one after the other till the specific language is desired via the way of means of the normal individual. Thus, we have a voice assistant device to assist dumb human beings to talk with normal human beings with the usage of an easy wearable tool.

Keywords : Voice Assistance, Communicate, Speech Recognition, Hand Gestures, Flex Sensor, Indian Sign Language

I. INTRODUCTION

About 9 billion human beings at durations in planet unit of dimension dumb. The verbal exchange among dumb and listening to individual poses a difficulty as compared to verbal exchange among blind human beings. This creates a little residence for them withverbal exchange being companion diploma

simple thing of human life. The blind human beings can communicate freely through historic language while the dumb have their manual-visible language. This language is not understandable by everyone and hence such a dumb person faces tough to communicate. A Dumb verbal exchange is a device that translates hand gestures to sensibility. The number one intention of this paper is to introduce a problem to successfully translate language gestures to each textual content and also voice. With the use of glove primarily based method of flex detector, a sensor like accelerometers. For every hand gesture created, a symptom is shaped via way of means of the sensors recognize the hand signal the controller suits the gesture with pre-saved inputs. Gesture reputation implies a way via way of means of that expertise is amassed from elements of the body (most commonly hand) a gesture being prepared.

Here, Based on the hand gestures made by a dumb person the tool could be capping a position to talk in addition to show in four-five Indian languages primarily based totally on the language desired via way of means of the normal individual.

II. LITERATURE SURVEY

Title: Smart Assistance for Deaf and Dumb Using Flexible resistive Sensor
Author: S Kumuda
Year: 2020
Description: People with hearing and speaking difficulties use sign language to converse with each other. Dumb persons facing difficulties while conversing with persons, who do not know the sign language. We tried solving this issue in our proposed project.

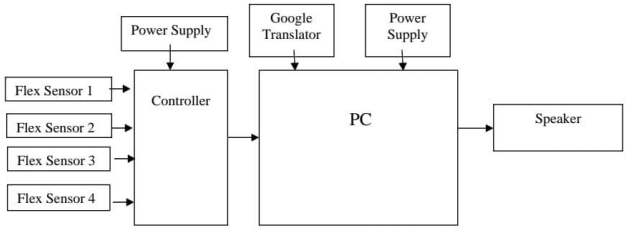
Title: Real-time Hand gestures Communication System in Hindi for Speech and Hearing Impaired persons
Author:Shilpa Chaman, Dylan D'souza
Year: 2018
Description:This paper proposes a novel real-time method for the gesture to text (G2T) and text to gesture (T2G) in Hindi language, to assist the speech and hearing impaired people (deaf and dumb) for conversation between each other and also with normal persons. In the G2T system, the images of palm gestures are loaded on a real-time basis and hand region extraction is done based on skin color segmentation.

Title: Hand gestures recognition and voice conversing system for dumb people
Author: V Padmanabhan, M Sornalatha
Year: 2014
Description:Artificial speaking mouth for dumb people will be very helpful to them for conveying their thoughts to others. That message is kept in a database. Likewise, all templates are kept in the database

III. METHODS AND MATERIAL

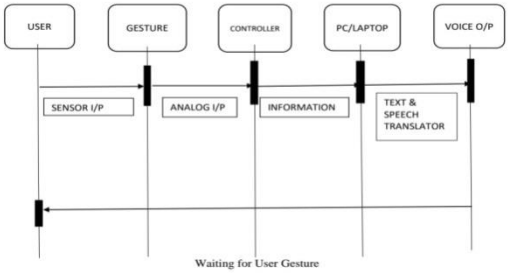
In the current framework, there are just eight stored messages. We aim to develop a device that can store as many as messages possible based on permutation and a combination of four fingers.

When the device is turned on the hand gesture is made and flex sensors produce a certain analog value. If the sign is recognized, the corresponding voice output is produced. If the hand gesture is not recognized, the dumb person can change it to the next available language and so on until it is recognized by a regular person.

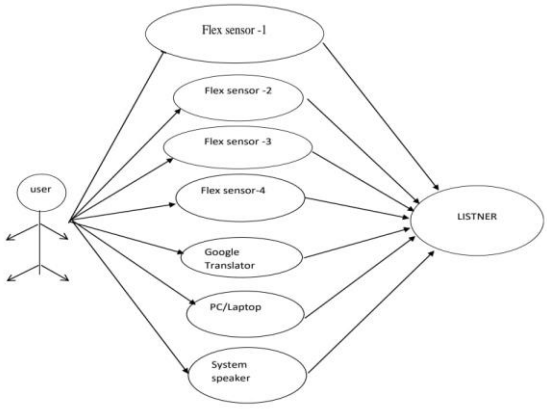


When the facility is turned ON, the position and orientation of the hand area unit are obtained from the information gloves that include four Flex sensors on fingers (Thumb, index, middle, ring). Flex sensors are accustomed measure the bend of the five fingers once creating an indication. once the user is acting a gesture, signals coming back from the sensors area unit amplified via a zealous amplification circuit to every signal. The voice output is produced, if the language is recognized by the regular person. The dumb person conveys the message based on hand gestures.

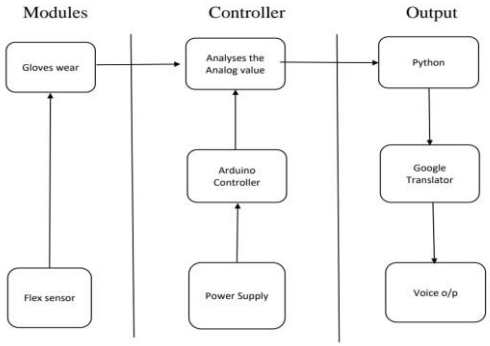
SEQUENCE DIAGRAM



USER CASE DIAGRAM



ACTIVITY DIAGRAM



IMPLEMENTATION

When the device is turned on the hand gesture is made, the flex sensors produce a certain analog value. Based on gesture produced analog value is recognized corresponding voice output is produced.

So there are 7 gestures recognized here

Gesture One:

When the first analog value is less than 100, then gesture one is set. And the voice output set to gesture one that is "Good Morning" message is produced.

The analog value of the first gesture is:

```
33
177
168
206
1
```

Gesture Two:

When the second analog value is less than 100, then gesture second is set. And the voice output set to gesture two that is "I Need Help" message is produced.

The analog value of the second gesture is:

```
115
74
181
204
2
```

Gesture Three:

When the third analog value is less than 100, then gesture third is set. And the voice output set to gesture three is the "Please Help Me" message is produced.

The analog value of the third gesture is:

```
124
203
54
196
3
```

Gesture Four:

When the fourth analog value is less than 100, then gesture four is set. And the voice output set to gesture four that is the "I Want Food" message is produced.

The analog value of the fourth gesture is:

```
114
233
157
79
4
```

Gestue Five:

When both first and second analog value is less than 100 then gesture five is set. And the voice output is set to gesture five that is "Good Afternoon" message is produced.

The analog value of gesture five is:

```
29
82
178
193
5
```

Gesture Six:

When the first, second, and third analog value is less than 100 then the sixth gesture is set. And the voice output set to gesture six that is the "How to go bus stand" message is produced.

The analog value of gesture six is:

```
42
97
75
198
6
```

IV. CONCLUSION

Gesturereputation and voice conversion for dumb and deaf individuals turned into correctly completed the usage of Flex Sensor. The technique takes gesture as entering and offers textual content and speech as an output. Implementation of this device offers as much as 90% accuracy and works correctly in a maximum of the check cases.

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