ADAPTATION OF SIGN LANGUAGE INTO SPEECH FOR HEARING IMPAIRED AND SPEECHLESS PEOPLE

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ABSTRACT

In Indian around 22.18% of peoples aren't capable of speak (dumb). Their communications with others are most effective the use of the movement in their fingers and expressions. For contact between deaf-mute and regular persons, deaf and dumb individuals learn sign language. Yet common people are unable to grasp what they are trying to say to dumb and deaf people. There is no time for average people to learn sign language. This creates obstacles to contact between deaf-dumb people and ordinary people. The contact distance between deaf-dumb and normal individuals is mainly decreased by this initiative. Gloves may be used by deaf and dumb persons to execute hand gestures. A motion in sign language is a particular movement of the hands with the fingers and the entire hand in a similar pattern. The aim of this project is to translate sign language into speech. So average people can easily understand expressions there.

Keywords: Flex Sensor, Bluetooth Module, Accelerometer MPU6050, Gesture recognition module, Arduino UNO.

I. INTRODUCTION

The Normal people communicate with another normal people for their daily routine. There are lots of mute humans around us who use signal languages for conversation. Sign language is clearly a series of numerous gestures proven the usage of palms and every of those gestures have positive meaning. Deaf and dumb people use sign language to interact with ordinary individuals. It's really difficult for average people to grasp their sign language. Our project is helpful for deaf and dumb people communicate with normal people easily. The theory using a sign language to conversion form of speech is to construct and could be the information discovered by a deaf-mute person Transmitted to a typical person efficiently. The primary aim of this work is the creation and implementation of a finger translation framework. Spelling (sign) to voice synthesis and recognition processes. Different utilizations of hand-motion acknowledgment frameworks incorporate character-acknowledgment, signal acknowledgment to distantly control a TV, home robotization, mechanical arm regulator and signal acknowledgment for wheel seat control. Contrasted with vision-based framework sensor-based motion acknowledgment framework (flex sensor) is delicate and more precise sensor-based methodology is favorable over vision-based framework, since it requires just a movement sensor instead of a camera that makes it as a versatile gadget with ease. It too gives quick reaction in perceiving the signals which in turn lessen the computational time progressively applications. Progressively, acknowledgment pace of 99% can be accomplished utilizing flex sensor-based framework.

II. EXISTINGSYSTEM

With the idea of manipulating the robot arm with the assistance of hand gestures, the job became stimulated. The accelerometer is used to assess the leanness of the hand. On a glove, five bending sensors are located, 4 for the arms and one for the thumb. These sensors calculate the bend in the fingers and thumb and palm and the
microcontroller understands which value set represents which symbol according to the bend angle value and transfers the appropriate result value via Bluetooth, which displays the symbol, to the Android app.

III. PROPOSED SYSTEM

In the two-pin flex sensor, the first pin is linked to the ground. The second pin is connected to the analogue pin of Arduion and this pin is also connected with 1K resistance to 5V. For the avoidance of waste values, this resistance is used. The mpu6050 accelerometer operates on integrated circuits. Any flex sensor attached to analogue pins (A0,A1,A2,A3). The sensor for the accelerometer is attached to pin A4 and pin A5. The serial data pin accelerometer is attached to pin A4 and the serial clock pin accelerometer is attached to pin A5. The Bluetooth Rx,Tx pin attached to Arduion's Tx,Rx pin. The Accelerometer sensor information and Flex sensor information that each information ship via the arduion. The arduino comparing the data and send through the Bluetooth module to the Mobile. The cell phone app convert this data into speech. This undertaking specially used for the deaf and dumb people.

ARDUION UNO

Arduion uno is a open source of electron device. It used in both hardware and software. Arduion uno board has set of anlong and digital input and output pin. This arduion uno board is interfaces with various sensor board.

BLUETOOTHMODULE

HC-05 The Bluetooth module includes the switching mode between keep close and slave mode, which means that it does not use statistics to receive or transmit.

FLEXSENSOR

A flex sensor its measures the amount of bending so its called as bend sensor. Usually, the sensor is caught to the surface, and resistance of sensor detail is varied through bending the surface. Flex sensor changes its opposition esteem contingent on the measure of twist applied on the sensor. By estimating the opposition, we decide how much the sensor is being bowed. An unflexed sensor has 10 to 30K ohm opposition and when it is twisted, the obstruction esteem increments to 100K ohm.
ACCELEROMETER MPU6050

A accelerometer MPU6050 sensor it measure the acceleration forces acting on a object. so it is called as a motion tracking device.

In our project we use accelerometer sensor for detecting the hand motions. Sensor values are stored on the arduino uno. Based on the hand motions the stored output is converted into speech and it is played through the mobile.
Matching the features

V. CONCLUSIONS

The communication among a deaf and mute person reasons a critical trouble as Compared to contact between blind and ordinary visible people, communication between a deaf and mute person causes a critical problem. The unique set of rules and techniques used to spot the hand gesture is offered in this article. The reputation of hand gesture devices is taken into account as a means of communicating with a more sensitive and talented human machine. Digital prototyping and sign language interpretation make up the spectrum of packages. One of the communication aids for body-impaired, deaf and dumb persons is sign language. It is far clear from the above attention that the voice primarily focused entirely on hand gesture popularity has made brilliant growth with popularity within the discipline of hand gesture. C or Python language are software tools which can be used to implement the gesture credibility device.

REFERENCES