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Speaking Mute People Using Hand Gestures

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ABSTRACT: Hand gesture is one of the methods used in sign language for non-verbal communication. It is most commonly used by deaf & dumb people who have hearing or speech problems to communicate among themselves or with normal people. Various sign language systems have been developed by many makers around the world but they are neither flexible nor cost-effective for the end users. Hand Gesture recognition system provides us an innovative, natural, user friendly way of communication with the computer which is more familiar to the human beings. The problem existing at the moment is that most of the people are not able to comprehend hand gestures or convert them to the spoken language quickly enough for the listener to understand. In addition to this communication with sign language is not a very easy task. This problem demands a better solution which can assist speech impaired population converse without any difficulties.

The authors propose a non-vision based extended idea that will assist in removing or at least reducing this gap between the speech impaired and the able-bodied people. Our project objective is to analyses and translate the sign language that is hand gestures into text and voice. According to dumb people, every gesture is associated with a specific meaning and this is stored in a database. By frequently updating the database the dumb will communicate like a normal person using the artificial mouth. Thus, conversion of sign language into words by an algorithm or a model can help bridge the gap between people with hearing or speaking impairment and the rest of the world**.**

KEYWORDS: Hand gestures, Non-verbal communication, Speech-impaired people, non-vision based, Data base, Artificial mouth, Algorithm.

I. LITERATURE SERVEY

The objective of the paper is building up a framework that takes Gesture positions from Accelerometer as information and yield will be gotten as content and discourse. It intends to connect the hindrance by making an application that can change over gesture-based communication to voice and Displayable message content, and give them a communication medium Assistive Translators for the Deaf and Dumb people& quot; S.B Shroke et al. (2014) This article models communication between the deaf and the public. The project targets people through glove-based deaf-mute communication systems. Gloves are designed internally with five bending sensors, touch sensors and accelerometers. For each distinct gesture, the bending sensor develops a proportional resistance difference and the accelerometer reads the direction of the hand. The sensor output is analogous to the digitally converted value. The output from the sensor is analog values it is transformed to digital. The transform of these hand gestures is in ARM processor. Processor compares the input signal with predefined voltage levels reserved in memory. According to that required output sound is produced which is saved in SPI memory with the help of speaker. In such a way it helps for deaf and dumb too. Communicate with normal people. Pankaj Pathak (2012) proposed “Speech Recognition Technology: Applications & Future,” paper discussed about: Voice or speech recognition is the used technology with the help of audio, words or phrases spoken by any person are converted into electrical signals, and these signals are transformed into coding patterns to which meaning has been assigned. Speech recognition technology has oppressed throughout many industries. Some companies have developed a robust system that performs as expected and sends the call to their intended destination. This technology would have to be suitable with all software and hardware. This technology would require the CPU to concurrently process voice input and data access. In this system the flex

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sensor captures and unique values are generated. These values are stored in the database and when the sign is made the Raspberry pi matches the values with the stored values and the output is made available in the form of text on the lcd and a audio from the speaker which are connected to the raspberry pi 3b. Here we are operating accelerometer in two Modes, namely Mode 0 and Mode1. Each mode contains four gestures (and can add on based on our requirement). The mode 0 is used for communicating with the deaf People, where the normal person can communicate using this system and from the displayed output the deaf person can understand what the normal person is communicating. The mode 1 is used by dumb people for communicating with Normal people. In the mode 1 the dumb people use the system for communication. They made gestures using the accelerometer based on their requirements, from the produced the output the normal person can understand what the dumb person is communicating.

II. METHODOLOGY

2.1.Block Diagram

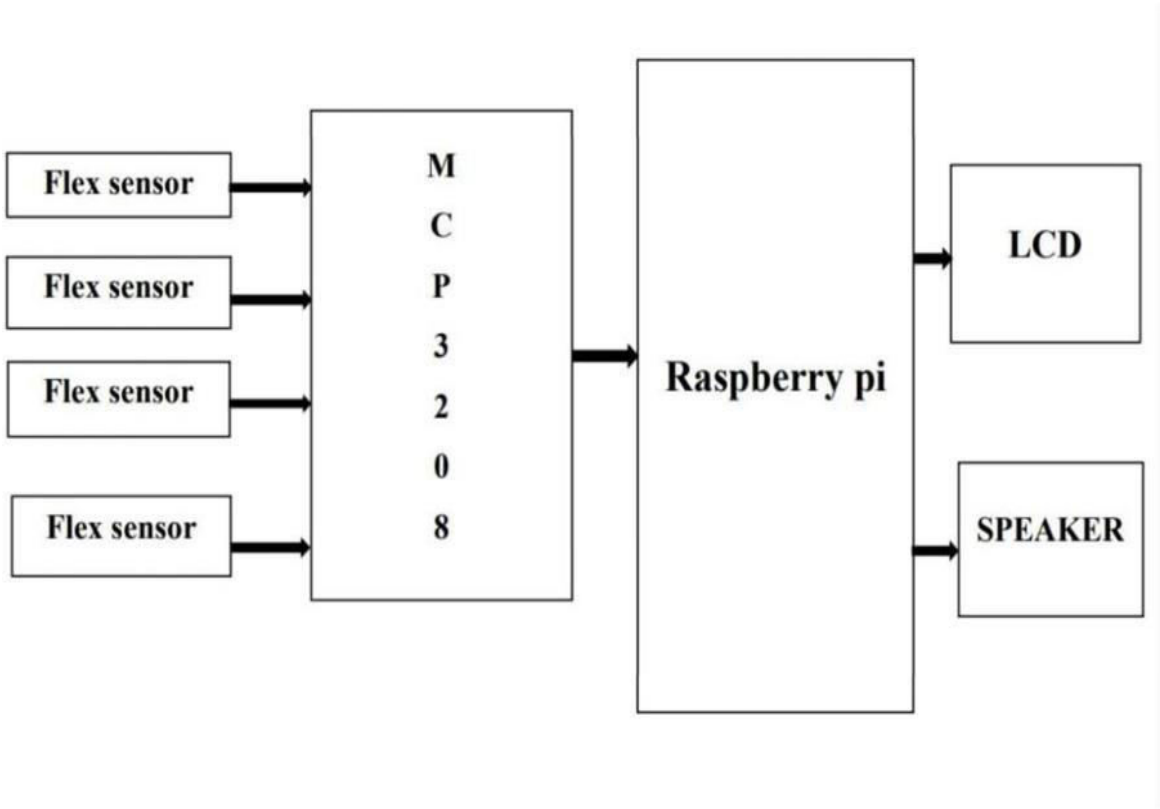

Fig.1 Block Diagram of Proposed System

Gestures are a form of non-verbal communication in which visible bodily actions are used to communicate important messages, either in place of speech or together and in parallel with spoken words. Gestures include movement of the hands, face, or other parts of the body. Physical non-verbal communication such as purely expressive displays, proxemics, or displays of joint attention differ from gestures, which communicate specific messages Gestures are culture- specific and can convey very different meanings in different meanings in different social and cultural settings. Gestures is distinct from sign language, although some gestures, such as the ubiquities act of pointing, differ little from one place to another, most gestures do not have invariable or universal meanings but cannot specific meanings in particular cultures.

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2.2.Flowchart

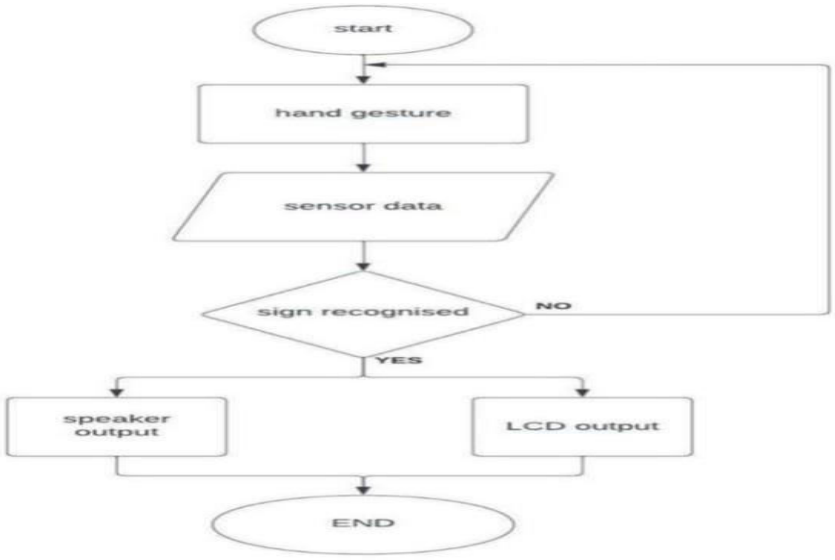

Fig.2 Flow chart of the proposed system

2.3.RASPBERRY PI:

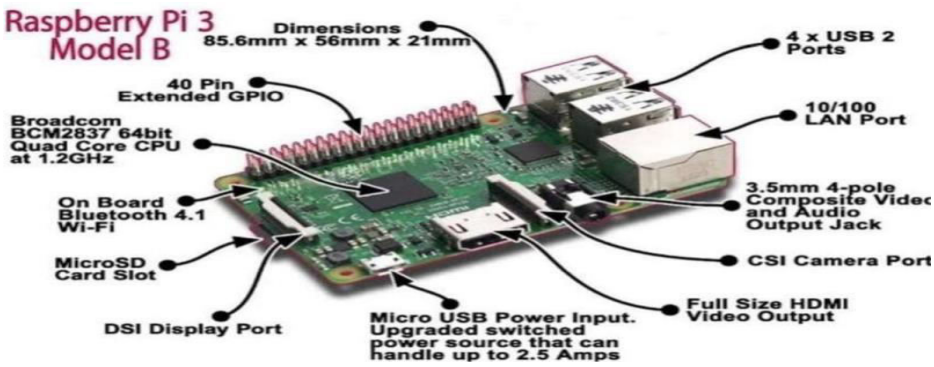

Fig.3,Raspberry Pi

These boards use an Atmel ATmega644 microcontroller clocked at 22.1MHz, and a 512K SRAM for data and frame buffer storage. By 2008, processors designed for mobile devices were becoming more affordable, and powerful enough to provide excellent multimedia, a feature which would make the board desirable to kids who wouldn't initially be interested in a purely programming- oriented device. The project started to look very realisable and feasible. Eben (now a chip architect at Broadcom), Rob, Jack and Alan, teamed up with Pete Lomas, MD of hardware design and manufacture company Norcott Technologies, and David Braben, co-author of the BBC Micro game Elite, to form the Raspberry Pi Foundation to make it a reality. Three years later, the Raspberry Pi Model B entered mass production through licensed manufacture deals with Element 14/Premier Farnell and RS Electronics, and within two years it had sold over two million units.

2.4.WORKING PRINCIPLE

One side of the sensor is printed with a polymer ink that has conductive particles embedded in it. When the sensor is straight, the particles give the ink a resistance of about 30k Ohms When the sensor is bent away from the ink, the

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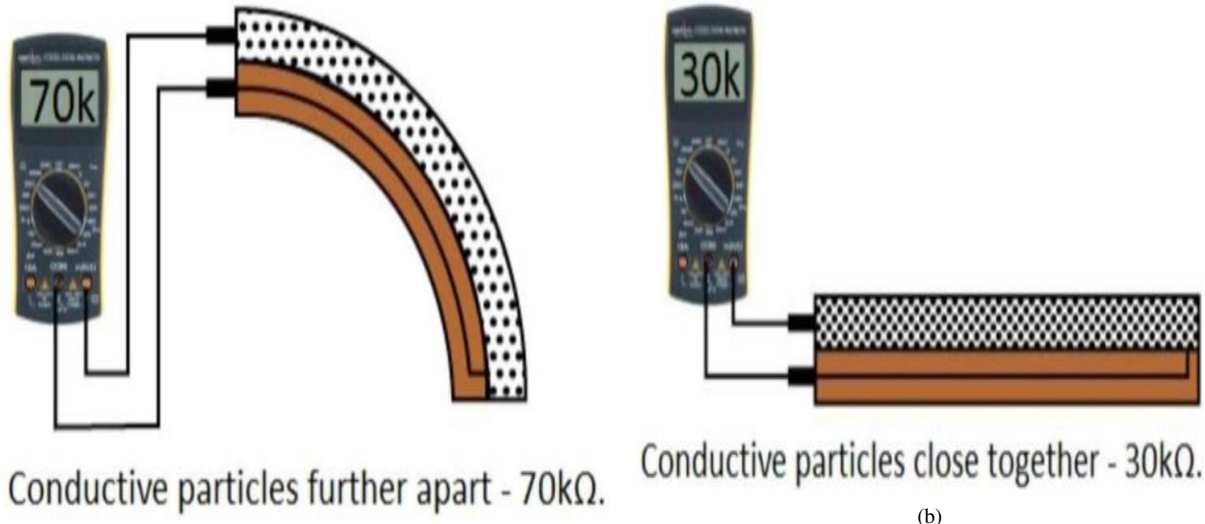
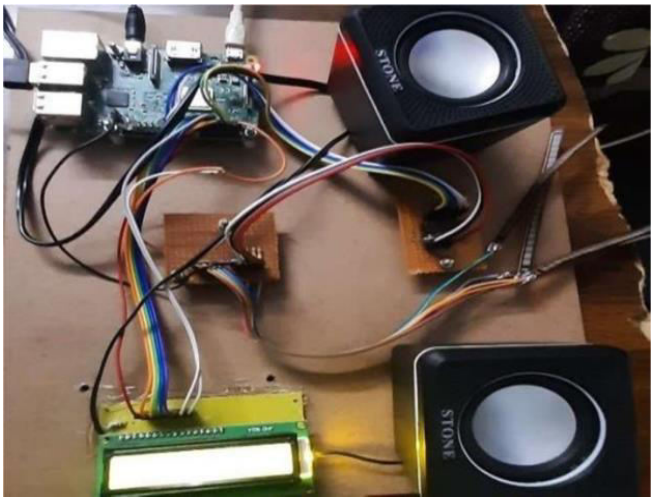
conductive particles move further apart, increasing this resistance to about 50k- 70k Ohms when the sensor is bent to 90 degrees. The relation between the r esistance and voltage applied is tabulated in the table



(a) (b)

III. EXPERIMENTAL RESULTS



(a)

Fig.5.Final output of the system

IV.CONCLUSION AND FUTURE SCOPE

Sign language may be a helpful gizmo to ease the communication between the deal or munity and additionally the standard people. This project aims to lower the communication between the mute community and additionally the standard world. The projected methodology yarest language into speech. The system overcomes the necessary time difficulties of Dum people and improves their manner. Compared with existing system the projected arrangement is impact and is possible to carry to any places. This system converts the language in associate Ping voice that's well explicable by blind and ancient people. The language interprets into some kind displayed on the digital display screen, to facilitate the deaf people likewise. In world plications, this system is helpful for deaf and dumb of us those cannot communicate with ancient person. The foremost characteristic of this project is that the gesture recognizer may be a system, that's applied in common-place of living. It's in addition useful for speech paired and paralyzed patient means

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those do not speak properly and in addition used for Intelligent Home Applications and industrial applications.

Since microcontroller can't able to store large amount of data can be used for memory devices to store large number of words and this will avoid overlapping of words in the receiver section and time delay between the words will be less. They usually rely on stored information which is mainly data which can be used to direct circuit actions. The digital information is stored memory devices. Accelerometer and tactile sensors can be added for better hand gesturerecognition.to Convert Sign Language to Voice.

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