Speaking System For Dumb People Along With Emergency Location Sharing

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Abstract— The inability to communicate is considered a true impairment. People with this impairment utilise a variety of ways to communicate with others; there are a variety of methods accessible for their communication, one of which being sign language. Sign language enables people to communicate through human body language; each word is represented by a series of human actions that reflect a specific expression. The purpose of this work is to convert human sign language to voice using the knowledge of human gestures. The Raspberry Pi web camera and speaker are used to do this. Although there are a few systems for converting sign language to voice, none of them have a portable user interface. For the purpose of determining whether or not a person who is unable to speak can stand. For example, if a person with a speech impairment can stand and perform in front of the system, and the system turns the human motions into speech and plays it loudly, the person might truly converse with a large crowd.

Keywords— Raspberry pi,Web Camera, GSM/GPRS Module,GPS,Switch,Speaker.

INTRODUCTION

Deaf and dumb persons utilise sign language, which is a technique of communication based on visual motions and signals. Sign language is divided into several categories, including ISL (Indian Sign Language), ASL (American Sign Language), BSL (British Sign Language), and so on. However, there are no universal or worldwide sign languages. To comprehend those people, one must know sign language. This becomes more difficult when a person who is unable to talk or hear wishes to communicate with a person or group of people, as most of them are not familiar with sign language. Humans, on the other hand, anticipate flexibility in the way they use their systems and machinery as technology advances. Currently, a variety of approaches and modulations are being used. introduced and are being studied in order to reduce or simplify the complexity of translating sign language to speech. The project is being offered with the goal of reducing all of those complexions and achieving maximum accuracy in sign language to speech conversion with gestures.

Approximately nine thousand million people worldwide are deafeningly deafeningly deafeningly deafeningly deaf (deaf). How often will we see people who are deaf communicate with people who are not deaf? Communication between a deaf and a normal person is a severe challenge when compared to communication between a blind and a normal person. Sign language is a nonverbal mode of communication used by the world's deaf population. Because there is no common root for this sign language, it is difficult to comprehend and translate.

for ordinary people A mute communication interpreter is a gadget that converts sign language into hand gestures. Because average individuals are not trained in hand sign language, communication between deaf and hearing persons becomes extremely difficult. A mute individual travelling among new people and wishing to speak with them becomes a challenging chore during an emergency. The Raspberry Pi is used to operate the system and process the data. The system is fueled and run by a battery-driven circuit.

II. LITERATURE SURVEY

[1] **"Electronics speaking system for speech challenged people," by Safayet Ahmed, Rafiqul Islam, Md. Saniat Rahman Zishaan, and Md.Rabiul Hassan, published in May 2015.**

The goal of this research is to develop an electronic speaking system to assist speech-impaired people. This system's main control unit is an Arduino. Arduino was designed in such a way that configuration settings can be easily changed without requiring a complete rewrite of the programme code. There are two ways to communicate with this electronic speaking system. The first is audio from the speaker, and the second is a text command displayed on the LCD. A glove with flex sensors is being used to make gestures. The recorded voice commands are initially saved to the SD card. There is a separate audio and text command for each gesture. to boost the audio

[2] **"Smart wearable hand device for sign language interpretation system with sensor fusion," April 2017. B.G.Lee, Member, IEEE, and S.M.Lee**

Gesturing is a natural means of communicating a specific idea or intention. The use of a wearable hand glove to interpret sign language is proposed in this research. To distinguish the characters in the American Sign Language alphabet, this wearable device uses five flex-sensors, two pressure sensors, and a three-axis inertial motion sensor. A wearable device containing a sensor module, a processor module, and a display unit mobile application module make up the entire system. Android-based smartphones have a text-to-voice feature that turns received text into auditory output.

[3] **"Hand Gesture Recognition for Indian Sign Language," International Conference on Computer Communication and Informatics (ICCCI), 2012, pp 1-4. Ghotkar, Archana S.,**

The planned technology will recognise Indian Sign Language and convert it to speech and text in English and Malayalam, which will then be shown on an Android phone.

[4] **"Hand Gesture Recognition and Voice Conversion System for Dump People," IEEE International Conference on Intelligent and Advanced Systems, 2019. S. Vigneshwaran; M. Shifa Fathima; V. Vijay Sagar; R. Sree Arshika,**

The goal of this project is to create a system for recognising sign language that allows people with speech impairments and normal people to communicate, thus closing the communication gap. Hand gestures are significant because they represent the user's opinions in less time than other motions (arm, face, head, and body). A flex sensor-based gesture recognition module is being constructed in the current effort to detect English alphabets and a few sentences, and a Text-to-Speech synthesiser based on HMM is being designed to convert the relevant text.

[5] **Toshiaki Jima, Byung-woo Min, Ho-sub Yoon, Jung Soh, Takeshi Ohashi, and Byung-woo Min," "Recognition of Static/Dynamic Gesture: A Gesture-Driven Editing System," Journal of Visual Languages and Computing, Volume 10, Issue 3, June 1999, pages 291–309.**

The goal of this study is to show the visual recognition of static or dynamic movements from visual pictures on a 2D image plane, without the use of any external devices. Gestures were detected using a task-specific state transition based on genuine human articulation.

III. PROPOSED SYSTEM

In this proposed system, a camera is used to collect a user's hand motions. The camera produces a stream of data that changes in response to the gestures. This is passed to the Raspberry Pi, which will output through the speaker. When the person touches the panic button, the location is recorded by GPS and relayed to the concerned persons through GSM.
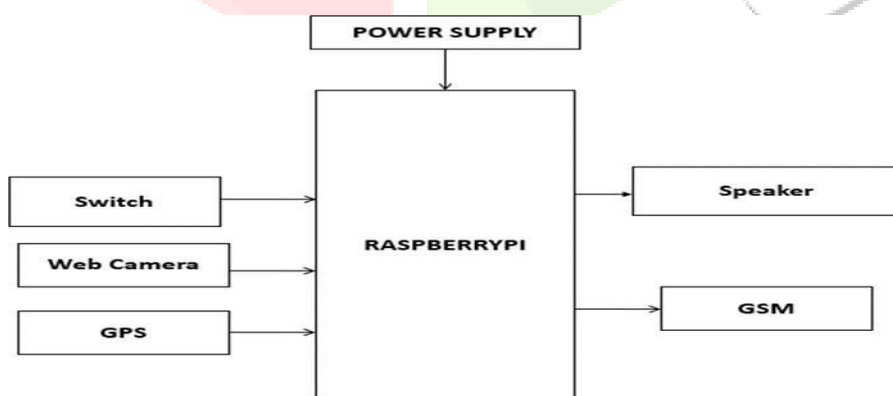

Fig. 1: Block Diagram

To begin, we will use a Raspberry Pi 3 to interface between hardware and software in this project. Here, the Raspberry Pi receives input from the camera, which recognises the gesture and compares it to the gesture library provided in the application, displaying the appropriate text message for each gesture and an audio message through the speaker. In addition, there is an emergency location sharing feature in this project that uses a GPS module and can be triggered by a switch in an emergency.
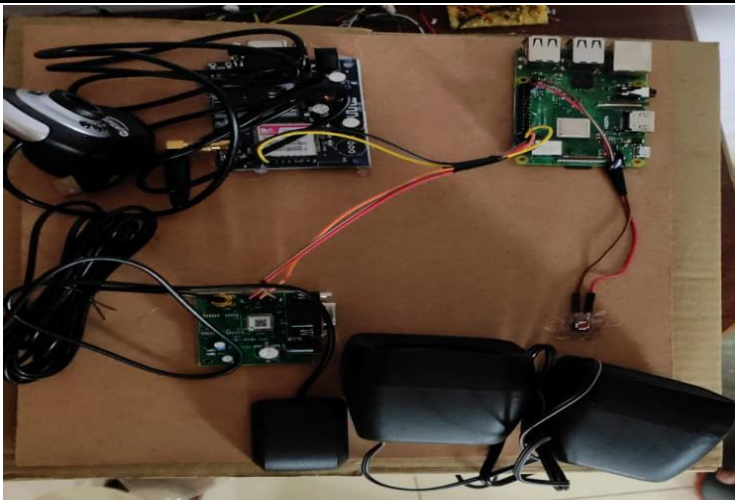
Fig 2: Connection Diagram

Embedded System Implementation:

An embedded system is a type of computer system that is primarily designed to execute activities such as data access, processing, storage, and control in various electronics-based devices. Embedded systems are made up of hardware and software, with the software being called firmware and being embedded inside the hardware. One of the most important features of these systems is that they provide the o/p within the time constraints. Embedded systems assist in making tasks more precise and convenient. As a result, embedded systems are often used in both basic and complicated products. Embedded systems are used in a variety of gadgets in our daily lives, including microwaves, calculators, TV remote controls, home security, and neighbourhood traffic control systems, among others.
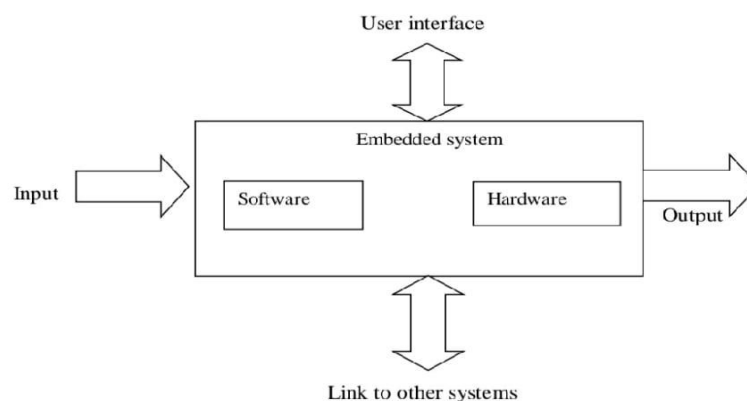

Fig 3: Overview of embedded system

IV Experimental Result:

Firstly in this project we are using Raspberry pi 3 to interface between hardware and software . Here camera gives the input to the Raspberry pi and it will recognize the gesture and compare with the gesture library provided in program and gives the allotted text message for each gesture and gives audio message through the speaker .And in this project there is emergency location sharing by using GPS module it can be triggered by a switch in emergency situations.
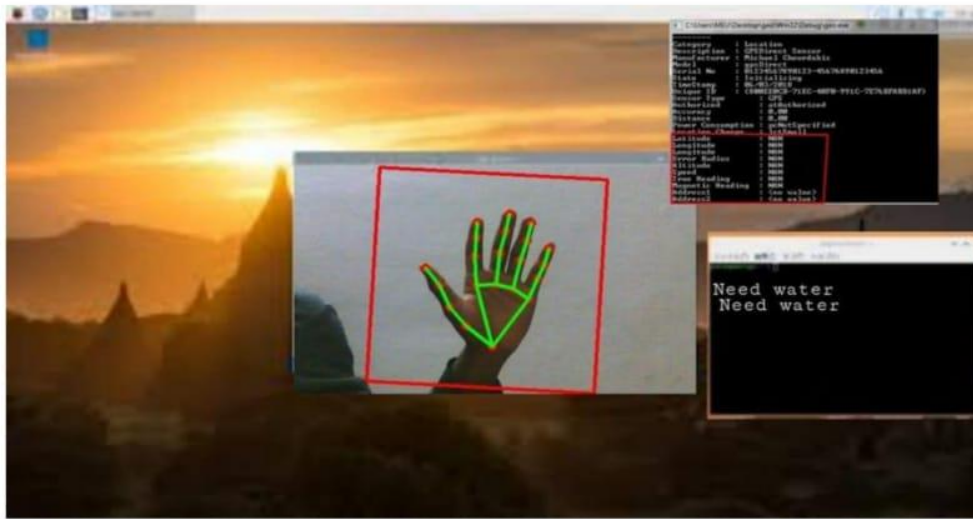
Fig 4:Speaking System For Dumb People

V Conclusion

The lifestyle of the mute can also be improved by providing them a means to have a voice for communication even without having a voice. Overall system is effective and efficient because of the use of Raspberry pi.

VI Refrences

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