

# **LITERATURE SURVEY**

## **PAPER 1**

**TOPIC:** Two-way Smart Communication System for Deaf & Dumb and Normal People

**AUTHOR:** Areesha Gul; Batool Zehra; Sadia Shah; Nazish Javed; Muhammad Imran Saleem

**YEAR:** 2020

### **METHODOLOGY:**

With regard to Deaf & Dumb individuals, communication with others is a way longer struggle for them. They are unable to speak with traditional individuals properly. They face difficulties in finding jobs and living a traditional life like others. In this paper, We are introducing a two-way smart communication system for Deaf & Dumb and also for Normal people. The system consists of two main parts: The first part is for Deaf & Dumb person to convey their messages to a normal person by using our hardware system and the second one is for a normal person who can also respond them easily without learning a sign language by using our Android Application. This ensures a two-way smart communication system and will make life less demanding for them. The overall accuracy of the system is 92.5%, with both the hands involved.

### **ADVANTAGES:**

This is two way communication system, this will be very helpful to convey messages to normal people and normal people can also convey message to deaf and dumb people.

### **DISADVANTAGES:**

This is an Android Application, Blind people cannot use this method.

## **PAPER 2**

**TOPIC:** Glove Based Deaf-Dumb Sign Language Interpreter.

**AUTHOR:** Santosh S Kumar; Ravi Gatti; Sunil K N Kumar; N Nataraja; Rajendra P Prasad; T Sarala

**YEAR:** 2021

### **METHODOLOGY:**

Communication between the deaf and the common man has always been challenging. As deaf people they use sign language to communicate in a way that is difficult for ordinary people to understand. To overcome the communication gap with outside world a microprocessor-based Sign Language Interpreter is employed to handle data transfer operations. A Raspberry Pi based microprocessor is used as a compact microcomputer designed to govern the operation of six axis MPU6050., used for the detection of sign language. A triaxial accelerometer is used to detect the tilt of the hand. The flex sensor module is interfaced with the microprocessor through MCP3008 which is an external analog-to-digital converter. The decision making for sending message based on the data received from the MPU6050 and MPU3008. The proposed system is able to convert the different signs into the text and voice message. It is trained for the different symbols and works effectively.

### **ADVANTAGES:**

It is wireless with displays and voice device. It is portable, and having inbuilt battery

### **DISADVANTAGES:**

It is bulky in wearing. Difficult to handle.

### **PAPER 3**

**TOPIC:** Hand Gesture Recognition for Deaf and Dumb Using CNN technique.

**AUTHOR:** S. Vanaja; R. Preetha; S. Sudha

**YEAR:** 2021

#### **METHODOLOGY:**

For people who have trouble speaking or hearing, sign language is a successful form of communication. Convolutional neural networks are used to identify the static signs of ISL and to create a hand gesture recognition system to assist the deaf and the mute (Indian Sign Language). A total of 3500 static sign photos of 10 (Indian sign language) static signs were collected from different disabled people in order to have a large enough dataset. Convolution Neural Network (CNN) Architecture based on Deep Learning approach utilised a total of 4 layers and 16 filters. Adam optimizer has been utilised as the optimizer to adjust the model's weights since it helps to decrease loss and increase accuracy. There are 15 training epochs for the model. The optimizer used to train and validate process is Stochastic Gradient Descent (SGD). The proposed model gives the maximum possible training accuracy of about 99.76%.

#### **ADVANTAGES:**

Very High accuracy in image recognition.

#### **DISADVANTAGES:**

Lots of training data is required.

## **PAPER 4**

**TOPIC:** Analyzing and Enhancing Communication Platforms available for Deaf-blind User.

**AUTHOR:** SarthaTambe; YugchhayaGalphat; Nilesh Rijhwani; Aishwarya Goythale; Janhvi Patil.

**YEAR:** 2021

### **METHODOLOGY:**

This paper explores the current research effort towards building user friendly application that connects two normal people, deaf and dumb, blind and deaf people together. Nowadays there are many applications available when it comes to hearing and visually impaired but every application has a certain limit till now. The work includes three approaches viz. a voice, text and video based input-output interaction. When it comes to deaf and dumb communication, the model to learn sign language was implemented and there was conversion of Indian Sign Language into the text. When it comes to communication between the deaf-blind users, Morse code the language of dash, spaces and dots has always been an effective communication tool. Also in some of the processes, there is use of image to text and text to speech conversion. All the work focuses on how these techniques were developed and available to implement and their effectiveness at the same time. It also provides different ways for the visually and hearing impaired to communicate by converting the texts as voice signals and morse code signals. This paper also proposes and explores another method that can be implemented for a full-fledged interaction between visually and hearing impaired without any limitations and the work depends on Morse code, translations such as Morse code to text, speech and vice-versa.

### **ADVANTAGES:**

Simple to use. Can be used by someone with disability too. No power required for transmission.

### **DISADVANTAGES:**

The Morse code is not an easy concept to understand.

## **PAPER 5**

**TOPIC:** New assistive technology for communicating with disabled people based on gaze interaction.

**AUTHOR:** Cristian Rotariu, Hariton Costin, Radu Gabriel Bozomitu , Gladiola Petroiu-Andruseac , Teofil Ilie Ursache , Clementina Doina Cojocaru

**YEAR:** 2019

### **METHODOLOGY:**

Gaze interaction is a computer access method that allows disabled people to control a computer with their eyes. Gaze interaction only requires the movement of the eye itself-the movement of other muscles is not required, making it a perfect solution for those with rehabilitative disabilities (paralysis, spinal cord injury, repetitive strain injury, severe carpal tunnel) and/or motor disabilities. The paper describes a simple software application of a new assistive device (Tobi EyeX tracker) and its evaluation for communicating with disabled people based on gaze interaction. The proposed communication method is developed as a part of a more complex integrated system for assistance in communicating with and telemonitoring severe neuromotor disabled patients.

### **ADVANTAGES:**

It reduces the need for formal health and support services, long-term care and the work of caregivers.

### **DISADVANTAGES:**

These barriers were found to include lack of appropriate staff training and support, negative staff attitudes, inadequate assessment and planning processes, insufficient funding, difficulties procuring and managing equipment, and time constraints.

## **PAPER 6**

**TOPIC:** Text to Braille Converting Communication Device for the Visual and Hearing Impaired Persons

**AUTHOR:** Sruthi Ramachandran, Gururaj D, Pallavi K N, NijuRajan.

**YEAR:** 2021

### **METHODOLOGY:**

Communication performs a critical function in expressing one's feeling to another. People with imaginative and prescient and listening to impairment, discover it tough to speak with one another. There are sure specific languages available for the deaf-blind human beings which incorporates tactile signing, Braille, moon etc. Among those methods, the most normally desired way of verbal exchange is Braille. Braille is a machine evolved to help the visually and listening to-impaired character with the aid of using growing preparations of dots which shape letters, numbers and punctuation marks. This paper proposes a verbal exchange tool version which converts any alphanumeric English textual content to its corresponding Braille layout that may be examine with the aid of using a DeafBlind character. An abled character can ship a message to a Deaf-Blind character from his cell phone. Once the message is acquired with the aid of using the tool, it begins off evolved changing the letters withinside the message to Braille layout. The Braille characters are displayed one at a time the use of a Braille show along with six vibration automobiles depicting the six dots in a Braille mobileular representation. The Deaf-Blind character can experience the characters with the aid of using putting their palm at the Braille show unit. This paper additionally consists of a vibration band version for the Deaf-Blind character, which acts as an indicator for an incoming message.

### **ADVANTAGES:**

Allow the user to immediately learn the format of the data on the computer screen. When proofreading, the user quickly catches misspellings, extra spaces between words, and accidental capitalizations

### **DISADVANTAGES:**

Braille printers are that they are noisy and expensive.