AUDIO ADAPTIVE DECODER FOR DUMB PEOPLE

R. JAGADEESH CHANDRA PRASAD 1, N. SHAMBHII REDDY2, V. SAIKIRAN REDDY3 A M. KEERTHI4 V. SRUJANA5.

Abstract— Many disabled persons struggle to live in the general population on a daily basis, and we intend to address the concerns affecting a particular group of disabled people known as the dumb. Additionally, there are a total of over 360 million dumb people in the world. This is the condition that might have existed since birth or since childhood, or it may have developed due to an accident. The biggest problem these dumb individuals have is communicating with the rest of society. Thus, we have developed an audio adaptive decoder for dumb people. In this device, a specific microcontroller conducts specific communication-related activities. We thus intend to integrate certain predeclared commands into it. To enable others to hear and read the text as well as hear it when this impaired person speaks to them, the gadget will produce audio. This text option is shown via the LCD, and when used, it demonstrates the clarity of listeners that impaired persons find appealing. With the help of this equipment, we hope to establish effective communication with the disabled, so that they may live their lives in the same manner as everyone else.

Index Terms— Disabled people, microcontroller, communication, LCD

I. INTRODUCTION

In general, vocally disabled individuals use sign language to communicate, but they have trouble conversing with those who don't know sign language. As a result, the communication between these two people is hindered. This project tries to remove this communication obstacle [1]. The primary goal of the proposed idea is to develop a system that is both affordable and capable of giving the voiceless individuals. Speech difficulties can be caused by medical conditions such as brain stroke and paralysis. Accidents that cause communication loss in people can also cause it [2].

Life can be challenging if you can't communicate with other people. Speech is the most prevalent way of communication, so being mute might be viewed as a major disadvantage. A person with speech, visual, auditory, or movement disability can communicate with others by using a communication aid. The most of the studies in this field the development of patient communication can be aided by a number of technologies, including actuated joysticks, tongue movement analysis, switches located close to the user's head, and actuated breath puffing straws. However, because using the equipment involves expert labor, these end up being expensive and unpleasant. The suggested system therefore works wonders in such circumstances.

Making a highly secretive communication system to use in military or anywhere else when two persons desire to talk covertly with knowledge of a third person is another motivation for developing this.[3][4] The main goal of this is to develop simple and affordable methods for communicating denial signals in settings like the military, as well for individuals with speech difficulties. Around 2.78% of people in our nation suffer to talk, to hear, to see, making up a sizable portion of the population. The most fundamental, authentic, and natural method to engage with computers is through gesture and sign languages, which are nonverbal forms of non-verbal communication. This focuses on lowering the barrier to communicate for those who are physically impaired

II. LITERATURE SURVEY

With the help of this project, people with cognitive disability can express their thoughts and feelings verbally and in writing. A single system modulated the solution. If any stupid individuals passed the exam, they weren't appointed as officers just on the basis of their stupidity [5]. This shouldn't go on like this. They deal with a variety of problems in their daily lives, including transportation, communication, dependency levels, social stigma, and many other things. The most severe initial disadvantage is the suppression of voice-raising by stupid people. A, 4X4 Matrix Keypad, I2C Module, LCD 16X2, SD Card Module, and Speaker are the keywords used in this project [6].

The fact that equipment is lightweight and portable is a benefit. The foremost of this project is to develop digital aid that could convert the speech and text of mentally impaired people, enabling communication between these groups and public. The verbal exchange between stupid individuals and everyday people takes place on this computer.[7] With the help of IOT, this project aims to expand a cutting-edge verbal interchange method for mentally impaired people. This device, which is entirely built on an Arduino board and has the added advanced feature of providing audio and text in real time, might effectively utilise current technology.

It also provides a means for disabled people to convert text to voice[8][9]. The device includes 16 switches, each of which serves a distinct purpose. Dumb people can convey the message using text in order to be read aloud. This challenge's keywords are Arduino Uno and Text-to-Speech (T.T.S). The suggested vocalizer to mute (V2M) programme employs the automated speech recognition (ASR) technology. The hidden Markov model toolkit (HTK) is utilized in the speech recognition process.

The software also includes a 3D avatar that may be used for visualization. To recognize dumb speech and convert it into a recognized speech for a normal person.[10] The quantitative and qualitative investigation of outcomes discovered that the intervention
of mobile technology advances silence face-to-face socialization. Participants also noted that the proposed mobile software can serve as voice for them and that they can use it to socialize with family and friends.

This interactive device is an Arduino-based contraption that is primarily designed to reduce the spoken exchange area between stupid and normal people. In this paper, at Arduino, speaker, LCD show and keypad are utilized.

III. PROPOSED SYSTEM

Dumb individuals generally use sign language to communicate, but they have trouble communicating with others who do not understand sign language. As a result, communication between these two parties is hampered. This effort tries to break through this communication barrier. This project's major part is to develop a low-cost technology that gives voice to the voiceless. Communication tools allow people with speech, visual, auditory, or motor disabilities to communicate with others. The most of the research in this field. There are many technologies available to develop patient communication, such as mouth actuated joysticks, tongue movement analysis, switches positioned near the user's head, actuated breathe puffing straws, and so on.

However, because the equipment requires expert labour, these prove to be expensive and unpleasant. It concludes, the proposed system works miracles in such instances. Motivated for developing this is to establish a highly confidential communication system for use in 9 military or any other location where two people desire to talk surreptitiously without any help of a third person. The primary goal of this is to provide easy and cost-effective tools to help individuals with speech impairments send confidential messages in domains such as the military. In our country, approximately 2.78% of the population is unable to talk, i.e., dumb and deaf, and approximately 1.59% of the population is blind, resulting in a sizable population. Gesture and sign languages are the modes of communication.

Dumb, deaf, and blind people account for approximately 1.59% of the population. Gesture and sign languages are nonverbal communication medium that can provide the most intuitive, innovative, and natural method to engage with computers. This focuses on removing communication barriers for physically challenged persons.

IV. DESIGN METHODOLOGY

Figure 1 Block Diagram

WORKING:
Whenever user presses the key, it takes the Arduino and converts the command on the Arduino as text and displays it on the LCD. After displayed on the lcd screen, the text in the Arduino will read by the Sd card module and it will convert into mp3 audio file then the converted audio file will be converted into speech.

The opposite person listens the audio file using the speaker whom the user wants to communicate. Then by this device it will be easy to understand the language of the dumb people to other people. This work aims to lower this barrier in communication. The main aim of the proposed project is to develop a cost-effective system which can give voice to voiceless people. Medical ailments like brain stroke, paralysis may result in speech disorders.
• When We Press Button-1 Then We Listen the Voice and the text “Hi, how are you” On the LCD display and it is the Output for Button 1.

• When We Press Button-2 Then We Listen the Voice and the text “Please give me water for drink” On the LCD display and it is the Output for Button 2.

• When We Press Button-3 Then We Listen the Voice and the text “What are you doing now” On the LCD display and it is the Output for Button 3.

• When We Press Button-4 Then We Listen the Voice and the text “how was the day” On the LCD display and it is the Output for Button 4.

• When We Press Button-5 Then We Listen the Voice and the text “I am very hungry” On the LCD display and it is the Output for Button 5.

• When We Press Button-6 Then We Listen the Voice and the text “Give me that” On the LCD display and it is the Output for Button 6.

V. PROCEDURE

Here in the fist process, we have to convert the audio files based on our requirement by using online websites by converting text to speech and this speech is saved as the MP3 file format or any audios by the people for the predeclared commands which we are required for the communication.

In This procedure the conversion of the audio format from the MP4 format to the .WAV format and this process is done by the online audio converter or by the audacity application in the required manner of 8-bit and to 16-bit frequency attenuation of the audio file and then this file need to be converted by ENCODEAUDIO-WINDOWS this encoder will code the audio into numbers for the accomplishment of the audio into certain forms of numbers and then this audio encryption number format is need to be pasted in the Arduino ide for the steps need to be followed and then it is used in code for the declared commands and this file is implemented according to logic of the program of embedded c language in arduino ide perform the operations which are required for the dumb people.

After all this we have to connect the components based on circuit diagram and then upload the code in the arduino and then depends on procedure we have to test the requirements based on various aspects of performance like power supply and testing the buttons and the display the text.
VI. IMPLEMENTATION

![Figure 3]

VII. RESULT

The overview of the project can be viewed in this figure where the components are connected based on circuit diagram text will be displayed and the sound from speaker at a time. The communication will happen very easily through this by using pre-declared commands in keypad buttons and visualize in the display. Here in this way, we have to convert the files and upload in the encoder file where we get the required decoded way of the input in the numerical format and this used in the Ide where required audio will be produced. And this result will help for the dumb people in easy way of communication with the many people this is the best way and this is going to help to many people in their state and it helps in many possible ways and in the required situations and circumstances in their life and we hope this is going to help the dumb people in required aspects.

Working OUTPUT

VIII. CONCLUSION

Through this study, a novel prototype to help people with vocal impairments was developed. This project not only aims to empower and assist those with disabilities, but it also makes efficient use of space and resources. The overall cost has decreased by removing braille books and the time and effort required to comprehend them. Given that every part of gadget is economical and effective, it’s far less expensive solution. This device is portable, versatile, and convenient thanks to the most recent and popular technologies. The technology described in this study can substantially aid in resolving some of the numerous difficulties faced by the disabled.

The device can be made smaller and wearable to enhance the project's goal of making it simple for users to operate. With the help of our invention, which will assist lot of the 1.6 billion stupid people, the way of communication for the required words in this device is now achievable. We believe that everyone who is dumb should act and live in society as a normal person. And we have come to the conclusion that this technology helps in many emergency situations and that it will aid both the elderly and the dumb.
people, substantially lowering the difficulty of communication they might unable to speak and must instead use sign language to show their sentiments.

REFERENCES


