

**REAL - TIME COMMUNICATION SYSTEM POWERED BY AI FOR  
SPECIALLY ABLED**

**NALAIYA THIRAN PROJECT BASED  
LEARNING ON PROFESSIONAL  
READLINESS FOR INNOVATION  
EMPLOYMENT AND  
ENTERPRENEURSHIP**

**A PROJECT REPORT**

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# **REAL TIME COMMUNICATION SYSTEM POWERED SYSTEM BY AI FOR SPECIALLY ABLED**

## **INTRODUCTION:**

### **1.1 Project Overview:**

Deaf and dumb is a term means who cloud not either here or both hear speak. The number of deaf and dumb in the increasing and they are introverted closed society. The education of the deaf in the one century old. Since it is the earliest way of communication in the world when there is no appropriate language so, the sign language is preferred among the deaf-dumb people for education. As with other forms of manual communication, sign language depends on figure spelling,. The simplest visual from of figure spelling is simulating the shape of letter in the air, or actually, tracking letters on the hand. Figure spelling can use one hand such as in British sign language. Uneducated Deaf-dumb people can communicative with other people (normal or handicaps) with sign language only, so they offices...etc. Therefore, they effective tool to translate their worlds from sign language to Arabic or English language directly. This toll can facilities their communication with normal people and English them to learn both Arabic and language. Also Deaf-Dumb kids easily solve most of their problems in one application.

Therefore, the present work aims to:

Help deaf and dumb to interact more with normal people.

- Offer a great tool for parents to teach their deaf and dumb kids
- Introduction sign language keyboard.
- Introduction quizzes and games for training deaf and dumb to identify Arabic and English world.

Hoping this application can give a hand to uneducated Deaf-Dumb people who do not read write Arabic language to communication with others, to learn entertain.

The remainder of this paper is organized as follows. Section discusses the related. Section describes our proposed application in details. Section provide the performs evaluation. Finally section concludes this paper.

### **1.2 Purpose:**

The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb.

We are using a convolution neural network to create a model that is trained on different hand gestures. An app is built which uses this model. This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output.

## 2. LITERATURE SURVAY

### 2.1 Existing problem:

1. The specifically a bled in used for RF tab fixed the classroom.
2. Wi-Fi and Bluetooth in connected the system to read instructions for students.
3. Convolution neural network to create a model that is trained on different hand gestures.

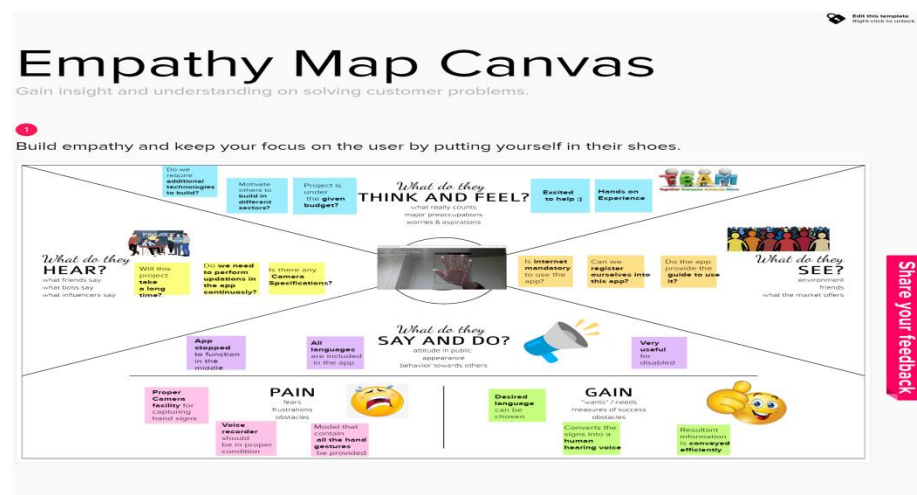
### 2.2 References:

S.No	Title	Journal	Authors	1
1	<b>Hand Gusture Recognition system</b>	Journal of the inst. Of Engineers India: series-A vol.17,No.1,pp.45-78(2017)	Dr.Sundarajan	Change of the color was happening very rapidly. Changing in the different lighting condition, which error or even.
2	<b>Hand Gesture Recognition system using data-acquisition and pre processing</b>	Journal of computer science vol.4, issue-April(2017)	Dr.Dasaraju Srinivasa Rao	Does not consider gesture recognition of temporal space. Unable to classify image with complex background.
3	<b>Hand Gesture Recognition using kinetic camera</b>	Journal of the into Engineers India: series-A oct(2020)	Dr.Partha Talukdar	Change in the illumination, rotation and orientation, scaling problem a special hardware.

## 2.3 Problem Statement Definition:

1. This problem occurs for the people the disabled who find it difficult to communicate by the necessary information.
2. Through technology grow by day. No means communication by the disabled once. As a result find it very difficult to convey the information. It becomes a huge problem during emergency times.
3. Considering the above situations, if system is designed to capture the hand of fixed related information. Then it would be easier if the solution is not fixed, then issue rise to in the result the unexpected.
4. The issue mainly in conveying the information public areas such as railway counters and airports, by the disabled once so, we required advanced encrypted powerful AI data along with uninterrupted to conveys effectively.
5. AI enables people with disabilities to lead in depended life with this app. supporting activities daily with the living conveying the required information.

## 3. IDEATION & PROPOSED SOLUTION:



### 3.2 Ideation & Brain storming:

Brainstorming can be used to generate possible solutions for simple problems, but it is unrealistic to expect it to accomplish most problem-solving or planning tasks.

### 3.1 Empathy Map Canvas:

Build empathy and keep your focus on the user by outing yourself in their shoes.

### 3.3 Proposed Solution:

#### Problem Statement

**Problem Statement**

WHO?  
Who does the problem affect?

WHAT?  
What is the issue?

WHERE/  
WHEN?  
Where does the issue occur?

WHY?  
Why is it important that we fix the problem?

WHY?  
Why is it important that we fix the problem?

This problem occurs for the disabled persons who find it difficult to communicate/ convey the necessary information.

Though technology grow day by day, no means of efficient communication by the disabled ones. As a result they find very difficult to convey the information. It becomes a huge problem during the emergency times. Considering the above situation, if a system is designed to capture the hand signs and convert it into relevant information, then it would be easier. if the solution is not fixed , then the issue rise to a peak level and results in the unexpected things.

The issue occurs mainly in conveying the information in public areas such as Railway counters and Airports, by the disabled ones So, We require advanced encrypted powerful AI data along with uninterrupted machine to convey the information effectively.

Customer value/benefit:  
AI enables people with disabilities to lead an independent life with this app. Supporting them in activities of daily living like conveying the required information effectively. This app also changes the mindset of the disabled that even they can too be involved in a common conversation like others.

Business value/benefit:  
App builders are closer to the understanding user behavior by the usage of the app. So that it helps the builders to optimize the app in future based on the usage.

### 3.4 Problem Solution fit:

#### Problem – Solution Fit Template:

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

**Purpose:**

1. Solve complex problems in a way that fits the state of your customers
2. Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
3. Sharpen your communication and marketing strategy with the right triggers and messaging  
Increase touch-points with your company by finding the right problem-behavior fit and
4. Building trust by solving frequent annoyances, or urgent or costly problems.
5. Understand the existing situation in order to improve it for your target group.

**4. REQUIREMENT ANALYSIS****4.1 Functional requirement:**

1. Here, Desktop along with Camera is presented as black box.
2. Deaf/Dumb is the person, who will show different signs based on the type of
3. Information being conveyed. The normal person is the passive user of the desktop.

The **system requirements** that are required are specified below,

1. Deaf/Dumb person should be able to perform a sign that represents digit/number
2. Deaf/Dumb person should be able to perform a sign that represents a character
3. Deaf/Dumb person should be able to perform a sign, where group of characters forms a word.
4. Deaf/Dumb person should be able to perform a sign, where a group of words forms a sentence.
5. Especially Deaf people should be able to see the translation of sign to text format.
6. Dumb person should be able to understand the conversion of text into voice mode.
7. Normal user should be able to understand the corresponding information conveyed by disabled through sign language.



Software Requirements	Hardware Requirements
Web camera –(320x260 minimum)	Operating system platform-windows7 and greater
Processor-400 MHz or above	MYSQL Database
RAM-512 MB or above	Adam Boost Face detector
Hard disk-at least 256 MB free	HTML,CSS,Java Script and Angular for webpage
Speaker with a sensitivity of 87-88 D8	Media pipe Framework

#### **Default Operation:**

1. The user of the app faces the camera and performs the concerned hand sign to convey information.
2. System/Desktop analyses the sign made by the user.
3. Once analysis gets finished, then the concerned signs together are shown as a text based and also through voice.

#### **Unexpected Operations:**

**Desktop indicates that user's hand sign is not within the frame or in Region of Interest (ROI)**

User of the app show the hand sign towards the camera

2. Desktop shows that sign is not within ROI.
3. Still User, make sure to present his/harbinger within frame.
4. At finally, the Desktop finally detects the hand sign.

#### **Signs are not recognized:**

1. Accepts the signs that are trained and included in the dataset, the Desktop will never detect the sign rather than this.
2. User performs the sign and sees that after 50ms, the concerned letter occupies the space of text.
3. **Speech/Voice assistant is implemented**

Speech assistant is to be implemented in order to convert the output text into voice.

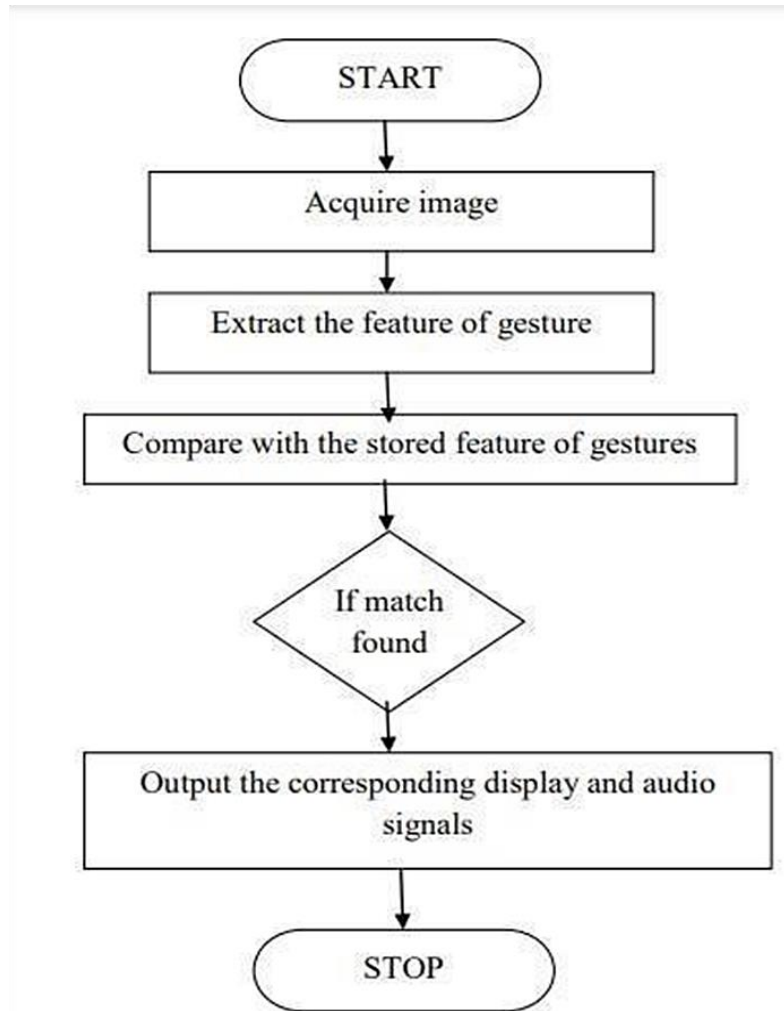
#### 4.2 Non-Functional requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	It is used to describe the application and easy to access the application with the guidelines.
NFR-2	Security	It ensures the security of the application by building a firewall and two steps verification support. Accessed only by the authorized person by given user ID and password or OTP verification
NFR-3	Reliability	To maintain the application conditions and update the version of the application. System update and software update are possible to increase various features and durability based on technology.
NFR-4	Performance	This application collects the datasets of hand gusted to provide accurate prediction. Using this method, we can communicate easily at anytime. This application is user friendly and can access by both specially abled and normal people.
NFR-5	Availability	Depending on the requirements of the user, al required functions will be offered. When the usher requests any features. Are made 8available in places where users like to know about it.

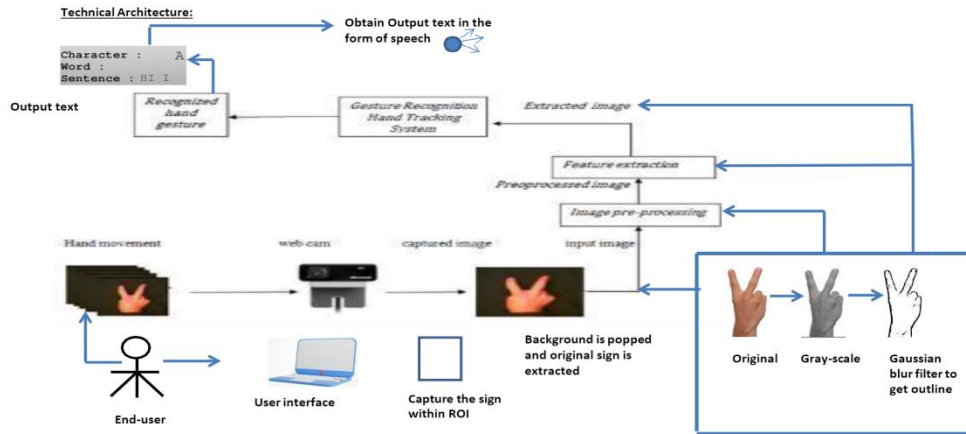
## 5.PROJECT DESIGN:

### 5.1 Data Flow Diagrams:



A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

## 5.2. Solution& Technical Architecture:



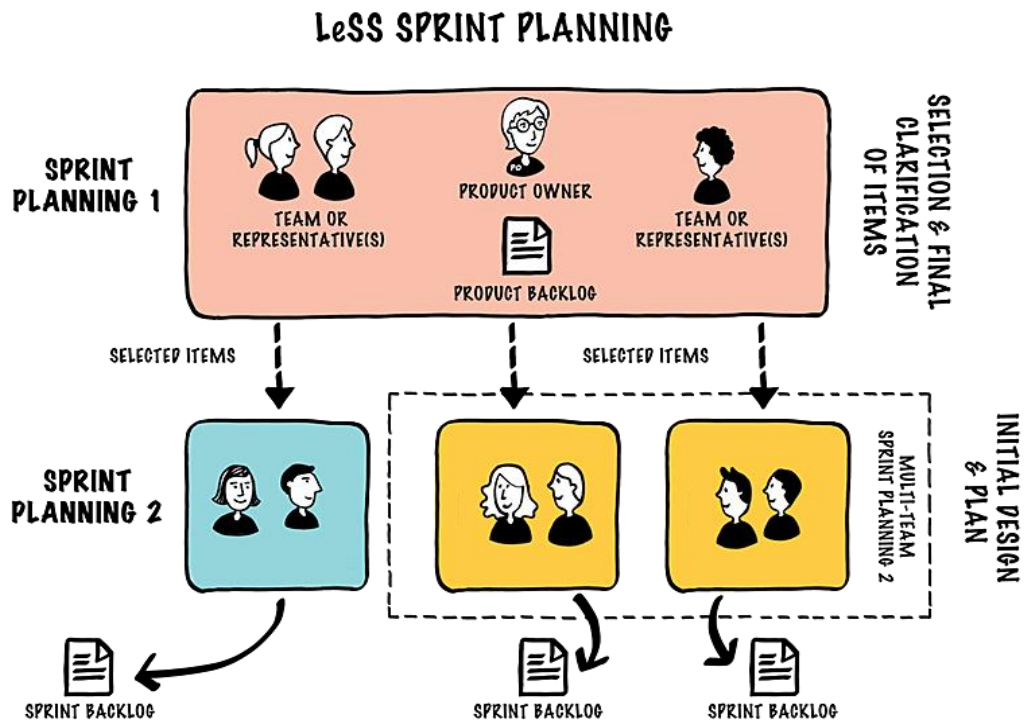
## 5.3 User Stories:

Use the below template to install the user stories for the product.

Sprint	Functional Requirements(Epic)	User story Number	User story / Task	Story point
Sprint-1	Register	USN-1	As a user register for the application by entering my email, and conforming any password	2
Sprint -2	Communicate	USN-2	As a user, I will receive a confirmation email once I have registered for the application.	1
Sprint-1	login	USN-3	As a user I can application by entering email password	1
Sprint-2	Dash board	USN-4	As a user, I can log into the account in a given Dashboard	2
Sprint-1	User interface	USN-5	Professional responsible for user requirements needs.	2
Sprint-3	Objective	USN-6	The goal is to describe all the input and output	1
Sprint-4	Privacy	USN-7	The developed application should be secure for the users	2

## PROJECT PLANNING & SCHEDULING:

### 6.1 Sprint Planning & Estimation:

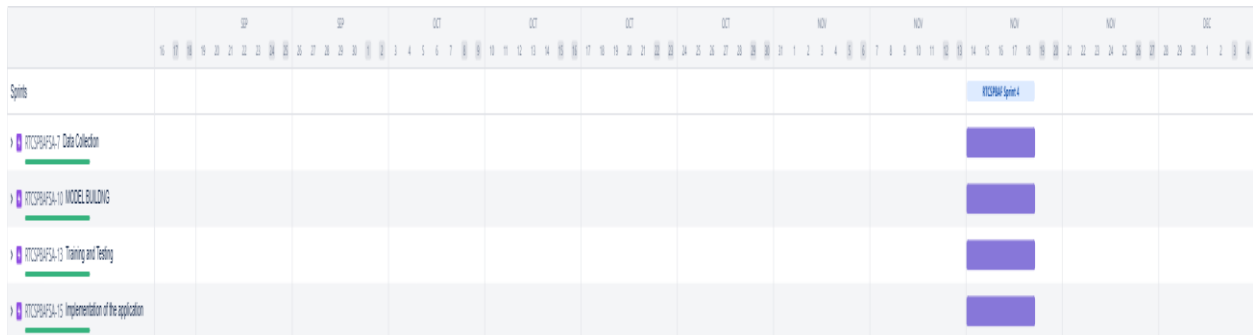


<http://less.works> BY-ND

### 6.2 Sprint Delivery:

Sprint	Total story points	Duration	Sprint start date	Sprint End date (planned)	Story point completed (as on planned End Date)	Sprint Release Date (Actual)
Sprint -1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint -2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Oct 2022
Sprint -3	20	6 days	07 Nov 2022	12 Nov 2022	20	07 Oct 2022
Sprint -4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

## 6.3 Reports from JIRA:



## 7.CODING & SOLUTIONING (Explain the features added in the project along with code)

### 7.1 Feature 1:

#### Image preprocessing

From tensorflow.keras.preprocessing.image import ImageDataGenerator

#training Data gen

Train\_data gen =

ImageDataGenerator(rescale=1/255,zoom\_range=0.2,horizontal\_flip=True,vertical\_flip=False)

#training Data gen

Test\_datagen = imageDataGenerator(rescale=1/255)

Import TensorFlow as tf

From tensorflow.keras.models import sequential

From tensorflow.keras.layers import Dense,Conv2D,Flatten,Dropout, Maxpooling2D

From tensorflow.keras.preprocessing.image import ImagedataGenerator

Import numpy as np

Import matplotlib.pyplot as plot

Import Ipython.display as display

From PIL import as display import path lib

From tensorflow.keras.preprocessing. image import ImageDataGenerator

Ptint(“This dataset has been created and uploaded by IBM-TeamID-IBM-project-45753-16607032074”)

## **model building**

### **#create model**

```
From keras.model import sequential
```

```
From keras. Layers import dense
```

```
From keras.Layers import convolution2D
```

```
From keras.Layers import dropout
```

```
From keras.Layers import Flatten
```

```
From tensorflow.keras.preprocessing.image import imageDgatGenerator
```

```
Import numpy as np
```

```
Import matplotlib.pyplot as plt #to graph import ImageDataGenerator
```

```
Import Ipython.display as display
```

```
From Pl t import image
```

```
Import
```

```
pathlibx_train_datagen.flow_from_directory('dataset',target_size(64,64),batch_size=300class_mode
```

```
x_train = test_datagen.flow_from-directory('dataset',target_size=(64,64),batch_size=300,
```

```
Class_mod='categorical', clour_mode="grayscale")
```

```
A=len(x_train)
```

```
B=len(x_test)
```

```
Print(a)
```

```
Print(b)
```

### **#creat model**

```
Model=sequential ()
```

```
Model.add(convolution2D(32,(3,3),input_shape=(64,64,1)activation='relu'))
```

```
Model. add(maxpolling2D(pool_size=(2,2))
```

```
Initialize model
```

```
Model sequential=()
```

### **Convolution layer**

```
Model.add (convolution2D(32,(3,3),input_shape=(64,64,1)activation="relu)
```

### **Add the pooling layer**

```
Model. add(maxpooling2D(pool_size=(2,2)))
```

12

### **Add the flatten layer**

```
Model.add(flatten())
```

### **Adding the Dense layer**

```
Model.add(dense(units=512,activation="relu"))
```

```
Model.add(Dense(units=9,activation='softmax'))
```

### **Compile the model**

```
Model.compile(loss="categorical_crossentropy",optimizer='adam',metrics=['accuracy'])
```

```
Fit and save the modelmodel.save('aslpng1.h5')
```

## **7.2 Feature 2:**

### **Build A Flask Application**

```
Import numpy as np
```

```
Import cv2
```

```
Import os
```

```
Import keras.models import load_model
```

```
Import flask import Flask,render_template, Response
```

```
Import tensor flow tf
```

```
From tensor flow as tf
```

```
From gt import gTTs #to convert text to speech
```

```
Global graph
```

```
Global writer
```

```
From skimage.transfrom import resize
```

```
Writer= none
```

```
Model = load_model('aslpng1.h5')
```

```
Vals = ['A','B','C','D','E','F','G','H','I']
```

```
App=flask(__name__)
```

```
Print("[INFO] accessing video stream...")
```

```
Vs = cv2.VideoCapture(0)#triggers the local camera
```

```
Pred=""
```

```
@app.route('/')
```

```
Def index():
```

```
Return render_template(index.html)
```



```

@app.route('/video_feed')
def video_feed():
    Return response(gen(), mimetype='multipart/x-mixed-replace;boundary=frame')
Name__=='__main__':
pp.run(host=0.0.0.0,debug=True)

```

### 7.3 Database Schema (if Applicable):

Name	Date modified	Type	Size
Dataset	30-10-2022 21:44	File folder	
static	30-10-2022 21:44	File folder	
templates	30-10-2022 21:53	File folder	
aslpng1.h5	30-10-2022 21:54	H5 File	0 KB
output	30-10-2022 21:56	AVI File	0 KB
Test.ipynb	30-10-2022 21:56	IPYNB File	0 KB
text	30-10-2022 21:57	MP3 File	0 KB
Train.ipynb	30-10-2022 21:57	IPYNB File	0 KB
webstreaming	30-10-2022 21:58	Python File	0 KB

## 8. TESTING:

### 8.1 Test Cases:

```

from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
import cv2
model = load_model('/content/Real_time,h5')
img = image.load_img('/content/Dataset/test_set/H/107.png',target_size = (100,100))
img

```

output:



## 8.2 User Acceptance Testing

## 9. RESULTS

### 9.1 Performance Metrics



## **10. ADVANTAGES & DISADVANTAGES**

### **ADVANTAGES:**

We are using a convolution neural network to create a model that is trained on different hand gestures. An app is built which uses this model.

This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output.

### **DISADVANTAGES:**

Convolution neural network to create a model that is trained on different hand gestures.

## **11. CONCLUSION:**

In this paper, we present an efficient application for uneducated deaf-dumb application. This application aims to help deaf dumb by providing them with attractive communication and learning tools. This work introduces a mobile application that communication between uneducated deaf-dumb and normal people in our society. It also developed an aid for deaf people in many fields restaurant, hospital and transport. Moreover, this application introduced an easy translation from sign language to English or Arabic language and vice versa.

## **12. FUTURE SCOPE:**

### **Speech-to-Transcription**

We are all different, but that does not mean not equal. all of us have unique abilities, skills and limitations. As a society, we need to make sure that all can provided us with tools to make lead independent in life tools this lives. Assistive technology provided us with tools to make this people,. that is with speech to text for disable people is so important today.

The use of speech recognition and voice-to-text dictation has become an internal part of our lives. It estimation that 20 % of people has people doesn't speak clearly enough to be understood by listener, either list either to accommodate a disability or another reason. they can still use their voice to communicate with the computer and computer and reduce in their lives.

## 12. APPENDIX

### Source Code

#### Image preprocessing

```
From tensorflow.keras.preprocessing.image import ImageDataGenerator

#training Data gen

Train_data gen =
ImageDataGenerator(rescale=1/255,zoom_range=0.2,horizontal_flip=True,vertical_flip=False)

#training Data gen

Test_datagen = imageDataGenerator(rescale=1/255)

Import tensorflow as tf

From tensorflow.keras.models import sequential

From tensorflow.keras.layers import Dense,Conv2D,Flatten,Dropout, Maxpooling2D

From tensorflow.keras.preprocessing.image import ImageDataGenerator

Import numpy as np

Import matplotlib.pyplot as plt

Import IPython.display as display

From PIL import Image as display import path lib

From tensorflow.keras.preprocessing.image import ImageDataGenerator

Print("This dataset has been created and uploaded by IBM-TeamID-IBM-project-45753-16607032074")
```

#### model building

##### #create model

```
From keras.models import sequential

From keras.layers import dense

From keras.layers import convolution2D

From keras.layers import dropout

From keras.layers import Flatten

From tensorflow.keras.preprocessing.image import imageDataGenerator

Import numpy as np
```

```

Import matplotlib.pyplot as plt #to graph import ImageDataGenerator
Import Ipython.display as display
From Plt import image

Import
pathlibx_train_datagen.flow_from_directory('dataset',target_size=(64,64),batch_size=300class_mode
x_train = test_datagen.flow_from_directory('dataset',target_size=(64,64),batch_size=300,
Class_mod='categorical', clour_mode="grayscale")

A=len(x_train)
B=len(x_test)

Print(a)
Print(b)

#creat model

Model=sequential ()
Model.add (convolution2D(32,(3,3),input_shape=(64,64,1)activation='relu'))
Model. add(maxpolling2D(pool size=(2,2))

Initialize model
Model sequential=()

Convolution layer

Model.add (convolution2D(32,(3,3),input_shape=(64,64,1)activation="relu")

Add the pooling layer

Model. add(maxpooling2D(pool size=(2,2)))

Add the flatten layer

Model. add(flatten())

Adding the Dense layer

Model. add(dense(units=512,activation="relu"))
Model. add(Dense(units=9,activation='softmax'))

Compile the model

Model compile(loss="categorical_crassentropy',optimizer='adam',matrices=['accuracy'])

```

### **Fit and save the model**

```
model.save('aslpng1.h5')
```

### **Build A Flask Application**

```
Import numpy as np
```

```
Import cv2
```

```
Import os
```

```
Import keras.models import load_model
```

```
Import flask import Flask,render_template, Response
```

```
Import tensor flow tf
```

```
From tensor flow as tf
```

```
From gt import gTTs #to convert text to speech
```

```
Global graph
```

```
Global writer
```

```
From skimage.transfrom import resize
```

```
Writer= none
```

```
Model = load_model('aslpng1.h5')
```

```
Vals = ['A','B','C','D','E','F','G','H',,'I']
```

```
App=flask(__name__)
```

```
Print("[INFO] accessing video stream...")
```

```
Vs = cv2.VideoCapture(0)#triggers the local camera
```

```
Pred=""
```

```
@app.route('/')
```

```
Def index():
```

```
Return render_template(index.html)
```

```
@app.route('/video_feed')
```

```
Def video_feed():
```

```
Return response(gen(), mimetype='multipart/x-mixed-replace; boundary=frame')
```

```
Name__=='__main__':
```

```
pp.run(host=0.0.0.0,debug=True)
```

## HTML CODE:

```
<!DOCTYPE
```

```
html>
```

```
<html>
```

```
<head>
```

```
<title>About Us</title>
```

```
<style>
```

```
body{
```

```
    background-image: url("1.webp");
```

```
    background-repeat: no-repeat;
```

```
    background-attachment: fixed;
```

```
    background-size: cover;
```

```
}
```

```
h1,p{
```

```
    font-family: comic sans ms;
```

```
}
```

```
p3{
```

```
    font-family: comic sans ms;
```

```
    font-size:30px;
```

```
}
```

```
.column {
```

```
    float: left;
```

```
    width: 13.3%;
```

```
    padding: 40px;
```

```
}
```

```
</style>
```

```
<body>
```

```
<h1><center><u>About Us</u></center></h1>
```

```
<center></center>
```

```
<hr>
```

```
<p> The Project i.e. <p1 style="color: Green">Real Time Communication Powered By  
AI</p1> was made by the students of GKMCE in the view of <p2 style="color:  
Green"> Specially Disabled people </p2> who find extreme difficult , involving in the  
day to day communication and accepting negative comments from the outsiders.
```

```
<p>Hope this project will satisfy the requirements of the end users and motivate them in  
all walks of life</p>
```

```
<hr>
```

```
<p>To know about the Project in detail,<a href="https://github.com/IBM-EPBL/IBM-  
Project-48531-1660808738" style="text-decoration:none;">Click here</a></p>
```

```
<pre>
```

```
<p3><u>Contributed by,</u></p3>
```

```
<div class="row">
```

```
20
```

```

<div class="column">
  <p>SWAAMINAATHAN<br>SUNDARESHWAR</p>
</div>
<div class="column">
  <p>PRASANTH P</p>
</div>
<div class="column">
  <p>SAKTHIVEL D</p>
</div>
<div class="column">
  <p>NITHYA GURU B</p>
</div>
</div>
</body>
</head>
</html>

```

### Contact.html:

```

<!DOCTYPE
html>

```

```

<html>
<head>
<title>Contact Us</title>
<style>
body{
  background-image: url("1.webp");
  background-repeat: no-repeat;
  background-attachment: fixed;
  background-size: cover;
}
h1{
  font-family: comic sans ms;
  color: Green;
}
h2{
  font-family: comic sans ms;
}
img{
border-radius:20px;

```



```

}
</style>
<body>
<center><h1><u>Contact Us</u></h1></center>
<hr>
<h2>If any issues faced, while using the app, Don't hesitate to fill this form below. We
will reach out to you shortly</h2>
<center><h2><a href="https://forms.gle/AnkoEBxGZt7rFLMd9" style="text-
decoration:none;">Click here</a></h2></center>
<center></center>
</body>
</html>
</head>

```

### Use the app html:

```

<!DOCTYPE
E html>

```

```

<html>
<head>
<title>How to use the app?</title>
<style>
body{
    background-image: url("1.webp");
    background-repeat: no-repeat;
    background-attachment: fixed;
    background-size: cover;
}
h1{
    font-family: comic sans ms;
    color: Green;
}
h2,p,li{
    font-family: comic sans ms;
}
img{
    border-radius: 30px;
}
.column {
    float: left;
    width: 13.3%;
    padding: 10px;
}

```

```

</style>
<body>
<h1><center><b><u>How to use the app?</u></b></center></h1>

<p>Sign language recognition is still a challenging problem inspire of many research
efforts during the last many years. One of the methods of hand gesture recognition is to
use the hand gloves for human computer interaction. But this method is sophisticated as it
requires user to wear glove and carry a load of cables connecting the device to a
computer.<p1 style="color: Green"><b>Therefore, to eliminate this complication and to
make user interaction with computer easy and natural we proposed to work on sign
recognition using bare hands i.e., no usage of any external wearable
hardware</b></p1></p>
<hr>
<p><u>Steps to be followed:</u></p>
<ul>
<li>First of all, <a href=" ">Click here</a> to download the zip file.</li>
<li>On Successful downloading, Select the application file to navigate to the app.</li>
<li>Use the hand sign provided here and face towards the camera for text conversion</li>
<li>After the generation of text , select the speaker button to generate the voice of the
resultant text.</li>
</ul>
<pec>
<h2> Sample photos are being provided </h2>
<div class="row">
  <div class="column">
    <p>Generate the text</p>
  </div>
  <div class="column">
    <p>Click the speaker</p>
  </div>

```

## Home .html:

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E html>

```
<html>
<head>
<title>Welcome</title>
<style>
body{
    background-image: url("1.webp");
    background-repeat: no-repeat;
    background-attachment: fixed;
    background-size: cover;
}
h1{
    font-family: Calibri;
    background-image: linear-gradient(to left, #553c9a, #00FF00);
}
p.round2 {
    border: #00FF00;
    border-radius: 8px;
    padding: 5px;
}
h2{
    font-family: comic sans ms;
}
li,p{
    font-family: comic sans ms;
    font-size:30px;
}
img {
    border-radius: 30px;
}
</style>
<body>
<b><center><h1 style="font-family: Calibri">Real-Time Communication Powered By
AI</h1></center></b>
<marquee direction="left" height="100px"><b><h2>When everyone else says you can't ,
determination says <strong><u>YES YOU CAN :)</u></strong></h2></b></marquee>

<p>Want                                to                                try?.... Check it out...</p>
<ul>
<li><a href="About Us.html"style="text-decoration: none;">About us</a></li>
<li><a href="Use the app.html"style="text-decoration: none;">How to use the
app?</a></li>
<li><a href="Contact.html"style="text-decoration: none;" >Contact us</a></li>
</ul>
</body>
</head>
</html>

```

### Style css:

```

body
{
    background-color: #D9E2DE;
    font-family: 'Times New Roman', Times, serif;
}
button{
    border-radius: 20%;
    size: 40px;
    text-align: center;
padding: 15px 25px;
font-size: 15px;
cursor: pointer;
text-align: center;
text-decoration: none;
outline: none;
color: #fff;
background-color: #A68CEF;
border: none;
border-radius: 15px;
box-shadow: 0 9px #999;
}
button: hover {background-color: #8410f9}
button: active {
    background-color: #8410f9;
    box-shadow: 0 5px #666;
    transform: translate(4px);
}

```

```

form{
    display: inline;
    text-align: center;
}
.container{
    display: block;
    text-align: center;
    width:175px;
    margin: auto;
    padding-top:10px;
}
h2{
    color: #8410f9;
    font-size: 35px;
    text-decoration: underline;
    text-align: center;
    margin-block-start: 0em !important;
    margin-block-end: 0.5em !important;
}
img{
    display: block;
    margin-left: auto;
    margin-right: auto;
    width:50%;
    border: 10px solid #C0B5DD;
    border-radius: 10px;
    margin-bottom: 10px;

}
.result{
    text-align: center;
    font-size: 20px;
}
details > summary {
    padding: 20px;
    width: 200px;
    background: rgb(255,218,5);
    background-color: #CF9FFF;
    border: none;
    box-shadow: 1px 1px 2px #bbbbbb;
    cursor: pointer;

```

```
}
```

```
details >p {  
  background-color: white;  
  width: 250px;  
  padding: 2em;  
  margin:0;  
  box-shadow: 1px 1px 2px #bbbbbb;  
  font-family:'Nunito', Arial ;  
  position: relative;  
}
```

```
details>summary: hover {background-color: #8410f9}
```

```
.social-icon{  
  color: rgb(76, 76, 194);  
  transition: color 0.2s;  
  font-size: 50px;  
  text-decoration: none;  
}
```

```
.social-icon: hover{  
  color: blue  
}
```

```
.git{  
  color: rgb(87, 85, 85);  
  transition: color 0.2s;  
  font-size: 50px;  
}
```

```
.git:hover{  
  color: black;  
}
```

```
body {  
  background-image:      url('https://img.freepik.com/free-vector/love-sign-  
background-hand-doodle-frame-black-white-vector_53876-  
156614.jpg?size=626&ext=jpg&ga=GA1.2.1097522203.1668608590&semt  
=sph');  
  background-repeat: no-repeat;  
  background-attachment: fixed;  
  background-size: 100% 100%;  
}
```

```
.alert {  
  padding: 20px;  
  background-color: #f44336;  
  color: white;
```

```
opacity: 1;
transition: opacity 0.6s;
margin-bottom: 15px;
width:650px
}
.alert. info {background-color: #368faf;}
.closest {
margin-left: 15px;
color: white;
font-weight: bold;
float: right;
font-size: 22px;
line-height: 20px;
cursor: pointer;
transition: 0.3s;
}
.closebtn:hover {
color: black;
}
```

**Git hub link :** <https://github.com/IBM-EPBL/IBM-Project-13278-1659515810>

**Demo link :** <https://youtu.be/sLZtpJRWZUs>

