TEAM ID	**PNT2022TMID45340**
PROJECT NAME	**Real-Time Communication System Powered by AI for Specially Abled**

Import datagenerator to train and test

In [83]:
```
from tensorflow.keras.preprocessing.image import ImageDataGe
```

In [84]:
```
train_datagen = ImageDataGenerator(rescale = 1./255,shear_ra
```

In [85]:
```
test_datagen = ImageDataGenerator(rescale = 1./255)
```

In [82]:
```
import tensorflow as tf
import os
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense, Conv2D, Flatten,
from tensorflow.keras.preprocessing.image import ImageDataGe
import numpy as np
import matplotlib.pyplot as plt
import IPython.display as display
from PIL import Image
import pathlib
```

Apply ImageDataGenerator Functionality To Train And Test set

In [86]:
```
from google.colab import drive
```

In [87]:
```
from tensorflow.keras.preprocessing.image import ImageDataGe
print("This dataset has been created and uploaded by IBM-Tea
```

```
This dataset has been created and uploaded by IBM-TeamID-IBM-
```

In [88]:
```
x_train= train_datagen.flow_from_directory(r"/content/drive/
```

```
Found 10324 images belonging to 9 classes.
```

In [89]:
```
x_test = test_datagen.flow_from_directory(r"/content/drive/M
```

```
Found 2280 images belonging to 9 classes.
```

In [90]:
```
x_train.class_indices
```

Out[90]:
```
{'A': 0, 'B': 1, 'C': 2, 'D': 3, 'E': 4, 'F': 5, 'G': 6, 'H':
```

In [102…

```
from skimage.transform import resize
def detect(frame):
    img=image.img_to_array(frame)
    img = resize(img,(64,64,1))
    img = np.expand_dims(img,axis=0)
    pred=np.argmax(model.predict(img))
    op=['A','B','C','D','E','F','G','H','I']
    print("THE PREDICTED LETTER IS ",op[pred])
```

In [101…

```
from skimage.transform import resize
def detect(frame):
  img=resize(frame,(64,64,1))
  img=np.expand_dims(img,axis=0)
  if(np.max(img)>1):
    prediction=model.predict(img)
    print(prediction)
    prediction=model.predict_classes(img)
    print(prediction)
```

In [39]:

```
arr= image.img_to_array(img)
```

In [34]:

```
frame=cv2.imread('/content/drive/MyDrive/dataset/dataset/test
data=detect(frame)
from google.colab.patches import cv2_imshow
cv2_imshow(frame)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

```
1/1 [==============================] - 0s 285ms/step
THE PREDICTED LETTER IS  I
```

In [79]:

```
frame=cv2.imread('/content/drive/MyDrive/dataset/dataset/test
data=detect(frame)
from google.colab.patches import cv2_imshow
cv2_imshow(frame)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

```
1/1 [==============================] - 0s 78ms/step
```