Real-Time Communication System Powered By AI For Specially Abled

Loading the Dataset &amp; Image Data Generation

from tensorflow.keras.preprocessing.image import ImageDataGenerator

# Training Datagen

train\_datagen =

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

# Testing Datagen

test\_datagen = ImageDataGenerator(rescale=1/255)

# Training Dataset

x\_train=train\_datagen.flow\_from\_directory(r&#39;/content/drive/MyDrive/Dataset/training\_set&#39;,target\_size

=(64,64), class\_mode=&#39;categorical&#39;,batch\_size=900)

# Testing Dataset

x\_test=test\_datagen.flow\_from\_directory(r&#39;/content/drive/MyDrive/Dataset/test\_set&#39;,target\_size=(64,6

4), class\_mode=&#39;categorical&#39;,batch\_size=900)

Found 15760 images belonging to 9 classes.

Found 2250 images belonging to 9 classes.

print(&quot;Len x-train : &quot;, len(x\_train))

print(&quot;Len x-test : &quot;, len(x\_test))

Len x-train : 18

Len x-test : 3

# The Class Indices in Training Dataset

x\_train.class\_indices

{&#39;A&#39;: 0, &#39;B&#39;: 1, &#39;C&#39;: 2, &#39;D&#39;: 3, &#39;E&#39;: 4, &#39;F&#39;: 5, &#39;G&#39;: 6, &#39;H&#39;: 7, &#39;I&#39;: 8}

Model Creation

# Importing Libraries

from tensorflow.keras.models import Sequential

from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense

# Creating Model

model=Sequential()

# Adding Layers

model.add(Convolution2D(32,(3,3),activation=&#39;relu&#39;,input\_shape=(64,64,3)))

model.add(MaxPooling2D(pool\_size=(2,2)))

model.add(Flatten())

# Adding Dense Layers

model.add(Dense(300,activation=&#39;relu&#39;))

model.add(Dense(150,activation=&#39;relu&#39;))

model.add(Dense(9,activation=&#39;softmax&#39;))

# Compiling the Model

model.compile(loss=&#39;categorical\_crossentropy&#39;,optimizer=&#39;adam&#39;,metrics=[&#39;accuracy&#39;])