

Project Title : Real-Time Communication System Powered by AI for Specially Abled

TEAM ID : PNT2022TMID47570

```
In [1]: import numpy as np
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
```

```
In [3]: from keras.models import Sequential
from keras.layers import Dense
from keras.layers import Convolution2D
from keras.layers import MaxPooling2D
from keras.layers import Dropout
from keras.layers import Flatten
```

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In [5]: model=Sequential()
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In [6]: model.add(Convolution2D(32,(3,3),activation="relu",input_shape=(64,64,3)))
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In [25]: model.add(MaxPooling2D(pool_size=(2,2)))
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In [26]: model.add(Flatten())
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In [27]: model.add(Dense(200,activation='relu'))
model.add(Dense(9,activation="softmax"))
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In [28]: model.compile(loss="categorical_crossentropy",metrics=["accuracy"],optimizer='adam')
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In [29]: len(x_train)
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In [30]: len(x_test)
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In [31]: model.fit(x_train,epochs=10,validation_data=x_test,steps_per_epoch=len(x_train)//10,validation_steps=len(x_test))
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In [32]: model.save("aslpng.h5")
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Testing the model

```
In [34]: from keras.models import load_model
import numpy as np
import cv2
```

```
In [35]: from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
import numpy as np
```

```
In [36]: model=load_model('asl_model_84_54.h5')
img=image.load_img(r'E:\Projects\SmartBridge\ModelGen\Dataset\test_set\D\2.png',
                    target_size=(64,64))
```

```
In [37]: model=load_model("aslpng.h5")
img = image.load_img(r"/content/drive/MyDrive/IBM project/test_set/D/10.png",target_size=(64,64))
img
```

```
In [38]: x = image.img_to_array(img)
x
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In [39]: x.shape
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In [40]: x = np.expand_dims(x,axis=0)
x.shape
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In [41]: pred = model.predict(x)
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```
In [ ]: pred
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In [ ]: class_name=["A","B","C","D","E","F","G","H","I"]
pred_id = pred.argmax(axis=1)[0]
pred_id
```

```
In [ ]: print("the alphabet is ",str(class_name[pred_id]))
```