{

"nbformat": 4,

"nbformat\_minor": 0,

"metadata": {

"colab": {

"provenance": []

},

"kernelspec": {

"name": "python3",

"display\_name": "Python 3"

},

"language\_info": {

"name": "python"

}

},

"cells": [

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "HTC52eGE7V19"

},

"outputs": [],

"source": [

"import cv2\n",

"import numpy as np\n",

"from tensorflow.keras.models import load\_model\n",

"from tensorflow.keras.preprocessing import image"

]

},

{

"cell\_type": "code",

"source": [

"class Video(object):\n",

"\tdef \_\_init\_\_(self):\n",

"\t\tself.video = cv2.VideoCapture(0)\n",

"\t\tself.roi\_start = (50, 150)\n",

"\t\tself.roi\_end = (250, 350)\n",

"\t\tself.model = load\_model('asl\_model.h5') # Execute Local Trained Model\n",

"\t\t# self.model = load\_model('IBM\_Communication\_Model.h5') # Execute IBM Trained Model\n",

"\t\tself.index=['A','B','C','D','E','F','G','H','I']\n",

"\t\tself.y = None"

],

"metadata": {

"id": "ixuRBdKj7iP4"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "code",

"source": [

"\tdef \_\_del\_\_(self):\n",

"\t\tself.video.release()\n",

"\tdef get\_frame(self):\n",

"\t\tret,frame = self.video.read()\n",

"\t\tframe = cv2.resize(frame, (640, 480))\n",

"\t\tcopy = frame.copy()\n",

"\t\tcopy = copy[150:150+200,50:50+200]\n"

],

"metadata": {

"id": "DOjMYOzo8MKD"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "code",

"source": [

"\t\t# Prediction Start\n",

"\t\tcv2.imwrite('image.jpg',copy)\n",

"\t\tcopy\_img = image.load\_img('image.jpg', target\_size=(64,64))\n",

"\t\tx = image.img\_to\_array(copy\_img)\n",

"\t\tx = np.expand\_dims(x, axis=0)\n",

"\t\tpred = np.argmax(self.model.predict(x), axis=1)\n",

"\t\tself.y = pred[0]\n",

"\t\tcv2.putText(frame,'The Predicted Alphabet is: '+str(self.index[self.y]),(100,50),cv2.FONT\_HERSHEY\_SIMPLEX,1,(0,0,0),3)\n",

"\t\tret,jpg = cv2.imencode('.jpg', frame)\n",

"\t\treturn jpg.tobytes()"

],

"metadata": {

"id": "pqj-FlwP8Rfg"

},

"execution\_count": null,

"outputs": []

}

]

}