

**MINI-PROJECT –2
(2021-2022)**



**DEPARTMENT OF COMPUTER SCIENCE AND
APPLICATION**

**Synopsis
On
Sign language to Text Convertor**

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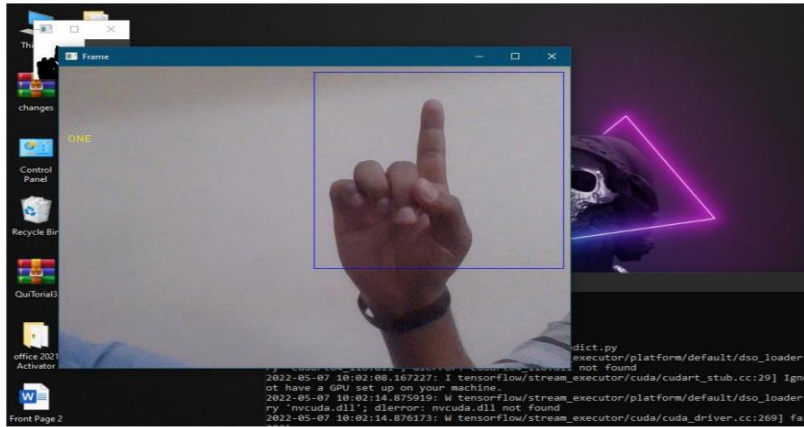
Submmited to:

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INTRODUCTION

The aim of this project is to improve the communication with the people who has hearing difficulties and using any sign language to express themselves. At the first sight, as an idea, how difficult could make a sign languages converter. After detailed research about sign language linguistics, it is figured out about 240 sign languages have exist for spoken languages in the world. American sign language is a predominant sign language Since the only disability D&M people have is communication related and they cannot use spoken languages hence the only way for them to communicate is through sign language. Communication is the process of exchange of thoughts and messages in various ways such as speech, signals, behavior and visuals. Deaf and dumb(D&M) people make use of their hands to express different gestures to express their ideas with other people. Gestures are the nonverbally exchanged messages and these gestures are understood with vision. This nonverbal communication of deaf and dumb people is called sign language

EXISTING SYSTEM



The screenshot shows a Visual Studio Code editor window titled 'trainpy - Visual Studio Code'. The editor displays a Python script for a Keras neural network classifier. The script is as follows:

```
1 # Importing the keras libraries and packages  
2 from keras.models import Sequential  
3 from keras.layers import Convolution2D  
4 from keras.layers import MaxPooling2D  
5 from keras.layers import Flatten  
6 from keras.layers import Dense  
7  
8 # Step 1 - Building the CNN  
9  
10 # Initializing the CNN  
11 classifier = Sequential()  
12  
13 # First convolution layer and pooling  
14 classifier.add(Convolution2D(32, (3, 3), input_shape=(64, 64, 1), activation='relu'))  
15 classifier.add(MaxPooling2D(pool_size=(2, 2)))  
16 # Second convolution layer and pooling  
17 classifier.add(Convolution2D(32, (3, 3), activation='relu'))  
18 # Input shape is going to be the pooled feature maps from the previous convolution layer  
19 classifier.add(MaxPooling2D(pool_size=(2, 2)))  
20  
21 # Flattening the layers  
22 classifier.add(Flatten())  
23  
24 # Adding a fully connected layer  
25 classifier.add(Dense(units=128, activation='relu'))  
26 classifier.add(Dense(units=6, activation='softmax')) # softmax for more than 2  
27  
28 # Compiling the CNN  
29 classifier.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy']) # categorical_crossentropy for more than 2  
30  
31
```

USE OF THE PROJECT

- To bridge the communication gap between speech and hearing impaired people and normal people.
- Eliminates the need of having human sign language converters..
- Helpful to Society.
- Helpful for people who are unable to speak and listen.

Problem Statement

- It revolves around the idea of camera based sign language recognition system.
- In Society there are very less people who interested to communicate with deaf people.
- It promotes better awareness of and sensitivity to the deaf and hard of hearing community.

SOFTWARE SPECIFICATION:

- 64 bit Operating System
- Vscode Editor
- Python 3.0
- TensorFlow
- OpenCV
- Keras

HARDWARE REQUIREMENTS:

- HDD - 8 GB
- RAM – 4 GB
- Processor – x86 64-bit CPU(Intel / AMD architecture)

FUTURE SCOPE:

We are planning to achieve higher accuracy even in case of complex backgrounds by trying out various background subtraction algorithms. We are also thinking of improving the preprocessing to predict gestures in low light conditions with a higher accuracy

References

- www.google.com
- www.javatpoint.com
- www.ieeexplore.ieee.org
- www.w3schools.com
- www.youtube.com