CPG 76

SIGN LANGUAGE IDENTIFIER

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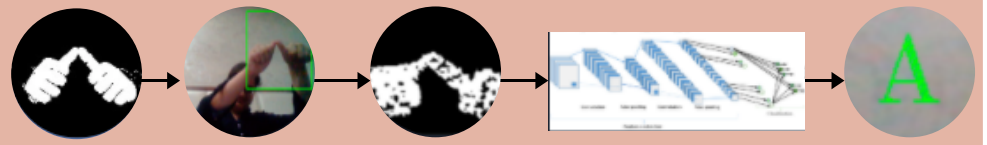
Objectives

1. To survey and analyze the current status of usage and effectiveness of Indian Sign Language (ISL) solutions.
2. To propose and implement an interactive solution that will convert sign language to text; and speech to ISL.
3. To apply Deep Learning Model for training on collected dataset.
4. To create a website to enable Indian Sign Language to be converted into English text, and speech to Indian Sign Language.
5. To test and demonstrate the usability and effectiveness of the proposed solution for targeted user groups (Deaf and dumb persons).

Methodology

ISL to Text



Dataset Capturing Segmentation DL model Output

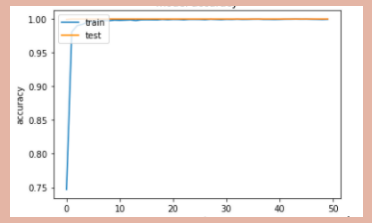
Speech to ISL

Recording Google API Translation Output

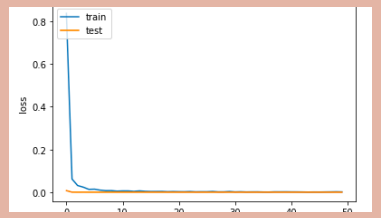
Tools Used

OpenCV, PyCharm, Flask, Keras, TensorFlow, Python

Loss and Error Analysis



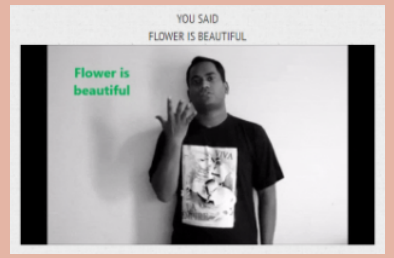
Model Accuracy



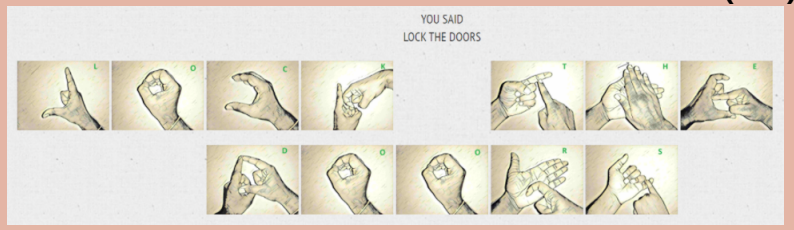
Model Loss

Snapshots

ISL to text (Letter A)



Speech to ISL
Sentence in BOW (GIF)



Speech to ISL
Sentence not in BOW (Output: Individual letters in ISL)

Conclusion

There is good scope for the project and good amount of work that needs to be done on increasing the vocabulary and speed of the Sign Language Identifier. The delay might be due to the disturbances and noise while capturing the image and recording to voice. The Design level, Data flow model, ER diagram, State chart diagram i.e. Design model and Analysis model for the project helped in successfully building the final project.