



# AI-based Smart Deaf Translator

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## Abstract

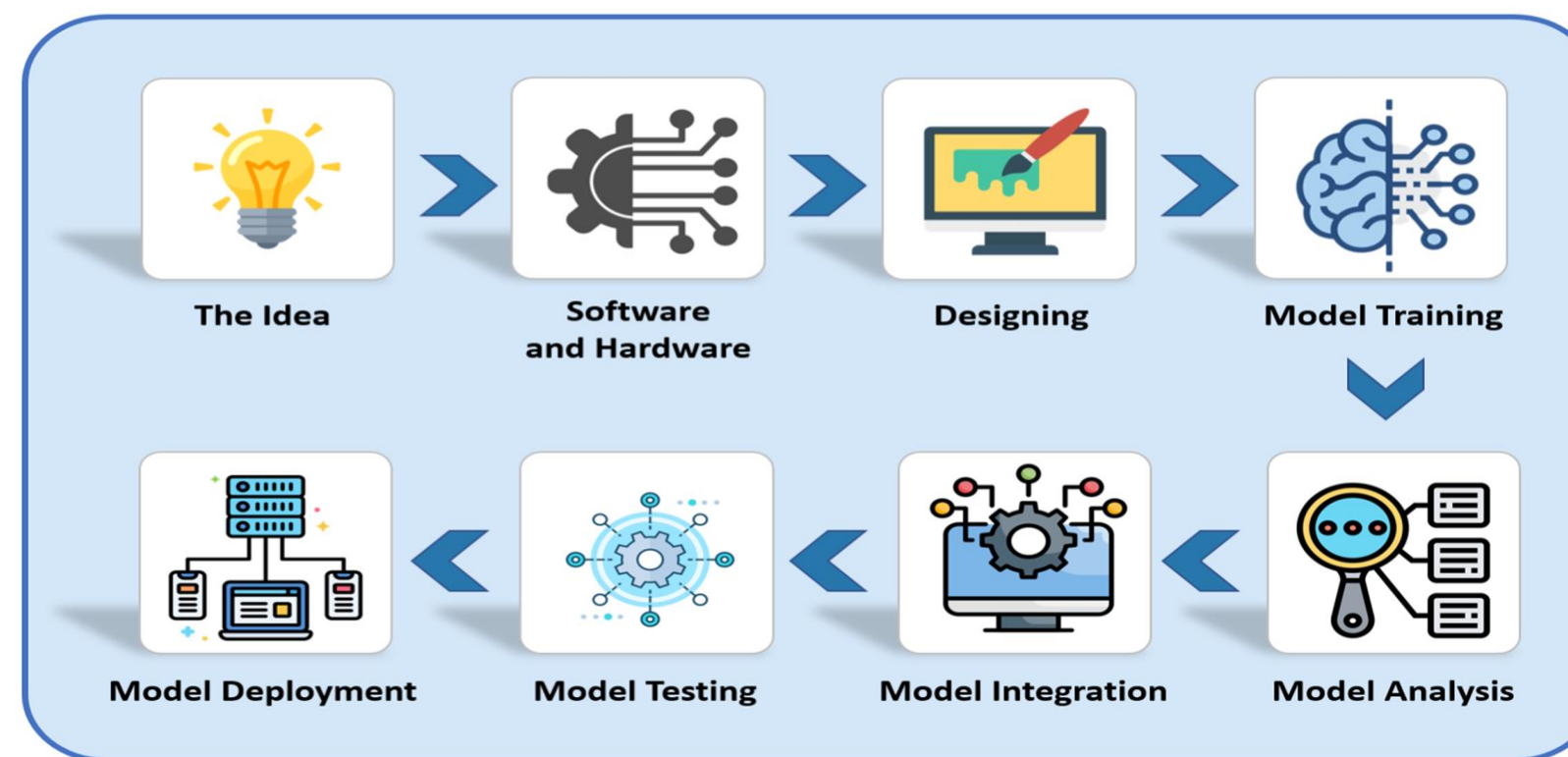
This project aims to use Artificial Intelligence and Machine Learning techniques to recognize hand gestures accurately, Empowering the deaf and mute community by providing a solution for improved communication. The model is trained on a large dataset of hand gesture images and evaluated on a separate dataset, and data augmentation techniques are being implemented to improve performance. Tools used in the project, such as Kaggle Notebook, Python, Tensorflow, Numpy, Pandas, and Matplotlib, in building, training, and validating the model.

## Objectives

- Empowering the deaf and mute community by providing a solution for improved communication
- Bridging the communication gap for improved quality of life
- Using technology to create a solution customized to the needs of the deaf and mute population
- Develop an innovative technology solution that can accurately recognize and interpret hand gestures, which are commonly used by the deaf and mute community as a means of communication.
- Making a positive impact on the lives of the deaf and mute community
- Harnessing the potential of technology for social good

## Methodology

The Waterfall Methodology will be employed in this project, as it is well-suited for projects with well-defined requirements and a fixed scope. The sequential nature of this methodology ensures that each stage must be completed before proceeding to the next, reducing the risk of deviation from the project's goals.



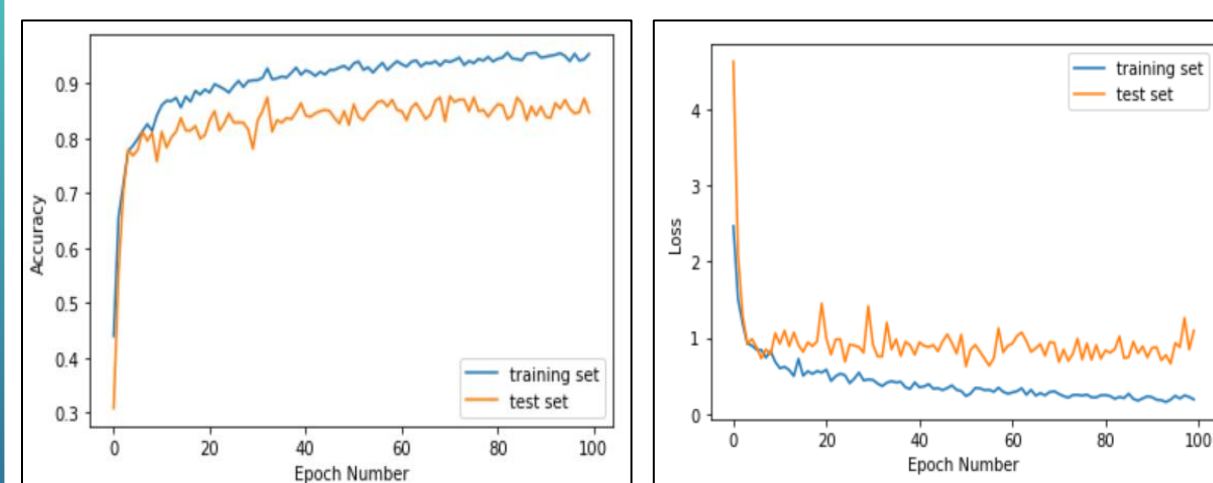
## Conclusion

In conclusion, we were able to develop a model that can recognize hand gestures accurately and provide a solution for this problem. Further improvements and optimizations can be done to enhance the performance and accuracy of the model, and this project can be extended to a wider range of applications in the field of computer vision and human-computer interaction.



## Results

After extensive experimentation, learning, and improvement, we were finally able to achieve the desired accuracy in our model. We made several changes to the model, including data augmentation techniques and different datasets. Through trial and error, we learned and applied the necessary modifications to reach our goal. This process involved a significant amount of time and effort, but the results were worth it as we were able to attain a high level of accuracy in our model.



## AI-Based Sign Language Translator

Please Load an Image from directory.



SELECT AND CLASSIFY IMAGE

Prediction: c

## Software:



## Acknowledgment

We want to thank our supervisor, DR. ASIF IRSHAD KHAN. and out coordinator Dr. ABDULAZIZ ALNOURI for their guidance, dedication, and support.