AI VIRTUAL MOUSE

- Problem Statement:

Enable real-time control of a computer mouse using hand gestures, eliminating the need for physical devices.

- **Dataset:**

https://www.kaggle.com/datasets/signnteam/asl-sign-language-pictures-minus-j-z

The dataset comprises approximately **4,500 RGB images** representing the **American Sign Language (ASL) alphabet** through **static hand gestures**. Each image captures a single hand performing a gesture corresponding to a letter from the ASL alphabet.

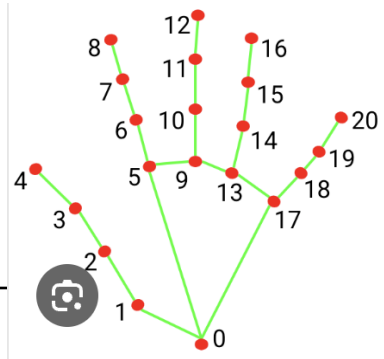
- Approach:

- Split the data into 70% training set, 20% validation and 10% testing set.

- Trained a CNN model on the training set and validated using validation set.

- Using MediaPipe library to capture hands in real time.

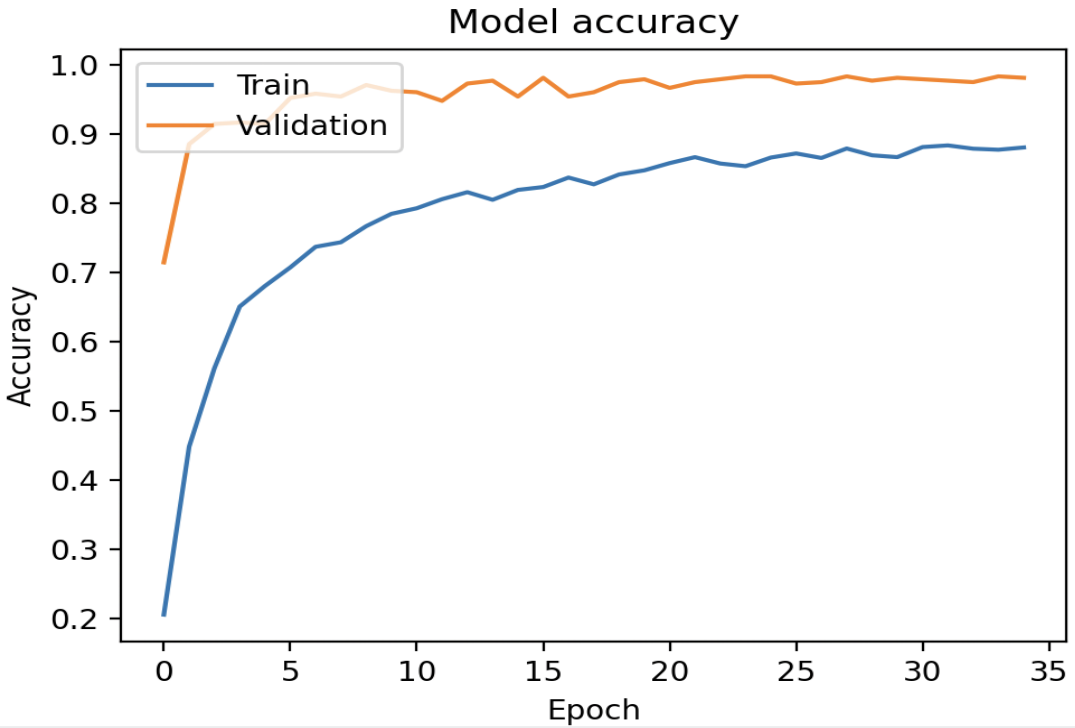
- Using Pyautogui libray to control the mouse features.



RESULTS

- **Key results:**

  - Achieved Test accuracy of the model is **97.71%.**



- Challenges:

  - CNN model was trained on images having just hand gestures so in real time it failed because of lighting, face and other noise in the frame.

  - This challenge was solved by using Mediapipe library of python which captures the hand in the frame and by using it and pyautogui functions we implemented some of the basic features of the mouse.