EE5600 PROJECT PRESENTATION

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SPEECH COMMANDS RECOGNITION

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INTRODUCTION

This is a short project on Speech Command Recognition. Here you have to generate data using your own recorded commands are "Forward","Back","Left","Right","Stop". Set the sampling rate of the recorded voice commands at 16 KHz and generate total 80 utterances of each command.Trim the samples to 1 second. You can use any architecture to recognize the speech commands, you have to fix the hyper-parameters so that the accuracy can be increased. Summarize the model architecture as well as the hyper-parameters. Use 25% of samples for testing and rest for training the model.

PROCESS

1. Generating data using appropriate voice recording software
2. Adding this data to a particular path in Google drive
3. Loading the data into Colab and Importing required libraries
4. Splitting data into Train and Test
5. Checking Model Summary
6. Fitting the model on to the training and validation data using model.fit()
7. Calculating accuracy of the model
8. Comparing different plots(Accuracy vs Epochs) obtained by changing hyper parameters

ARCHITECTURE MODEL

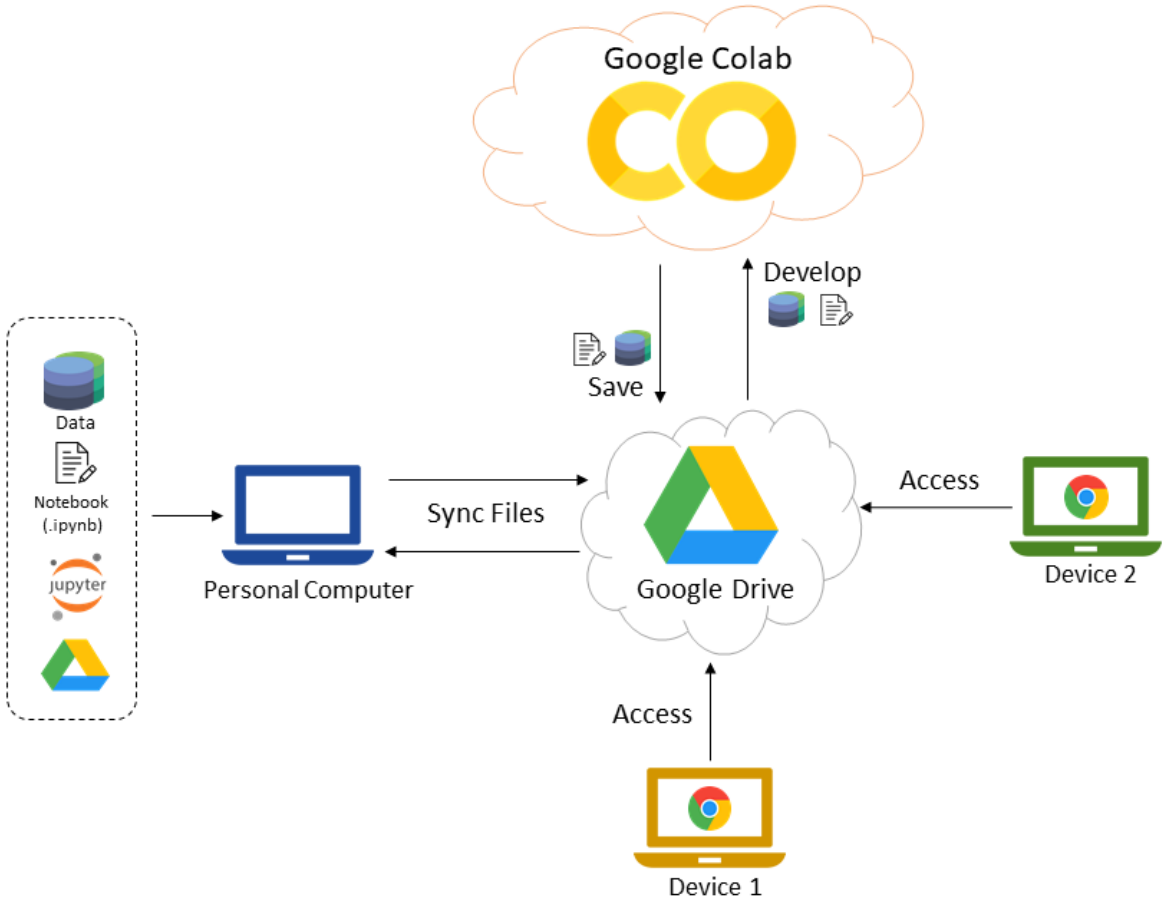

Figure: Model

MOTIVATION

1. For generating data Audacity software give better accuracy
2. Google Colab is best environment to write and execute code in python
3. It is easily save a copy in github
4. Easily imports all required libraries
5. Easy to run the model

RESULT

1. Easily obtained the accurate result by using best software and model
2. By changing different hyper parameters we get accurate plot

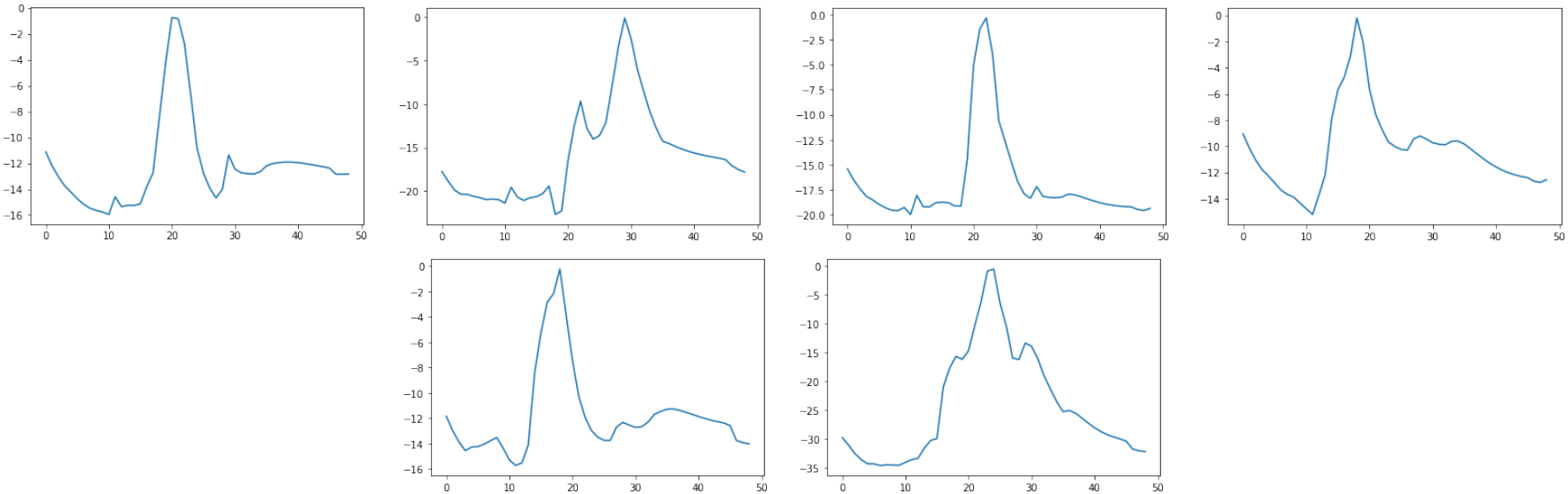

Figure: Plot obtained from Colab

CONCLUSION

1. Accuracy of the model can be increased by changing the hyper parameters such as:
   - Number of layers and number of neurons in each layer
   - Activation functions
   - Batch size
   - Number of epochs, etc.
2. Training loss is decreasing but the val loss is fluctuating.
3. Easy to run the Model
4. Easy import dataset and copy to github
5. Get accurate result by using Colab to run program
6. Audacity Software give better variation in voice to calculate accurate result.