

### Progress Work:-

- Firstly, I have recorded the voices recording for unique 210 keywords and these keywords will be considered as 210 main keywords and each of these will be considered as the main file and label. Each dir will have at least 50 words and the total recordings needed for this will be 10,500.
  - For now, I am working with 21 unique keywords which are working as the main file and each label is having 10 recordings.
    - The total recordings, I have recorded is  $10 \times 21 = 210$ , working with 210 datasets and 21 labels.
    - I Will be making this up to 50 voices at each label. So now I will have a total of 10,50 voice sets.
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- ☐ Since for above 210 unique keywords, It will impossible for me to record 10000 recordings, I am finding some data augmentation techniques so that I can avoid too much recording.
  - ☐ I am currently done with the first phase of dataset preparation, I will be working with this dataset only till the end of the project, at least until the project will be in working condition.
  - ☐ Finally, I will keep adding these more voices to these 21 labels
  - ☐ Note: In total, I have recorded approx 450 voice recordings. I will have to make it  $21 \times 50$  for at least get good results working

### How to Run Project:-

- ☐ I have already set up the virtual environment of TensorFlow.
- ☐ Cd to home/my TensorFlow.
- ☐ type command:- source venv/bin/activate
- ☐ the above command will take you to the virtual environment
  
- ☐ cd project
- ☐ python3 keyword\_spotting\_service.py
- ☐ you will finally get the output of the given command.

### Resources:

- ☐ <https://towardsdatascience.com/background-noise-removal-traditional-vs-ai-algorithms-9e7ec5776173>
- ☐ <https://timsainburg.com/noise-reduction-python.html#:~:text=Noise%20reduction%20in%20python%20using&text=The%20algorithm%20requires%20two%20inputs.noise%20intended%20to%20be%20re%20moved>
- ☐ <https://github.com/timsainb/noisereduce>
- ☐ <https://youtube.com/user/seth8141>
- ☐ <https://github.com/shivam-shukla/Speech-Dataset-in-Hindi-Language>
- ☐ <https://ieee-dataport.org/open-access/speech-dataset-hindi-language-0>
- ☐ <https://towardsdatascience.com/learning-from-audio-the-mel-scale-mel-spectrograms-and-mel-frequency-cepstral-coefficients-f5752b6324a8>
- ☐ <https://towardsdatascience.com/background-noise-removal-traditional-vs-ai-algorithms-9e7ec5776173>

**NOTE:-**

- ☐ First I have to train my Algo's, sir. My model will learn first, some of the patterns of coming data. Once it, It will learn I will create a black box of this and now In the testing phase, I will feed a new signal and it will predict, If required, I will add noise removal Algo's, in front.
- ☐ Here working with a normal noise removal filter will not be feasible actually, we will have to use a hybrid noise removal algorithm.
- ☐ Implement normal noise removal on google Colab and take screenshots.
- ☐ Give a comparison between A.I. and traditional noise removal algorithms.
- ☐ Note code of Mfcc from scratch.
- ☐ Note code of basic deep learning model for appendix section.
- ☐ Also, add your value ml code as an example.