Experiment Number	**Model**	**Result**	**Decision + Explanation**
1	Conv3D with variable batch size	Throws Generator error	Reduce the batch size below 32
2	Multiple Conv3D models with batch size 32, frames to sample [10,15,20,24, and 30]	Ran Ablations (Limited to 3 epochs)	Choose the model with least parameters to train further
3	Conv3D with batch size 32, Frames to sample 15, And 15 epochs	**Train Accuracy: 0.99** **Val Accuracy: 0.25**	The model was overfitting tremendously so decided to experiment further with batch sizes
4	Multiple Conv3D models with batch sizes [15 and 20], frames to sample [20 and 24]	Ran Ablations (limited to 3 epochs)	Choose the model with least parameters to train further
5	Conv3D with batch size 15, Frames to sample 20, And 15 epochs	**Train Accuracy: 0.995** **Val Accuracy: 0.820**	Model is overfitting, so introduce data augmentation and increase the epochs
6	Conv3D with batch size 15, Frames to sample 20, And 25 epochs	Throws Generator error (Resource exhausted)	Reduce batch size to 12
7	Conv3D with batch size 12, Frames to sample 20, And 25 epochs, and Data augmentation	**Train Accuracy: 0.996** **Val Accuracy: 0.920**	Slight Overfit observed in the form of spikes in the plot of accuracies, training time is nearly doubled due to augmentation So, remove augmentation, increase dropout values to 0.5 from previously 0.25 and add another layer of maxpooling in the architecture
8	Conv3D with batch size 12, Frames to sample 20, And 25 epochs, and with revised architecture	**Train Accuracy: 0.999** **Val Accuracy: 0.940**	Model Performance is pretty decent with very few parameters and half the previous training time.
10	ConvLSTM with 128 LSTM cells, batch size 12, Frames to sample 20, And 20 epochs	**Train Accuracy: 0.976** **Val Accuracy: 0.850**	Trying Transfer Learning because there is still overfitting issue and LSTM is taking double the time of conv3d to train
Final Model	**Transfer Learning with mobilenet, 128 LSTM,** **with batch size 12,** **Frames to sample 20, And 20 epochs**	Train Accuracy: 0.9999 Val Accuracy: 0.9900	**Best Model in terms of performance with a reasonable number of parameters and less training time**