Abstract-Small datasets pose a problem when using neural networks. The limited amount of classified data typically causes poor results. Augmentation of an existing dataset allows for set expansion which can improve network performance. We used multiple types of data augmentation options on a standard dataset to train and test in a CNN LSTM model. We chose the free-spoken-digit-dataset as the base set. It contains only 3,000 labeled samples of speakers stating the digits 0 through 9. After augmentations, our new dataset reached over 30,000 labeled samples. While using the same model on both datasets, we were able to improve classification accuracy over the original dataset by \*\*\*\*\*%.