Please provide the following information to be shared with on capstone information exchange platform:

1. **Project number**: 34

2. **Project title (as will appear on the poster)**: English Leaps to Sign Language

3. **Team members**: Nicholas Frost, William Grant, Kien Nguyen, Parth Parikh

4. **Adviser(s) name(s)**: Anand Sarwate

5. **Up to 10 keywords that will help to classify the project**:
   neural network, sign language, machine learning, python, TensorFlow, signal processing

6. **Project abstract (up to 200 words) to be shared with judges**:
   American Sign Language is one of the most popular non-English languages used today in America. A valuable device would be able to translate sign language into spoken words to ease the communication barrier between people who only know sign language and people who only know English. Microsoft has demonstrated a sign language interpreter using its Kinect product\(^1\), though the device had trouble identifying all the fingers so we intend to improve upon their results by using the Leap Motion\(^2\) device to make a sign language interpreter. We find Leap to be more desirable as it focuses on only finger/hand movements and is smaller and more portable. Furthermore, it is cheaper and operates easily on the three major operating systems. We use a recurrent neural network to train and analyze sign language data input from the Leap. We observe 372 features from the hand including the three dimensional coordinates of all the joints in the hand and the center of the palm. We have achieved 95% accuracy over 26 classes, namely the letters of the alphabet.

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2. [https://www.leapmotion.com/](https://www.leapmotion.com/)