# Work Progress:

## Research Works:

For our research, we needed to analyze different supervised learning models and select the best one. For this we couldn’t pick any regression models, as they would be highly unsuitable for uncorrelated dataset. So neural network and regression models couldn’t be used. Naïve Bayes and K-Nearest Neighbour were the other choices. Naïve Bayes assumes Bayes theorem; that probabilities are independent, but for our dataset, that isn’t always the case. As for K-Nearest Neighbour, we could technically use it as it seems excellent in correlating between all lengths of hands and data types which will definitely be closer in numerical proximity. However, for our project, the datasets are not correlated between various inputs but only during the glove being used by multiple person. So, for better classification, we have to use Random Forest classifier where inputs can coexist independently from each other.

## Simulation Works:

### Hardware Works:

### Software Works:

We successfully simulated the Random Forest classifier on a similar dataset which will be necessary during implementation. This also made us understand the python implementation through the sklearn library and pandas library which we used for training. By using pickle we were able to export the trained model saving us the hassle of retraining to run the code. We also were able to play sound of the inputs using the playsound library. We also were able to send a custom data into the model and the model would predict it. By sending different datas, we were able to manipulate the program into playing different sounds. Following are some photosnaps of code of implementation.

Fig:

Fig:

The above code trains the model. In comments we can clearly see what each line of code is doing. The import statements are placed to emphasis what exactly each library is doing. Pickle is exporting our model while sklearn is training and predicting. The pandas reads the csv excel file.

Fig:

The above code imports the model and by using playsound library, we could play a sound AI generated to experiment with the model and simulate the implementation. We can create custom data and check what the model predicts to further know how accurate the data is.

# Remaining Works:

Data collection

Writing Data into excel file

Hardware assembling

Code based on real data model