**Assignment 4.2 AAI 521 – Team Project Status Update Form**

Fill out this form and submit it by the end of Module 4 in Blackboard.

1. Team Number: Group-2
2. Team Leader/Representative: Christopher Teli
3. Full Names of Team Members:

1. Chris Teli

2. Olympia Saha

3. Prakash Perimbeti

1. Title of Your Project:

AI GALLAUDET: American Sign Language Translator

1. Short Description of Your Project and Objectives:

The project is a start of an attempt to create an ASL translator for realtime Video. Our starting attempt will be to detect ASL alphabet and numbers in real-time video.

1. Name of Your Selected Dataset:

We used multiple ASL datasets from Kaggle

### Smaller dataset

https://www.kaggle.com/datasets/ayuraj/asl-dataset

### Large dataset

<https://www.kaggle.com/datasets/grassknoted/asl-alphabet>

1. Description of Your Selected Dataset (data source, number of images, dimension of images, size of dataset, etc.):

### Smaller dataset

<https://www.kaggle.com/datasets/ayuraj/asl-dataset>

Size: 60MB

Images: 2515

### Large dataset

<https://www.kaggle.com/datasets/grassknoted/asl-alphabet>

Size: 1GB

Images: 8700

1. Description and Requirements:

Communicating with people having a hearing disability is a major challenge and ASL signs help to bridge that gap. Deaf and Mute people use hand gesture sign language to communicate, and normal people need help in recognizing their language by signs made. We need a system that recognizes the different signs and conveys the information to normal people.

Vision-based method primarily focused on dynamic recognition is the primary requirement for the project. Statics images deals with the detection of static gestures(2d-images) while dynamic is a real-time live capture of the gestures. This involves the use of the camera for capturing movements.

1. What is the task, and why does it matter?

In many video conferences there is no ability for a person to use ASL and communicate with the rest of the audience. This project attempts to start in the direction of providing a translator for ASL based signs to an audience that does not understand signs. This will enable people with hearing impairments to be part of the discussion with resorting to separate channels.

1. How were the data measures, how raw is this dataset? For example, what type of camera(s) were used, have the photos been cropped or edited before you started using them?
2. Has this dataset been used a lot in the past for computer vision, either papers, applications, competitions and similar uses?
3. What is the feature extraction plan?

The CV models are cascading non-linear processing units in the form of several layers which perform operations like transformation, feature extraction and decision making. The algorithms developed using computer vision can solve Image classification, segmentation and Machine Translation.

Even though image samples are in thousands model requires large number of processing units, it requires a very high computational resource while performing training using Transfer Learning.

1. Is there any bad data, cropped image…? (This is not a hard stop, there are several ways we can handle this problem)

* The data used has some bad lighting
* This is not a hard stop
* We are using a few data augmentation methods to create more variance in the data

1. Are you using any cloud services to host and transfer data? If yes, provide the link here:

* No
* Our model is to use the data locally and train the model
* Once we have a well trained model we will include the model as .h5 file in the project to allow the user to switch between models to study the best model for the task

1. How many times have your members met in the last week?

* Our team has met once weekly
* We have captured our meeting logs
  + [project/TeamMeetings.md at main · usd521-team2/project (github.com)](https://github.com/usd521-team2/project/blob/main/TeamMeetings.md)

1. What was the agreed upon method of communication? Are you using any teamwork project management software, such as [Trello](https://trello.com/en-US) or [Asana](https://asana.com/)?
   1. We used a slack channel
   2. Zoom meetings
2. Comments/ Roadblocks:

Camera requirements at the serverside.