Ahsanullah University of Science and Technology (AUST)

Department of Computer Science and Engineering

Project Proposal

Course No.: CSE4238

Course Title: Soft Computing Lab

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“Comparative Analysis of Machine Learning Models in Translating Sign Language to Bangla Text”

Objective:

This paper aims to compare different machine-learning models that are responsible for translating sign language to Bangla text. We will analyze the performance of these models to see which of them is best at classifying hand signs and translating them with good accuracy.

Tentative method:

1. **Dataset:** We will combine two datasets of sign language, Bengali Sign Language Dataset from Kaggle and “Ishara-Lipi” which is an open-access dataset to evaluate the performance of various existing models and also do a comparative study of those models.
2. **Model to evaluate :**
   We will evaluate Different Machine Learning Models with different combinations of hyperparameters, hidden layers and Activation functions to classify the category of the hand signs and their translation accuracy.

3. **Evaluation metrics:**
   Evaluation metrics are tools to measure how good a model is. We'll use three types:
   - **Classification Accuracy:** It checks how many predictions are right out of all predictions, giving a percentage of correctness.
   - **Loss Function:** This is a penalty for wrong predictions. Our aim is to minimize this penalty to get the best results.
   - **Confusion Matrix:** It's a chart showing how many predictions are true or false, helping us evaluate the system's performance. We'll use all three metrics for each experiment.