

# **SRI LANKAN SIGN LANGUAGE TUTOR**

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by

**KIRIGAMPAMUNUWAGE SUPUN SULARI FERNANDO**

**UWU/CST/09/0011**

**Computer Science and Technology Degree Program**

**Uva Wellassa University, Sri Lanka**

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## **Abstract**

Sign Language Recognition is a challenging research area of Human Computer Interaction. This system proposes a method which recognizes signs of Sri Lankan Sign Language using Fourier Transformation, which is invariant to translation, scaling, rotation and change of starting point. It discusses about using a Centroid distance based shape signature, which is capable of preserving both local and global information of the shape.

This concept would be highly beneficial for primary school students who try to learn the basics of sign language. This system will help them to practice & check their knowledge without any help of their teachers or parents.

Digital Image Processing Techniques were used to obtain a closed contour image from the input image. Feature Extraction is done by using the theories of Fourier Transformation. Artificial Neural Network has been employed to train a large set of signs in order to increase the efficiency of the system. Supervised training method was used to train the neural network, which consists of 10 input nodes, 6 hidden layer nodes and 8 output nodes. The calculated weights were stored in file.

The system is implemented using C# programming language and Aforge.NET framework.

A still image of the sign is taken as the input for the system. The weight file, which is generated at the end of training the system for nearly 800 images of signs, was used to recognize the sign. The system will output the correctness of the sign to the user using visual indicators.

The system is capable of recognizing 8 static signs of Sri Lankan Sign Language successfully.