Abstract

Sign Language is the most natural form of communication for people with hearing disability. In this project, a tool is developed for the interpretation of Turkish Sign Language (TSL). The tool aims to translate a text written in Turkish into TSL, and also recognize the signs with the help of a data glove and translate them into text.

Keywords: Turkish Sign Language, sign visualization, data glove

Introduction

In general each spoken language has also a sign language. There are very few materials for Turkish Sign Language. The tool developed in this project consists of two parts. The first part performs text-to-sign translation and the second part performs sign-to-text translation.

Visualization Tool for TSL

In this part, a visualization tool has been developed that accepts a text as input and displays the related signs on the screen with the help of a 3D human model.

Human model, an avatar, is created by the polygon-mesh modeling and rendered with an internal bone structure. Inverse kinematics have been used to create the human like animations for finger spelling signs.

A database is used to store the words and the related animations. Also, an interface has been created, which allows the users to insert, view and alter the animations in the database.

Input to the system is entered from the keyboard as words or sentences. These sentences are parsed into words. If the words and the related animations exist in the database, these animations are displayed on the screen. Otherwise the words are parsed into characters and the signs of the characters are displayed.

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TSL Interpretation

In this part, a data glove (Acceleglove) is used to recognize the signs. Then, using the database, the related words are found and displayed on the screen as text. This part requires also a training phase where the signs are stored in the database.