

# **Text to Pakistan Sign Language Automation**

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*Bachelors of Engineering*  
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# Dedication

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We dedicate our work to the deaf community all over the globe so that they become equal to normal human beings. In this research work we are mainly concerned with solving daily life communication problems faced by hearing impaired individuals. We are doing this project as a serving to humanity and deaf community as Sadqa-e-Jaaria.

# Abstract

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In this thesis a Text to Pakistan Sign Language Automation system has been proposed. Respective system takes an English input sentence and converts it into Pakistan Sign Language sentence. By considering an effective and efficient use of storage, computation and bandwidth; animation is an appropriate and sophisticated way to keep Sign Language content on Internet. Out of all present Sign Language writing notation systems, HamNoSys is an efficient available notation that is not only able to convert signs into animations but supports non manual features like body, head and shoulders movement with the help of SiGML markup language. HamNoSys basically symbolize the gestures of signs present.

Proposed system is not only capable of converting manually input text into its respective PSL version but it also facilitates a deaf to input any type of content from any web page. Our system is a HamNoSys based system that is capable of generating animations of corresponding signs in PSL. As a benchmark, we took videos of PSL.org as standard gestures for our dictionary. Among all Text to Sign Language conversion approaches we followed Transfer based Translation approach as we are not only translating input text into PSL but validating and verifying grammar of the converted sentence as well.

# Acronyms

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<b>SL</b>	Sign Language
<b>PSL</b>	Pakistan Sign Language
<b>HamNoSys</b>	Hamburg Notation System
<b>SiGML</b>	Signing Gesture Mark-up Language
<b>MF</b>	Manual Features
<b>NMF</b>	Non-Manual Features
<b>ASL</b>	American Sign Language
<b>BSL</b>	British Sign Language
<b>ISL</b>	Indian Sign Language
<b>JPS</b>	Japanese Sign Language
<b>XML</b>	Extensible Markup Language
<b>MT</b>	Machine Translation
<b>Sen</b>	Sentence
<b>S</b>	Subject
<b>V</b>	Verb
<b>O</b>	Object
<b>Adj</b>	Adjective
<b>Aux</b>	Auxiliary
<b>Conj</b>	Conjunction
<b>POS</b>	Parts of Speech
<b>UI</b>	User Interface

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