

Evaluation

7.1 Introduction

Implementation details of each and every module in the system are explained in the previous chapter. This chapter states how these modules are evaluated. Basically the evaluation of this system is carried out for the Recognition module and the Post processing module independently. And the final system was tested with the actual Sri Lankan inscriptions. At final test run both the Recognition module and the Post processing module was evaluated as a one whole system.

7.2 Evaluation of the Recognition Module

The experiments on this module were conducted by using the characters in the Brahmi alphabet. The results of the recognition of individual characters which contain zero percent of noise were recorded as 90 – 95 % of recognition rate. The quality of the character images were diminished by adding the noise type salt and pepper. When the designed neural network is provided with the noisy inputs the recognition rate was in a satisfactory level. It was observed that when the neural network input contains high noise rates the recognition rate of the neural network has decreased dramatically.

7.3 Evaluation of the Post Processing Module

The testing for this particular module was performed by setting up the test setup that is presented in Table 7.1. In addition to the displayed test setup the database that contains the standard Unicode values also exists in the system and used for the test scenario execution.

The following test setup contains only selected set of values that was specifically identified for the testing. The test scenarios of this module (Table 7.2 and Table 7.3) were constructed by introducing incorrect characters for the input string.

Setup of the Ontology				
Sinhala Word Dictionary	ලෙණ, සගස, ගණස , සිව			
English Representation Dictionary	LN, SGS,GNS,SV			
Statistics Information File	Word	Start Percentage	Middle Percentage	End Percentage
	ලෙණ	0	54	46
	සගස	0	0	100
	ගණස	95	5	0
	සිව	95	5	0
Threshold Mark for the system = 90				

Table 7.1: Test Setup

Assumption: Since the Semantic agent is a human agent the behaviour of this agent is assumed. The below test scenarios was performed by capturing the knowledge of a human that could play the Semantic Agent role in the real world.



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Input String	LNSNS	
Correct String	LNSGS	
Percentage of incorrect characters	10 %	
Expected output	ලෙණ සගස	
Agent Negotiation / Communication	<i>Lexical Agent</i>	ලෙණ සිව සිව
	<i>Structure Analyst Agent</i>	Reject
	<i>Semantic Agent</i>	Reject
	<i>Final outcome for presented sentence</i>	Rejected
	<i>Lexical Agent</i>	ලෙණ ගණස
	<i>Structure Analyst Agent</i>	Reject
	<i>Semantic Agent</i>	Reject
	<i>Final outcome for presented sentence</i>	Rejected

	<i>Lexical Agent</i>	ගණස සච
	<i>Structure Analyst Agent</i>	Reject
	<i>Semantic Agent</i>	Reject
	<i>Final outcome for presented sentence</i>	Rejected
	<i>Lexical Agent</i>	සගස සච
	<i>Structure Analyst Agent</i>	Reject
	<i>Semantic Agent</i>	Reject
	<i>Final outcome for presented sentence</i>	Rejected
	<i>Lexical Agent</i>	ලෙණ සගස
	<i>Structure Analyst Agent</i>	Accept
	<i>Semantic Agent</i>	Accept
	<i>Final outcome for presented sentence</i>	Accepted
Final Output of the System (Identified Inscription Character String)	ලෙණ සගස	

Table 7.2: Test Scenario 01

Test Scenario 02

Input String	LGSNS	
Correct String	LNSGS	
Percentage of incorrect characters	40 %	
Expected output	ලෙණ සගස	
Agent Negotiation / Communication	<i>Lexical Agent</i>	ලෙණ සච සච
	<i>Structure Analyst Agent</i>	Reject
	<i>Semantic Agent</i>	Reject

<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	ලେණ ගණස
<i>Structure Analyst Agent</i>	Reject
<i>Semantic Agent</i>	Reject
<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	ගණස
<i>Structure Analyst Agent</i>	Reject
<i>Semantic Agent</i>	Reject
<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	සගස
<i>Structure Analyst Agent</i>	Reject
<i>Semantic Agent</i>	Reject
<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	සගස සච
<i>Structure Analyst Agent</i>	Reject
<i>Semantic Agent</i>	Reject
<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	ලෙණ ලෙණ සච
<i>Structure Analyst Agent</i>	Reject
<i>Semantic Agent</i>	Reject
<i>Final outcome for presented sentence</i>	Rejected
<i>Lexical Agent</i>	ලෙණ සගස
<i>Structure Analyst Agent</i>	Accept
<i>Semantic Agent</i>	Accept



	<i>Final outcome for presented sentence</i>	Accepted
Final Output of the System (Identified Inscription Character String)	ලලන සඟස	

Table 7.3 : Test Scenario 02

7.4 Evaluation of the Overall System

The overall system was evaluated by using 12 inscriptions that were gathered from archaeological sites such as Wessagiriya , Handagala Vihara etc.

Table 7.4 displays the results that were recorded during the evaluation phase.

Recognition Status	Rate
Correctly Identified	84%
Partially identified	8%
Incorrectly identified	8%

Table 7.4 : Results of Overall System Evaluation

7.5 Summary

This chapter explains how the developed system is evaluated in the testing phase. Sample test scenarios and the results of the experiments are also published in this chapter. The next chapter concludes the overall achievements with the successfulness of objectives, problems encountered and the future work.