**Abstract**

Machine translation is one of the most important applications of Natural Language Processing (NLP). Machine Translation is one of the most important branches of Artificial Intelligence. It is the translation of one natural language into another using automated and computerized means. For a multilingual country like India, with the huge amount of information exchanged between various regions and in different languages in digitized format, it has become necessary to find an automated process from one language to another. Sanskrit is the mother of all native language of India. A great storage of knowledge with various subjects is kept alive and fresh Sanskrit lore for thousands of years. The state of Uttarakhand in India has ruled Sanskrit as its second official language. NASA and others have been looking at Sanskrit as a possible computer language since its syntax is perfect and leaves little room for error. English to Sanskrit translator is very useful to people in India. Sentence in English is translated into Sanskrit using hybrid approach which includes rule based approach and example based machine translation (EBMT) & from Sanskrit it is easier to transform into native Languages. EBMT has emerged as one of the most versatile, computationally simple and accurate approaches for machine translation. The main advantage of rule based approach is the easy implementation and small memory requirement. Thus we are going to combine both approaches to obtain a ‘good enough’ translation as opposed to a perfect translation aimed by earlier machine translation efforts. The basic objective of this system is to convert the simple English SVO format statements into its equivalent Sanskrit form. We look forward to this concept as being useful for generation of complex statements which includes ‘sandhi’ rules.

*Keywords:* machine translation, natural language processing, artificial intelligence, hybrid approach, rule based dictionary approach, example based approach (EBMT), Sanskrit.

**Introduction**

In the past twenty years, much time, effort, and money has been expended on designing an unambiguous representation of natural languages to make them accessible to computer processing. The concept of machine translation domain of natural Language processing (NLP) and area of Artificial Intelligence (AI) is very useful in providing interaction user with a machine, which understands different languages spoken by the common man. It presents the user with an interface, with which he feels more comfortable.

We always in need for translators because of many languages are spoken in the world .The use of the machine translator is to make people speaking and understanding different languages , share ideas and views and also to communicate with one another people. With the help of Machine Translation concept, we may progress towards achieving the goal using easily available computer systems.

A survey of the machine translation systems that have been developed in India for translation from English to Indian languages and among Indian languages reveals that the MT software are used in field testing or are available as web translation service. These systems are also used for teaching machine translation to the students and researchers. English is a widely spoken language hence we can call it a "global language". The system will benefit the users who want to learn or understand Sanskrit or want to translate the text available in English into Sanskrit. But, why to use Sanskrit? Since, Sanskrit is mother of 85 percent Indian Language therefore it is an obvious choice for the target language. Sanskrit has been a favorite language for linguistics, as it has well defined grammar and is well structured. Sanskrit being a synthetic language is quite scientific in its approach and is based on formula or sutra.

There are various approaches to translate languages from source language to target language. In our system we are going to design and implement a system which use a hybrid approach i.e. a combination of two important approaches that is example based approach and rule based approach. The Example Based Machine Translation (EBMT) is one of the most popular machine translation mechanisms which retrieve similar examples with their translation from the example data base and adapting the examples to translate a new source text. This will be a great attempt towards bringing people together and sharing their views if this project is successfully implemented.

**Problem Statement**  
 Design and implementation of machine translator for English to sanskrit with hybrid approach including rule based and example based approach to obtain a good enough translation for SVO formats of English statement.

**Objective**

In short the objective of our proposed system is:

* Parsing the given English sentence.
* Detecting the most probable errors in the sentence.
* Translate statement by using example based approach if it is already in corpus.
* Translate the source code to target code by rule based approach if it didn’t found in corpus.
* Improving translator efficiency by providing bi-lingual dictionary, statement corpus and on-line dictionary support.

**Aim**

The aim of this is to provide an overview of our software product which we are going to develop.

Our aim is

* To translate basic and simple SVO(Subject-Verb-Object) pattern English statements into equivalent Sanskrit statements.
* To do translation with the help of hybrid approach to increase throughput.
* To provide English to Sanskrit bilingual dictionary support.

**Scope**

Translation of any natural language into its equivalent target natural language is quite complex task. It requires much more linguistic knowledge. It is impossible to write rules that cover all a language. In case of modifying some rules, it does not only change the incorrect sentence in to correct sentence, it may be further affecting on the correct sentence also. Common error occur in machine translation is one is choosing incorrect meaning and another one is incorrect sequence. The translation process involves the many different rules interacting in many different ways. Due to which it is hard to extend or modify.

In translation of English to Sanskrit language there are various aspects to take into consideration like simple statements, sandhi, visarg rules, samasa rules, dhatu path rules etc.

Hence at this starting phase we are going to limit our scope for simple English S-V-O patterns statements with sandhi vichcheda rules. This aim we are going to achieve with the help of combining two different machine translation approaches i.e. example based and rule based machine translator.