Swarm Intelligence of BEES for Machine Translation

B. Hettige[1], A. S. Karunananda[2]

[1]Department of Statistics and Computer Science, University of Sri Jayewardenepura, Sri Lanka

[2]Faculty of Information Technology, University of Moratuwa, Sri Lanka

budditha@yahoo.com[1], asoka@itfac.mrt.ac.lk[2]

Abstract- This paper presents a Multi Agent System that is an extension to an ongoing research project for development of English to Sinhala Machine Translation system, known as BEES. Each module in BEES has been improved to operate as Agents that activate upon requests, execute and kill themselves at the end. The new system ABEES forms a swarm of Agents with English Morphological agent, English Parser agent, Bilingual Translator agent, Sinhala Morphological agent, Sinhala Parser agent, Transliteration agent and a Manager Agent. The Ontology of the swarm of Agents comprises of four dictionaries and specific rules to implement the translation process. During a translation session, Agents negotiate through a common message space, a part of Manager Agent, and reach to a meaningful translation. Since the relevant Agents are created only when necessary, ABEES uses limited system resources and disregard the need for sequential processing. ABEES has been implemented using Java and SWI-Prolog to run on both Linux and Windows.