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Artificial Intelligence (AI) Tool for Solid Waste Management

Solid waste is an urban eye sore in Sri Lanka today and the problem is fast spreading into the countryside as well. Although a developing country's populace produces less garbage per capita than a developed country, mismanagement remains an acute issue, creating health, environmental, social and aesthetics problems. Lack of broad based access to knowledge prevents uniform consensus. Even though we are supposed to live in a knowledge economy, Sri Lanka still lacks proper systems of information assimilation, archival and delivery. Issues that could be easily solved via the empowerment of the local communities with proper information continue to fester due to the lack of a vision in information transfer and assimilation for and from rural masses.

Information

Solid Waste Management (SWM) has become a burning environmental problem in the country due to lack of information and expertise for developing better practices.

In the absence of such feedback and information dissemination, mistakes appear to be repeated with scarce and useful money wasted. In this context, the technology of knowledge-based Artificial Intelligence (AI) can play very important role in Sri Lanka.

Even though AI is still its infancy in Sri Lanka, a variety of AI-based application programs have been developed to address real life problems and have been successfully field tested both in developed and developing countries.

Local authorities in Sri

Lanka are empowered by law to handle solid waste.

Awareness

However, it is seen that the required technical awareness is not available within each local authority, and resources are also lacking to access such knowledge at local level. It is clear that the requirement of Local Authorities to assess the potential impacts of proposed human activities on solid waste management is an ideal requirement for the development of an AI tool. Therefore the Department of Civil Engineering, University of Moratuwa has developed a user friendly Expert System called BESTCOMP by capturing past mistakes, weak points and considering past experience for better management of solid waste composting by Local Authorities in Sri Lanka.

This research focused mainly on the behaviour of the physical, chemical and biological process in composting.

The model is geared towards decision making as well as providing the required expertise to the

solid waste management hierarchy.

The BESTCOMP expert system consists of many decision support models such as literature, pictorial database, waste analysis reports, information on human resources, Government laws and regulations on solid waste management, information desk for researchers and a training tool.

This helps the user to identify problems faster, examine various alternatives and make an informed choice. The system is developed not only for the users who are experienced in solid waste management practices but also for novices.

BESTCOMP provides better access to the pool of knowledge in solid waste management to users in data poor environments.

Easy

To make the computer use as easy for the user as possible, BESTCOMP offers the capacity to interact with the system through text, pictures and graphics and reduces the effort required of the user. The presence of a standard user interface frame-

work not only simplifies development efforts but also reduces user training and support requirements for users. The system is designed as a flexible, generic system. Therefore the user has easy access to the system without any need for advanced mathematical or computer knowledge. It features context-sensitive help screens, choice of mouse or keyboard input and on-screen display of the entire data structure.

System

Various reporting and graphical options are available, thus facilitating user-friendly communication of scientific information.

Thus a system of much versatility has been developed. This constitutes the use of information technology tools to help solve local problems in an informative manner. You can contact Professor Malik Ranasinghe for more information. (malik@civil.mrt.ac.lk)

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