

CIT Management of Solid Waste in Cairo Metropolitan Area

1. Introduction

CIT (Computers and Information Technology) has been developing solutions to various problems in various sectors of the today's civilization [1,2,3,4,5,6,7].

Rapid population growth, industrialization, urbanization and technology trends have led to a sharp increase in solid waste generation. Some municipalities are still using the conventional approach to solid waste management leading to solid waste becoming a sight everywhere. It is important to monitor solid waste collection and record the information pertaining to collection time, area and other related data from a central location. For this purpose, an Integrated Municipal Solid Waste Management System (IMSWMS) is presented and discussed in [8]. The system ensures solid waste reduction through proper collection monitoring, waste intelligence initiatives and environmental education. It is an embedded system incorporating global positioning system (GPS), radio frequency identification (RFID) technology, which is interfaced with a microcontroller and a web based graphical user interface (GUI) that can be accessed from anywhere. The web based GUI allows real time interaction of the central office with waste collection processes and residents.

A life cycle inventory has been presented in [9].

Various waste types and waste treatment technologies have been examined in [10] and determines their effect on the environment. This module will enable the learner to establish various methods of treating different types of waste (municipal solid waste, industrial waste, hazardous waste and agricultural wastes) within the current legislative framework while minimizing the environmental impacts through appropriate mitigation measures.

2. Proposal

This proposal builds and develops a system that has:

- A CIT Business Model that involves the following:
 - Places for the production of solid waste with their geographical locations and organizational information and contacts. Various classes are considered (e. g., door-to-door, street pool, etc.). Priorities are set up by the Apparatus for Management of Waste of Egypt.
 - Amounts of different shipments of solid waste with a mobile-RF -based tracking identifier.
 - Hazards level indicator of various shipments of the solid waste.
 - Suggested places for incarnation of solid waste shipment with the associated cost and the available capacity.
- An AI (Artificial Intelligence)- Based Expert System that provides:
 - The most economic and safe place for incarnation of the solid waste shipment.
 - On-Line Tracking of the transportations of the shipment from start to end
- A pilot project to apply the proposal to a selected district such as the Maadi District.

3. Consortium

The consortium is composed of the following partners:

- DMS (Data Management Systems) Corporation of Egypt (Egyptian Coordinator).
- Egyptian Apparatus for Environmental Issues, Egypt.
- A Spanish Corporation in Management of Solid Waste.

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