

# Crowd Associated Network: Exploiting over a Smart Garbage Management System

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## ABSTRACT

Most existing non-real-time applications utilize infrastructure-based or semi-infrastructure-based network architectures. Such a network architecture demands a considerably high installment and maintenance cost. To alleviate the cost, in this article, we propose an efficient infrastructure-less network architecture named CrAN. In CrAN, a set of crowds play significant roles by completing the communication gaps among various associates in the network; hence the name. We show the usability of this proposed architecture to support non-real-time data transmission over an SGMS, where optimum solutions need to be discovered to minimize the management cost. Due to the complexity of the optimization problem, we approximate these optimum solutions using a GA. In the implementation of the GA, we apply new fitness functions to discover a feasible trade-off between distance and waste volume. We then compare the performance of the proposed fitness functions with that of an existing fitness function. The results favorably suggest the necessity of employing the proposed fitness functions to obtain near-optimum solutions.