Garbage Collection Routing Based On Traveling Salesman Problem

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Overview

There are thousands of garbage bins around the Dhaka city. To manage the wastes dumped everyday into these bins, garbage collecting vehicles are routed through the streets of the city. In order to make the method of garbage collection an efficient one, we are interested in finding out an optimal route for the on-duty vehicles based on an algorithmic perspective.

Motivation

Waste management in an efficient way is a burning need in the perspective of current world's environmental and infrastructural scenario. In developed cities around the world, this issue is regarded as the few of the most important issues and thousands of projects as well as researches are being conducted in a massive scale.
As an emerging nation of the future world, we believe that Bangladesh should look for methodical ways to collect and manage its wastes. Not only because of the current needs we are dealing with, but also because of the futurist necessities we will encounter.
As a part of meeting the upcoming challenges Bangladesh will have to deal with in near future, we are interested in improving garbage collection methods based on algorithmic approach.

Goals

We are looking forward to

1. Finding out a real time cost efficient route for garbage collector trucks
2. Finding out an optimal relation between number of garbage trucks and garbage bins
3. Determining alternate routes in case of emergency
4. Working on further improvements

Requirements

Specific types of data are required to achieve the goal:

1. A map of the city corporation where the garbage bins are located
2. Starting and finishing points of garbage trucks
3. Routes that the garbage trucks follow currently
4. Number of on-duty garbage trucks at a time
5. Amount of time needed for a garbage truck to execute its duties