Literature Survey of Veterinary Website

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ABSTRACT

Nowadays due to the inconvenience of traveling with pets the owners recommend the veterinarian to visit home, as the number of patients increases the doctor becomes very busy so he needs to find the shortest path to visit all the patients and reach his house. So he needs to find the optimal path for his drive in order to maximize his effort. Our main objective is to build a system that can help the doctor to find the minimum cost path for the drive. On a road network, the minimum cost path (or min-cost path for short) from a source location to a destination is a path with the smallest travel cost among all possible paths. To visit all the places and come back to the starting position, to find the optimized path we use traveling salesman problem

Keyword : - *Traveling Salesman Problem , Google Map API, Pet Health Care and Minimum Cost Path*

1. INTRODUCTION

Pets who face difficulties in traveling due to some accidents, injuries or for other reasons like stress and anxiety while traveling. So the good solution for this is to call a doctor home. The project aims to make a system for the veterinary field to improve the speed of medical attention for the animals. The main problem here is to find the best suitable path for the doctor to give medical attention. The proposed system enables the users to access the google map to get the suitable path for the doctor, so the stress by the doctor will be relieved. We know the value of the life of a pet to its owner, so we give more preference to provide medical attention on time. There are several algorithms which give the minimum cost path.

2. LITERATURE SURVEY

2.1 Traveling Salesman Problem

Given a set of cities and distances between every pair of cities, the problem is to find the shortest possible route that visits every city exactly once and returns to the starting point. This is known as the Traveling Salesman Problem (TSP), and has an immense fame both in real life and in the engineering world for a long time. Optimal route in the explanation of TSP is an important term. The concept of the optimal route, of course, changes according to the needs of the problem. The optimal route might be firstly the shortest distance, then the least cost, or finally the shortest time. TSP problem normally is accepted in the non-deterministic-polynomial (NP-hard) problem category, so the problem cannot be solved in a polynomial-time, it should be considered in NP-hard category. When the number of visiting cities increases in the route, the complexity of the computational solution increases as well. Similarly, the TSP problem can be solved in total O(N!) time complexity. When the number of visiting points increases, calculation time increases exponentially as well[1].

The traveling salesman's problem is to find the shortest way of visiting all of the cities and returning to the starting point. Though the statement is simple to state, it is more difficult to solve.
Consider an example describing the Travelling salesman problem. We have a set of four cities A, B, C, and D. The distances between the cities are also given to us. Figure 1 illustrates the collection of the cities and their distances among each other. Here (4-1)!, that is 3! route can be generated. The tour with A→B→C→D→A will be the optimal route for a given problem.[2]

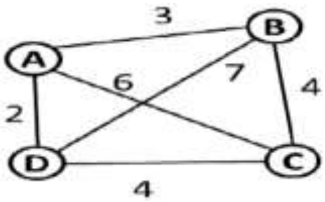

Figure (1).

2.2 Project Deployment

The essential steps to setup map are listed below

Step 1. Make a website for add the map

Step 2. A free Google API Key has been taken from the web site, https://developers.google.com/console with a Google account in order to access map services.

Step 3. The APIs used

- Maps JavaScript API: Add a map to your website, providing imagery and local data from the same source as Google Maps
- Distance Matrix API: Access travel distance and time for a matrix of origins and destinations with the Distance Matrix API
- Geolocation API: Find a location and accuracy radius based on information from things like cell towers and WiFi access points that a mobile client can detect with the Geolocation API
- Roads API: Snap GPS points to roads to identify the roads a vehicle was traveling along, making up for GPS error. Also lets developers access speed limits along those roads (enterprise-only feature)
- Time Zone API: The Time Zone API provides the time zone for a location on the earth, as well as that location's time offset from UTC
- Directions API: Access driving, cycling, walking and public transportation routing with the Directions API using an HTTP request

Step 4. The data given by the users add to map

Step 5. The data like distance between locations etc are given by google map API is transferred to the TSP

Step 6. By the TSP draw a path on map

2.3 Google maps API

API is typically used by programmers, but it can also be used by domain experts who occasionally may play the role of programmers in the development process. These APIs are concerned with commercial, academic and GIS aspects with map.An Web-based Public Participatory GIS (PPGIS), which employs a “Bottom-up” approach . The“Bottom-up” approach enables the users with GIS tools to communicate their perception systematically. It aims to empower the grassroots through providing more accessible public information and opening available channels for response.The key available on Google Map API is taken , to your programing code.Replace the value of the key parameter in the URL with your own API key (that's the API key that you've just obtained). Make changes on the developed code according to what features need to be used from the google API [3].

2.4 Dijkstra's Algorithm

The Dijkstra algorithm is a single-source shortest path algorithm. Here, single-source means that only one source is given, and we have to find the shortest path from the source to all the nodes.It differs from the minimum spanning tree because the shortest distance between two vertices might not include all the vertices of the graph.The algorithm uses a greedy approach in the sense that we find the next best solution hoping that the end result is the best solution for the whole problem.In order to find the shortest path between to points we use Dijkstra.It will find the distance by traveling through another points between them.

2.5 Floyd War shall Algorithm

The Floyd Warshall Algorithm is for solving all pairs shortest path problems. The problem is to find the shortest distances between every pair of vertices in a given edge-weighted directed Graph.This algorithm works for both the directed and undirected weighted graphs. But, it does not work for the graphs with negative cycles (where the sum of the edges in a cycle is negative).Making Floyd warshall differ from Dijkstra is that it use more than one source

2.6 Bellman-ford Algorithm

Bellman ford algorithm is a single-source shortest path algorithm. This algorithm is used to find the shortest distance from the single vertex to all the other vertices of a weighted graph. There are various other algorithms used to find the shortest path like the Dijkstra algorithm, etc. Dijkstra doesn’t work for Graphs with negative weights, Bellman-Ford works for such graphs. Bellman-Ford is also simpler than Dijkstra and suits well for distributed systems. But time complexity of Bellman-Ford is O(V * E), which is more than Dijkstra. Taking into consideration this fact let’s assume that our graph does not contain cycles with negative weights. The array d[] will store the minimal length from the starting points to other vertices. The algorithm consists of several phases, where in each phase it needs to minimize the value of all edges by replacing d[b] to the following statement d[a] + c. a and b are vertices of the graph, and c is the corresponding edge that connects them. And in order to calculate the length of all shortest paths in a graph it requires n – 1 phases[4].

3. CONCLUSIONS

By the help of the traveling salesman problem the path is added to google map. A real world application that creates a good traveling route using the current traffic updates taken from google, is proposed. A user-friendly interface showing the shortest route in both distance and time. Combining TSP with an application which brings great convenience to real-life makes this study very meaningful.When you decide to use google maps API in your website then you need to come up with a good plan of placing the overlays on the map and handling events.It is not a difficult process that to build an google map API for a webpage. So it makes our work very fast and simple.

4. REFERENCES

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