Spot-tracer: Searching trajectory by region of interest

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***Abstract*: The trajectory search is important with the increasing accessibility of moving object tracking data, we propose android application Spot-Tracer: trajectory search by region of interest given a contention set of trajectories TSR query take set of region of interest as a parametric quantity and return trip plan with highest spatial density correlation to the query region. This type of query is useful in many popular applications such as trip planning, location based services and recommendation. TSR query processing tackle three challenges: how to model the spatial-density correlation between query regions and data trajectories, how to effectively prune the search space, and how to effectively schedule multiple so-called query sources. To feces these challenges, a series of new metrics are defined to model spatial-density correlations.**

***IndexTerms*: Trajectory, Spatial-density correlation, Spatial networks, Spatial databases.**

I. INTRODUCTION

The feasibility of GPS based devices like Smartphone, Google map, etc. allow people to find out their current location & to allowance their trajectory. The feasibility of huge trajectory data enables recent mobile application this application may take advantage for trajectory search which find trajectory that are standardized in some particular(specific) reorganization to query parameter. This kind of query can convenient for popular services such as journey (trip planning) & recommendation and location based services in general. Example- when planning a trip to more than one plan in an unknown city, a holiday maker may take advantage from already visited tripper. Specific tripper with similar interest may have visited nearby spot that user may not know but may be interested in or others may take away from a specific road because it is undesirable such experience are captured in trajectories shared by previous visitor. Moreover, especially when planning a trip in an unknown city,user may fail to specify planned location correctly & may use intended region instead.

Following are some existing systems for trip planning applications.

1. TripIt: is a trip planner that enables its users to create a master travel itinerary and provide them with online and mobile access. TripIt is an intelligent travel organizer that helps travelers manage their plans so that their trips go more smoothly. Travelers simply forward their purchase confirmation emails to TripIt and TripIt automatically creates master itineraries with travel plans and other critical information.

2. Trip Planner Travel Guides App: Explorer the roads less travel led or escape to a popular gateway using valuable tips from frequent travellers.

3. Cleartrip-Flights, hotels, train booking app: Search for flights, compare prices, and book your journey for international or domestic travel.
Find and book tickets for even tand movies that you may be interested at your destination.

Here we create android application named Spot-Tracer: Searching Trajectory By region of Interest in which tripper can easily create trip plan by their region of interest also it helps to provide other location based services like Hospital, ATM, Restaurant places by users current location. Also provide the distance between origin and destination with proper trip plan.

II. Review of Literature

Shuo Shang is a research scientist, his research interests include efficient query processing in spatiotemporal databases, spatial trajectory computing, and location based social media in which the algorithms for the two joins exploit different upper and lower bounds on the spatiotemporal trajectory similarity and different heuristic scheduling strategies for search space pruning.[1].

Lisi Chen is an assistant professor of computer science, his research interests include geo-textual data management, spatial keyword query evaluation, and location based social networks. Moving Object Databases(MODs) are among the emerging research topics that are attracting many work due to their vital need in many applications[2].

E. Frentzos is Obel Professor of Computer Science, his research based on data management and data-intensive systems, and its focus is on temporal and spatiotemporal data managementIn this paper,he investigate the proposed (depth-first and best-first) algorithms vary with respect to the type of the query object (stationary or moving point) as well as the type of the query result [3].

Ji-Rong Wen is a professor, his main research interest lies on Web big data management, information retrieval, data mining and machine learning also web search and related areas. The performance of TSR query processing is studied in extensive experiments based on real and synthetic spatial data. [4] .

Panos Kalnisisis a professor, his research on Spatiotemporal and High-dimensional Databases, database outsourcing, cloud computing, mobile computing [5].

III. System Architecture / System Overview

The proposed system is design to monitor and track the trajectory path using the Java. It is application of Data Mining. Path tracking is commonly used to detect the location, routing and to provide trip plan to user. In proposed System the main module is Java and Mobile Application.This system continuously track the location, predict the arrival time of the user for the effective time management, Location is determined using GPS in the form latitude and longitude then using the Google map interface it will display to the user. All this information is stored on the database which is located at server and after turning off the route tracking feature the system will track the user location in real time and store it in database so we can trace exact which route was traveled. The system provides android application to monitor the path.

System architecture in figure shows actual interaction between components. The Authorized user will have access to the information. The user can fetch the information from server by request response architecture. And generate trip plan.

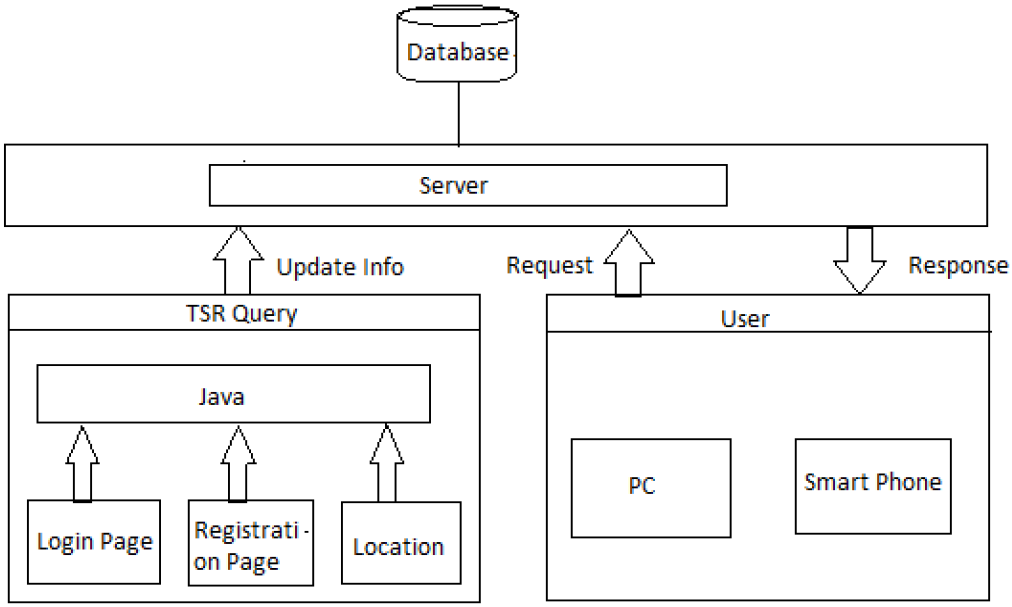

Fig. System Architecture

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IV. Mathematical Model:

G.V= the set of vertices in graph G

G.E= the center of region c

sd(pi, pj)= network distance between vertices pi and pj

dM(p, τ)= network distance between vertex p and trajectory τ

I(pi, pj)= spatial influence factor between vertices pi and pj

Csd()= spatial-density correlation factor

Csd().lb, Csd().ub =the lower and upper bounds of spatial-density correlation

UB, LB =the global upper and lower bounds

Tf ,Tp= a set of fully and partially scanned trajectories

p.c =the cluster of region centers that are attached to query source p

p.l=the priority label of query source p

V.Hardware/Software Requirements

Hardware Requirement:

- PC/Smartphone
- Min 8GB RAM

- Android Studio4 GB RAM
- 8 GB internal storage of mobile device.
- Intel core i3 processor.

Software Requirement:

- Operating system: Windows,,
- Android Studio
- Database: MySQL
- Android Studio.
- Java SDK
- ADB Installer.

VI. Execution Snapshots

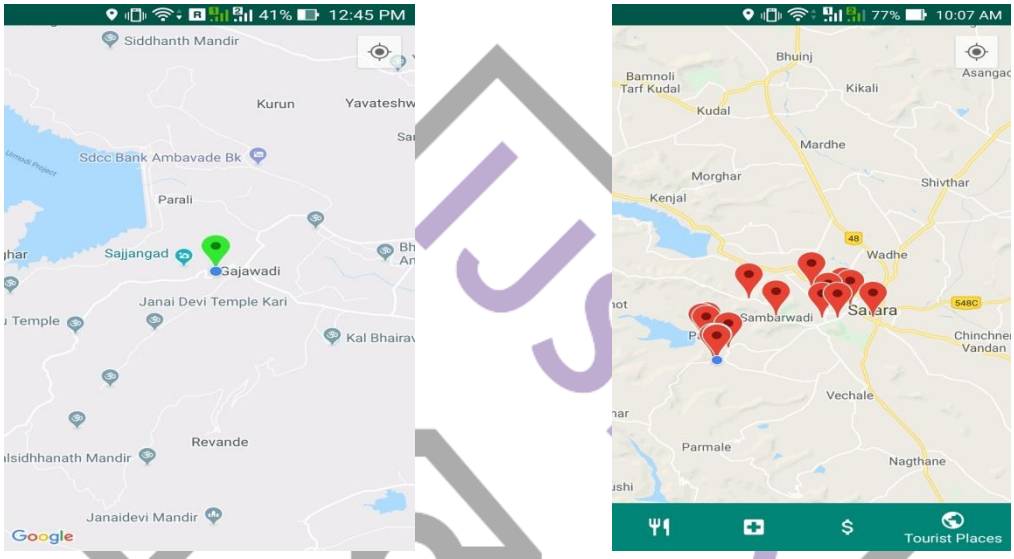

Fig a) shows current location of user. Fig b) shows Location based service .through this page user can get his current this page user can choose nearby Location. Services like Restaurant, ATM, Hospital, Tourist places.

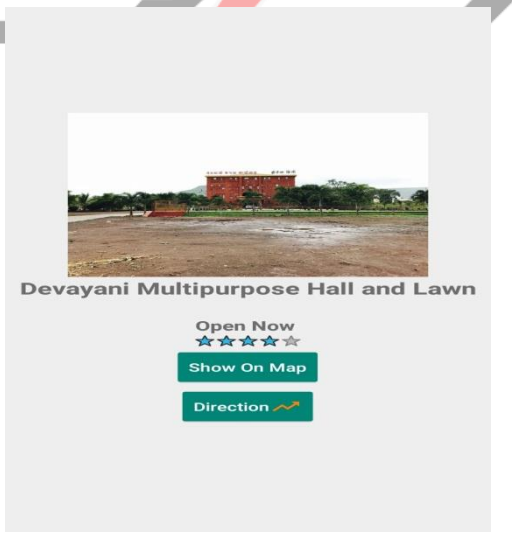

Fig c) This figure shows the detailed information of location based services selected by the user.

VII. Conclusion

We propose and study a problem, namely trajectory search by regions of interest (TSR query), that finds the trajectory with the highest spatial-density correlation to a sequence of query regions. Compared to existing studies of trajectory search by locations, we take the concept of query region and the density of spatial objects into account. This type of query is useful in many popular applications such as trip planning and recommendation, and location based services in general. To compute the TSR query

efficiently, we develop a best-expansion search algorithm that exploits upper and lower bounds to prune the search space and adopts a query source selection strategy, as well as a heuristic search strategy based on priority ranking to schedule multiple query sources. The performance of the TSR query was investigated through extensive experiments on both real and synthetic spatial data.

VIII. Acknowledgement

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References

[1] S. Shang, R. Ding, K. Zheng, C. S. Jensen, P. Kalnis, and X. Zhou.Personalized trajectory matching in spatial networks.VLDB J., 23(3):449– 468, 2014.

[2]] L. Chen and R. Ng.On the marriage oflp-norms and edit distance. In VLDB, pages 792–803, 2004.

[3] C. Guo, Y. Ma, B. Yang, C. S. Jensen, and M. Kaul.Ecomark: evaluating models of vehicular environmental impact. In SIGSPATIAL/GIS, pages 269–278, 2012.

[4] L. Chen, M. T. Ozsu, and V. Oria.Robust and fast similarity search for moving object trajectories. In SIGMOD, pages 491–502, 2005.

[5] Z. Chen, H. T. Shen, X. Zhou, Y. Zheng, and X. Xie.Searching trajectories by locations: an efficiency study. In SIGMOD, pages 255– 266, 2010.

[6] E. W. Dijkstra. A note on two problems in connection with graphs.Numerische Math, 1:269–271, 1959.

[7] E. Frentzos, K. Gratsias, N. Pelekis, and Y. Theodoridis. Algorithms for nearest neighbor search on moving object trajectories. Geoinformatica, 11(2):159–193, 2007