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Robust Approach For Determining Optimal Meeting Location for Mobile User

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Abstract- *Equipped with state-of-the-art smartphones and mobile devices, todays highly interconnected urban population is increasingly dependent on these gadgets to organize and plan their daily lives. These applications often rely on current (or preferred) locations of individual users or a group of users to provide the desired service, which jeopardizes their privacy; users do not necessarily want to reveal their current (or preferred) locations to the service provider or to other, possibly untrusted, users.System perform a thorough privacy evaluation by formally quantifying privacy-loss of the proposed approaches. In order to study the perfor- mance of our algorithms in a real deployment, it has to be implement and test their execution efficiency on Smartphones. By means of a targeted user-study,it attempts to get an insight into the privacy-awareness of users in location based services and the usability of the proposed solutions.*

Keywords*-Faire rendz point,Location system base,Graphical user interface, Convex hull*

I. INTRODUCTION

Finding out the optimal location for the numberof choices is the one type of complicated task for human being in which lots of problems works as aobstacle.for overcoming the such type of problem our system try to find out optimal meeting location usingthe following strong concepts:-

- Finding out the optimal meeting location usingthe Algorithms.
- Google API provides the Longitude,Latitudeconversion.
- Convex Hull Algorithm obtain the optimal polygon from the different nodes.
- CPA Algorithm can be find Area of any polygonand gives the centroid of polygon.

Peoples who are busy in their daily schedules hasnot much more time for discussing the time consuming topics.Business Meeting is one of them, So we motivated for achieving this problem solution with available technology.[2]

- Obtaining polygon algorithms.
- Polygon graphical maths.

II. EXISTING SYSTEM

Computingthe distance between a point and aline segment, the distance between two movingpoints and the distance between two line segments. One difficulty with route planning protocols is therequirement that the device know where it is at,which would seem to require some form of query toa GPS system, but this would reveal the location ofthe device. In 2007, Santos and Vaughn presented a survey of existing literature on meeting location algorithmsand propose a more comprehensive solution for such a problem. The list of participants, the proposed meeting time, likely start locations and possible travel methods are known.[7] The cost function (time, distance, social constraints, etc.) for each per-son to travel to locations are calculated. Although considering aspects such as user preferences and constraints, their work does not address any security or privacy issues. The system, while useful, may be complicated for some users. Automating system defaults when users provide insufficient data from calendars or start points can help, but preferences about times, venues, and travel methods can be complicated even when known. An organizer, or participants who vote, need to evaluate choices andfine-tune results to suit group criteria.

III. PROPOSED SYSTEM

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- CPA Algorithm can be find Area of any polygonand gives the centroid of polygon.[6]

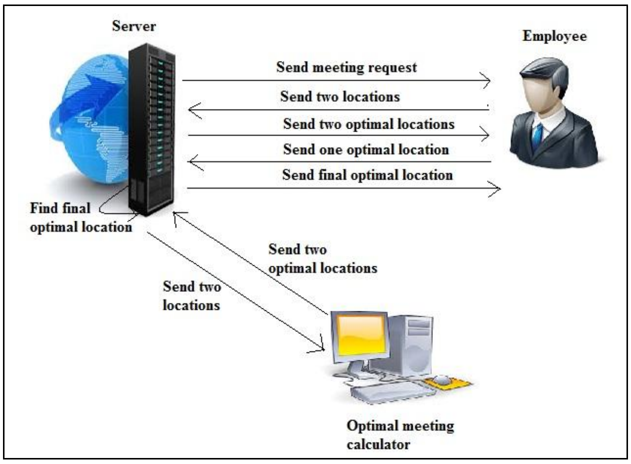
Server
Employee
Send meeting request
Send two locations
Send two optimal locations
Send one optimal location
Send final optimal location
Find final optimal location
Send two optimal locations
Send two locations
Optimal meeting calculator

Figure 1: Architecture diagram

IV.COMPUTATIONAL MODEL

This system find out the optimal meetinglocation for mobile user.In required process we takesthe coordinates for that and performed the polygon. After that we finds out area for that particularpolygon then using Convex hull algorithm system is able to find the optimal meeting location.[4]

Pseudo Algorithm

1. Server send meeting request to employee
2. Employee send to preferable location to server
3. Server uses the convex hull algorithm for obtaining polygon.
4. Server apply the CPA algorithm for obtainingcentroid for polygon
5. Find the OL
6. Send OL through Admin to Employee.
7. Employee chooses the optimal choice
8. Sever finds the OML
9. Employee attained the meeting

Area Calculation

For calculating the area conversion of location from geological to Latitude and Longitude.

$$A = \frac{1}{2}\sum_{i=0}^{n-1}(x_i\, y_{i+1} - x_{i+1}y_i)$$

Centroid Calculation

For calculating the centroid of polygon systemrequires the complete polygon.centroid of polygoncan be outsides the polygon.Centroid id the nearestpoint from the all edges of polygon.The centre of thegravity or centroid of system polygon.

$$X = \frac{1}{6A}\sum(x_i + x_{i+1})(x_i\, y_{i+1} - x_{i+1}y_i)$$

$$Y = \frac{1}{6A}\sum(y + y_{i+1})(x_i\, y_{i+1} - x_{i+1}y_i)$$

$$c_x = \frac{1}{6A}\sum_{i=0}^{n-1}(x_i + x_{i+1})(x_i\, y_{i+1} - x_{i+1}y_i)$$

$$c_y = \frac{1}{6A}\sum_{i=0}^{n-1}(y + y_{i+1})(x_i\, y_{i+1} - x_{i+1}y_i)$$

The centroid for non intersecting polygon is calculated and find out Cx and Cy.

Conversion

1. For the first location given the values in thelist:Lat1, lon1, years1, months1 and days1. Then convert Lat1 and Lon1 from degrees to radians by using,

$$lat1 = lat1 \times (\frac{PI}{180})$$

$$lon1 = lon1 \times \left(\frac{PI}{180}\right)$$

2. Then, convert lat /lon to Cartesian coordinates forfirst location by using,

$$x_1 = \cos(lat1) \times \cos(lon1)$$

$$y_1 = \cos(lat1) \times \sin(lon1)$$

$$z_1 = \sin(lat1)$$

3. Then for first location compute weight (by time).

$$w_1 = (years1 \times 356.25) + (month1 \times 30.4375) + days1$$

If locations are to be weighted equally, set w1, w2 etc. all equal to 1.

4. Repeat steps 1-3 for all remaining locations in the list.
5. Compute combined total weight for all locations.

$$\text{Totwt=w1+w2+w3+.........+}w_n$$

6. Compute weighted average x, y and z coordinates by using,

$$x = \frac{((x_1 \times w_1) + (x_2 \times w_2) + \dots\dots + (x_n \times w_n))}{Totwt}$$

$$y = \frac{((y_1 \times w_1) + (y_2 \times w_2) + \dots\dots + (y_n \times w_n))}{Totwt}$$

$$z = \frac{((z_1 \times w_1) + (z_2 \times w_2) + \dots\dots + (z_n \times w_n))}{Totwt}$$

7. Convert average x, y, z coordinate to latitudeand longitude. Note that in Excel and possiblysome other applications, the parameters need tobe reversed in the atan2 function, for example, use atan2(X,Y) instead of tan2(Y,X).

$$Lon = atan2(y, x)$$

$$Hyp = sqrt(x \times x + y \times y)$$

$$Lat = atan2(z, hyp)$$

8. Convert lat and lon to degrees.

$$Lat = lat \times (\frac{180}{PI})$$

$$Lon = lon \times (\frac{180}{PI})$$

Service Feasibility

System Structure is should provide a historical back-ground of the business or project, a description of the product or service, accounting statements, details ofthe operations and management, marketing research and policies, financial data, legal requirements andtax obligations.[2] System converts the geological location into Latitude and Longitude,It uses the onlinetools for that.Convex hull algorithm works into twomodel,hence system gets the more accurate result for its input.System uses the CPA algorithm for calculating the Area of polygon and centroid of system.[6]

Convex Hull Algorithm

Their are several ways for calculating the polygonfrom the vertices. Convex Hull algorithm is usedfor obtaining the polygon form no of vertices ornodes. The concept of convex hull can be achievedby various method such as Brute force,Grahamscan method etc. Our system uses the clockwise oranti-clock wise method for obtaining Polygon.

Step:-

1. Collect all vertices(x1,y1)(x2,y2)…………(xn,yn)
2. Set all vertices to the CW direction.
3. Set edge < - null.
4. Consider all pair (xi,yi) belong p*p with xi=yi.
5. Put the obtained coordinates to the upper hull.
6. Do i< -3for all vertices (xi,yi).
7. Right most vertex is valid vertex.
8. Append the edge.
9. Repeat step 1 to 3.
10. Put the obtained coordinates in lower hull.
11. Do i <-3 for all vertices (xi,yi).
12. Left most vertex is valid.
13. Append the edge.
14. Obtained polygon.

V. ANALYSIS

Optimal meeting location Application is implemented in Android to observe results of users environment.Some questions studied in the experiments.Thenumber of minimum users for this application. Wholeprocess for system is worked on the server.Admin hasmore designation then the Employee. System mustbe user friendly.

Method

System works on the various algorithm. AES Algorithm is used for Providing privacy. The another Algorithm is Convex Hull algorithm which is usedfor obtaining Polygon.Our project support only NP complete class problem. There are number of employee which are providing the location for the meeting. Each employee provides 2 location according to his convenience, selected locations are send to theserver. This process is depends upon employee number included. Here problem is not able to solve inthe polynomial time, hence this project is under NP complete class.[9]

- No trust. Trust information is not used for uploader selection. An uploader is selected according to its bandwidth. This method is the basecase to under-stand if trust is helpful to mitigateattacks.
- No reputation query. An uploader is selectedbased on trust information but peers do no t requested commendations from other peers. Trustcalculation is done based on SORT equations butreputation (r) value is always zero for a peer.This method will help us to assess if recommendations are helpful
- Flood reputation query. SORT equations areused but a reputation query is good to thewhole network. This method will help us tounderstand if getting more recommendations ishelpful to mitigate at-tacks. A peer may requesta recommendation from strangers.low recommendations with x per centprobability. In the other times, it behaves as a goodpeer.
- Oscillatory. The attacker builds a high reputation by being good for a long time period. Then,it behaves as a naive attacker for a short periodof time. After the malicious period, it becomesa good peer again.

Individual Attackers

This section explains the results of experiments on individual attackers. For each type of individual at-tacker, two separate network topologies are created:one with 10 percent malicious and one with 50 per-cent malicious. Each network topology is tested withfour trust calculation methods. In the experiments, ahypocritical attacker behaves malicious in 20 percentof all interactions. A discriminatory attacker selects10 percent of all peers as victims. Anoscillatory at-tacker behaves good for 1,000 cycles and maliciousfor 100 cycles.[1]

Service-based attacks

Attacks of naive collaborators can be prevented by 60percent or more. Naive collaborators are identified by good peers after the first interaction so they are notasked for recommendations Thus, they cannot praiseeach other with unfairly high recommendations andcannot take advantage of collaboration. Discriminatory collaborators naively attack to victims so theyare quickly identified by the victims. T heir collaboration does not help to launch more attacks than individual discriminatory attackers. Hypocritical andoscillatory collaborators can take advantage of collaboration. They attract more good peers than individual attackers by praising each other. They are not quickly identified since they perform attacks occasionally. Especially in a 50 percent malicious network , SORT performs worst than No RQ method forhypocritical and oscillatory behaviours.[5] In such anextreme environment, misleading recommendationsof collaborators cause a pollution in the recommendation pool and affect decisions of peers negatively. Insuch extremely malicious environments, some trustedpeers might help good peers for finding each other

Recommendation-based attacks.

As in individual pseudospooler's, collaborating pseudospoolers' are isolated more from good peers after every pseudonym change. They get less recommendation requests and thus they can do nearly zerorecommendation-based attacks in 10 per cent malicious network. In 50 percent malicious network, collaborating pseudospooler's can distribute more misleading recommendations since good peers need tointeract with more strangers to find each other.[5]However, these misleading recommendations are stillin a negligible level.

VI. APPLICATION

- File Sharing:Many le peer-to-peer le sharing networks, suchas Gnutella, G2, and the e Donkey network popularized peer-to-peer technologies.
- Content delivery:In P2P networks, clients both provide and useresources. This means that unlike client-serversystems, the content serving capacity of peer-to-peer net-works can actually increase as moreusers begin to access the content . This propertyis one of the major advantages of using P2P net-works because it makes the setup and runningcosts very small for the original content distributor.
- Multimedia:Some proprietary multimedia applications, suchas Skype and Specify, use a peer-to-peer networkalong with streaming servers to stream audio andvideo to their clients
- Education and academic
- Military
- Banking
- E-Commerce

VII. GOALS

1) To decrease malicious activity in P2P system byestablishing trust relations among peers in theirproximity.
2) To create long-term trust relationship amongpeers which can provide a more secure environment by reducing risk and uncertainty in futureP2P interactions.

VIII. CONCLUSION

Here we are providing a unique system which is robust enough to automatically extract resume con-tent and store A trust model for P2P networks ispresented, in which a peer can develop a trust net-work in its proximity. A peer can isolate maliciouspeers around itself as it develops trust relationships
with good peers. Two context of trust, service and recommendation contexts, are dined to measure capabilities of peers in providing services and giving recommendations. Interactions and recommendationsare considered with satisfaction, weight, and fading effect parameters. A recommendation contains therecommenders own experience, information from itsacquaintances, and level of condense in the recommendation. These parameters provided us a betterassessment of trustworthiness. Individual, collaborative, and pseudonym changing attackers are studied in the experiments. Damage of collaboration andpseudo spoons is dependent to attack behaviour. Al-though recommendations are important in hypocritical and oscillatory attackers, pseudospooler's, and collaborators, they are less useful in naive and discriminatory attackers. SORT mitigated both service andrecommendation-based attacks in most experiments.Using trustinformation does not solve all securityproblems in P2P systems but can enhance security and effectiveness of systems. If interactions are modelled correctly, SORT can be adapted to various P2Papplications, e.g., CPU sharing, storage net-works,and P2P gaming. Denting application speciecontext of trust and related metrics can help to assess trust-worthiness in various tasks.

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