AN EFFECTIVE AND PROMPT SERVICE SYSTEM TO COLLECT PUBLIC GRIEVANCES USING KNN ALGORITHM

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Abstract : This is study an effort is produced to recommend the android application which gets the public grievances in the municipal corporation areas. Additionally, the paper could gift and talk about town project. This system gives a facility to enroll one's query and follow it up. It is use camera modules which can help to take snapshot or picture of any issue that person is facing and upload its pictures along with the complaint. The locality of complaint is traced by Global Positioning System (GPS) unit automatically. So, this study trying to made a propose the Smartphone applicable apps more transparent to the people in the municipal corporation area. Furthermore, the paper presents and provides the appropriate solutions and practical oriented guidelines of Smart City project. [1]

Key Words : Android Smart Phone, Alert Message, GPS, Hour sine Formula, KNN Algorithm, Management

1 INTRODUCTION

Facility has moved a website called Praja-vanifrom that open will publish the requests or complaints inside the website and find the comprehended and extremely irrelevant time that could combined get a handle on the remaining of the protestation or attract he has understood up at any instance. [13] Towards the start telephones were basically used for business or messaging. Presently a-days, the situation has different. Currently, day and additional focus is offered on the access of the internet and result exploitation different applications reveal inside the android markets.[14] The prime focus of a town depends on upon its improvement of surrounding area, freshness air, hygiene of the roads and interests at sand basic its surrounding area. [2] Persons which are stay in urban should be constrained to feel the sick impacts of different reasons if the situation raised randomly. It will afford a public to carry his objections and complications to municipal authority as well as let the municipal authorities to report the difficulties in a small period. Essentially it occurs that individual stands by for contrasting alternative to call that results in misuse of time.[9]

2 IMPLEMENTATION

Customer can take a picture from its smartphone of garbage or dirty place on road and assigned priority to it grievance, then registered grievance by bringing on the information. The registered information will be at main desk area. Then system will divide by accept objection or denied. After that grievance can move to sub deck area,sub desk area will work on to that ,arrange all the complaints of the customer

with their priority which is given by customer. After this sub deck forward the information to service provider as per priority assign by customer. When service provider work on to that complaints they are given response message to customer against their complaints [12].Also, in this project, user able to know the graphical format of complaints. In proposed system, user can see his\her status that whether his\her complaint is arising or not. So, this project provides more accuracy and user feasibility.[3]when a client enters are cord question first time, the frame work can search that doc in unstructured super-peers database and impact that doc ask for bloom filter. If any record are similar which is comes more than three times we have set threshold value i.e framework make the again work on to that demand record and makes the emergency group. so it is easy for searching that record when any customer wants to check the status of their record because that documents groups into emergency group. [1]

2.1 Complaint Section

2.1.1 Garbage Part

In This section, the complaints related to garbage are stored. Then Garbage related complaints are divided according to area with the help of main desk, sub desk and service provider.

2.1.2 Water Part

In this section, the complaints related to water are stored. Then the complaints related to water part goes to water part service provider with the help of higher authorities.

2.1.3 Electricity Part

Electricity related complaints are gathered here. Then the complaints are divided according to above Process i.e. complaints divide according to the higher authorities.

2.1.4 Road Part

The process of this section occurs same as the process of above parts.

2.2   Status Section

The people can see the status of number of complaints in graphical format as well as it gives user request status. The status is explained in the 3.2.1 and 3.2.2 section. User can see whether their complaints are reached at main desk or not.

3. SYSTEM ARCHITECTURE

This architecture is used to get the public grievance of the area.The working of this architecture is partition into User, Main Desk, Sub Desk, Service Provider, Commissioner, Corporator. Initially, registered user will capture the picture of his/her grievance of the area and set priority to grievance and enroll the grievance by bring in on the data. In this user act as the request generator. When User will capture the picture of the complaint/request at that instant location of the area will fetch automatically[7].At Server side ,Main Desk will receive the User's request/complaint. If The enrolled protestations will be at main desk area here the object on are partitioned by and refuse division. As of now the grievance can move to sub desk area will sort the query of the customers solved with respect to the priority assign by them. Some region wise data can be forward to the service provider as per priority assign by customers. The service provider provide solution for that Garbage and dirty place problem [12].

At that point react message is given to client. If more than two people send the same request/complaint, then the main responsibility of the main desk is to combine the same requests/complaints. Itcombines the same request/complaint using *KNN algorithm*. Main Desk will give priority to the complaints. If first request/complaint is more important Than the first request/complaint. After this, Main Desk will forward the request to the sub desk.

Complaint Details About Garbage Request

Sr. No	SR Id	Type	Request By	Priority	Area	SR Raised Date	Attach.Count	Image	Action
1	Not_generate	Garbage	kshitija	2 Change To 1 Change To 3	Akurdi	25/04/2017	1		Send TO SubDesk
2	Not_generate	Garbage	nilesh	1 Change To 2 Change To 3		30/05/2017	2		Send TO SubDesk

Fig.1. Complaint details about User Request and main desk send user request to sub desk

The K-nearest-neighbors (KNN) algorithm measures the distance between a query scenario and a set of scenarios inthe dataset. We can compute the distance between two scenarios using some distance function, where are scenarios composed of features.Euclidean distance measuring:

$$d_E(x,y) = \sum_{i=1}^{N} \sqrt{x_i{}^2 - y_i{}^2}$$

3.1 Algorithm for Distance functions

Considering absolute and Euclidean distance functions.
- Customer raised ServiceRequest
- Get confirmation on SRnumber
- Capture Longitude and Latitude from the SR.
- Compare the distance from point represented by Longitude and Latitude of new SR with all of the open SR in Garbageor Road Network Queue using Euclidean distance measuring formula.
- Check the distance from new Sr point to respective open SR points falling within20mtrs
- If within 20 meters, then attach the SR to the existing open SR falling within20mtrs
- If not within 20 meters, then it will be a new SR in queue In above formula i- is the SR number open .

Xi – is the Longitude of ith SR and Yi – is the Latitude of ith SR.

X – is the Longitude of New SR and Y – is the Latitude of New SR. N – is the number of open SR

Sub Desk identifies the type of requests/complaints i.e. it identifies whether it is garbage request or road complaint. As well as sub desk identifies the area from where request is raised. According to area sub desk identifies the service provider and sub desk forwards the request/complaint to the service provider.

Sr. No	SR_Id	Request By	Type	Priority	Area	SR Raised Date	Attach.Count	Image	Status
1	SC-201700201	nileshh	Garbage	3	Bhosari	25/04/2017	0		Complete
2	SC-30-10-2017 16:27:4836-18	tejas	Electricity	3	Pune	30-10-2017 16:27:48	0		Send To Service Provider
3	SC-30-10-2017 18:32:2537-18	tejas	Electricity	1	Pimpri	30-10-2017 18:32:25	0		Waiting

Fig.2. Complaint sub desk details about user Request and send user request to service provider

The working of service provider is as follows: a) Service provider will receive the requests/complaints forwarded by sub desk. b) Service provider will add the request in the queue if the request does not already exist. c) If the request is already existing and if it is already solved the all similar request will have close by service provider d)Service provider will give feedback to the user.

2.3 Complaint Representation

3.2.1GraphicalFormat

The role of commissioner and corporator is to see the graphical number of complaints that is to see whether user complaints are arise or not.Complaint Life cycle includes arise, initialize, waiting, accepted, closed. In the arise state user will send their question the main desk.In the initialize state maindesk will initialize and will receive he requests/complaints from the arise state. In waiting state sub desk will forward the request on the service provider. If service provider doesn't take any action, then it will fall into the waiting state.In accepted state service provider will check whether the request is already existing or not. If not, then the request will be accepted. Closed state is nothing but solved complaints.
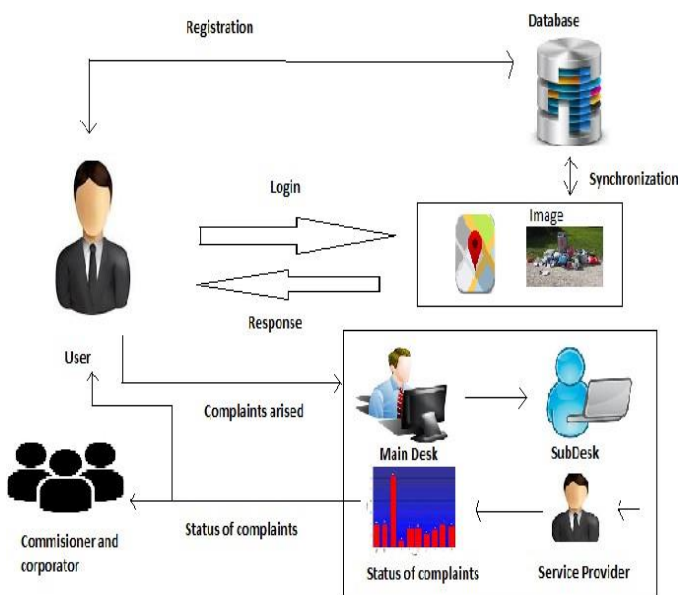

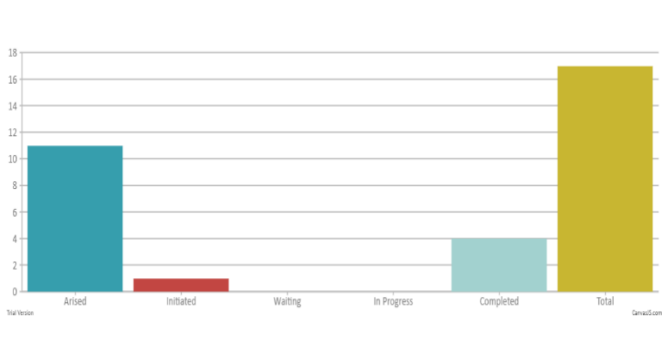**Fig.3. System design of effective service system to get public Grievance**

Fig.4. Complaint sub desk details about user Request and send user request to service provider

3.2.2 Status of UserRequest

Sr. No	Request By	Priority	Area	SR Raised Date	Attach.Count	Image	Status
1	Shweta	3	Bhosari	25/04/2017	0		Complete

Fig.5. Status of User Request

User can see the status of their complaints means they can check whether their complaints are arising or not.

3.3 Mathematical Model in System

Let System V= Android Application.
System V= {V, T, C, R, P, D}
   Where,
   V={GPS}.
   D = function
   T={T1
, T2}
   Where,
   T1=IE-> smart distance is distance between source and destination.
   i.e. I1= {Initial , End}
   T2=GR→garbage road is the image of the garbage or the damaged road with priority.
   i.e.
I2={Picture,Prio}
C= Number of customer.
   C= {C1, C2 . . . Cn}.
   R= output
   D1= T2->R1
   R1= {Phone no., Address, Map, Distance, Reviews} D->Cal n;
   Let
F(M)= Cal(i)
Where, limit
0 to n Cal= {Dist.}
   Where Dist.= Destination.
   T2 = {Initial, C1, C2, C3,..,Cn}
   Where C is the customer.
   C< Cn;
   Dist. = {D1, D2, D3,---,Dn}
   Source = distance [initial]+ $\sum n1 distance$

   $\sum n1$ C1 = initial Between [source, C1] P is the procedure:

Step 1: firstly, customer open android app from their registered mobile phone then it will show prompt, customer tap any.
Step 2: after getting message system will work on to the message and identifying customer locality or area
Step 3: customers can select one locality from that apps and send the message to that area.
Step 4: after that response message is given to customer from the server. Suppose customer do not got any response message then complaint will not close until feed given to customer.

4   CONCLUSIONS

In this study customers can be take pictures of the garbage, dirty places, any misplace garbage etc. The application will be identifying the current area or place where the picture is taken. Input image will be sent to respective authority to that particular regions. This system will helpful to the customers with huge usage of solutions given by municipal corporation inside a space.

Future work we will develop application for smart phone users. This system could be usage for various other objective like catastrophe management, fire emergency system etc.

REFERENCES

[1] M. Dohler, I. Vilajosana, X. Vilajosana, and J. Llosa,"SmartCities:Anactionplan,"inProc.BarcelonaSmartCitiesCongress, Barcelona, Spain, Dec. 2011, pp.1–6.

[2] T.Nuortio,J.Kytöjoki,H.Niska,andO.Bräsy,"Improved route planning and scheduling of waste collection and transport," Expert Syst. Appl., vol. 30, no. 2, pp. 223–232, Feb.2006.

[3] Vaidyanathan Ramadurai, Mihail L. Sichitiu. Localization in Wireless Sensor Networks: A Probabilistic Approach. Proceedings of the 2003 International Conference on Wireless Networks ,pp 275-281,2003.

[4] L. Atzori, A. Iera, and G. Morabito, "The internet of things: A survey," Comput. Netw., vol. 54, no. 15, pp. 2787–2805,2010.

[5] H. Schaffers, N. Komninos, M. Pallot, B. Trousse, M. Nilsson, and A. Oliveira, "Smart cities and the future internet: Towards cooperation frameworks for openinnovation,". The Future Internet,Lect.NotesComput. Sci., vol. 6656, pp. 431–446,2011.

[6] J. M. Hernández-Muñoz, J. B. Vercher, L. Muñoz, J. A.Galache, M. Presser, L. A. Hernández Gómez, and J.

[7] N. B. Priyantha, A. Chakraborty, and H. Balakrishnan, "The cricket location-support system," in MobiCom '00: Proceedings of the 6th annual international conference on Mobile computing andnetworking.NewYork,NY,USA:ACMPress,2000,pp.32-43

[8] Pettersson, "Smart Cities at the forefront of the future Internet," TheFutureInternet,Lect.NotesComput.Sci.,vol.6656,pp.447– image to send message on framework.462, 2011.

[9] AndreasKamilarisandAndreasPitsillies"MobilePhone Computing and the Internet of Things: A Survey"IEEE VOL. 3, NO. 6, DECEMBER 2016885.

[10] A.R.AlAli,I.Zualkernan,andF.Aloul,"A mobile GPRS- sensors array for air pollution monitoring,"IEEE SensorsJ.,vol.10,no.10,pp.1666–1671, Oct.2010.

[11] W. Kastner, G. Neugschwandtner, S. Soucek, and H. M. Newmann, "Communication systems for building automation and control" in Proc.IEEE, Jun.2005, vol.93, no.6,pp.1178–1203.

[12] N. Bui and M. Zorzi, "Health care applications: A solution based onthe Internet of Things, " in Proc .ISABEL , Barcelona,Spain,Oct.2011,pp. 1–5.

[13] P. Castellani, N. Bui, P. Casari, M. Rossi, Z. Shelby, andM. Zorzi, "Architecture and protocols for the Internet of Things: A case study," in Proc. 8th IEEE Int. Conf. Pervasive Comput. Commun. Workshops (PERCOM Workshops), 2010, pp. 678– 683.

[14] E. A. Mulligan and M. Olsson, "Architectural implicationsof smart city business models: An evolutionary perspective," IEEE Commun. Mag., vol. 51, no. 6, pp. 80–85, Jun.2013.