Effective Usage of Traffic Detection System

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Abstract—Effective usage of Traffic Detection System is mainly used for the End-users Travelling Traffic guides with reminder facility. The application can have the Location and the traffic based reminder function for the effectively for the End-users. The applications can access the Google map facility and they can be set the Destination location to travel from one place to another place. The reminder includes the Traffic Details with location radius. The Radius can be used to denote the location if nearby reaches it. For the End-users they can have the facility to guide the map after the reminder executed with current location and the destination location to reach on it. In the system for the time reminder feature we have using the vibrator service to alert the details of the user's location to the available routes. In this project the main aim is to find traffic level in our route which being travelled by user and if the traffic level is going to high the application will alert the user to know about it. These applications also can able to find the possible routes to reach destinations also.

Keywords-*Google Map, End-users, Routers*

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I. Introduction

Principles that organizations use to monitor network traffic go into their networks must be applied to the network traffic originating from mobile devices. This means that the techniques and tools, which would normally be used to collect and analyze network activity, can also be used to detect anomalous network traffic or network intrusions related to smartphones. This paper will therefore outline an architecture model, which can be used to analyze the network communications originating from Android devices and to detect any unusual traffic.The life of the passengers is one of the factors involved, hence the critical importance of securing VANETs against any kind of attacks they can undergo. Compared to MANETs, VANETs present many other constraints such as the high mobility of nodes, the network topology changing and the short times of connection[1]
As part of the exercise, a set of several tests involving real malware will be executed to gauge the effectiveness of said architecture. In addition to that, the aim of the exercise is to improve the detection mechanisms of the engine by creating new signatures to detect specific threats. Lastly, it will define incident-handling steps, which can be used to combat 0-day malware and known malware for which no signatures exist. In order to detect possible intrusions or any unusual patterns, several techniques have been used in the past. These techniques include packet capture tools and Intrusion Detection Systems (IDS). With the development of mobile platforms like Android, BlackBerry orIOS – to name but few, the concept of Local Area Network has changed immensely.

Nowadays, any employee can use a smart phone to connect to his company's network when performingsuch trivial tasks as checking email or accessing shared resources [9]. As a consequence of this, there are new attack vectors which can be used to compromise corporateinfrastructures. I already touched upon this subject by discussing a number of techniques which could be used to improve the security of Android devices[2]The aforementioned paper explains how to implement network filters for Android devices to enforce corporate security policiesThis paper will go further and it will demonstrate how to implement a network architecture that allows detailed smartphone traffic monitoring detect an unauthorized connection or a compromised device.

The traffic will be captured in real time, thus allowing forensic analysis in case there is an incident.Traffic Detection System is an Android application that aims at determining the behavior of traffic in a particular location. It calculates the speed of the vehicle and the level of congestion or the amount of traffic is determined on the basis of the values of sensors. The main aim is to improve road safety and driving conditions. The automakers have realized the potential of the interconnection of their vehicles. To broaden the perception of recognition events that cannot be detected by traditional sensors or by the conductor, embedded sensors were introduced. Critical driving conditions can be detected and the information may be shared with nearby vehicles. To share this information, vehicles establish a spontaneous network, known as Vehicular Adhoc networks (VANETs), using a direct mode of communication between vehicles called Inter-Vehicle Communications (IVC) [6].

The Latitude, as well as the longitude of the location where traffic jams are formed, is sent to the friends of the user. The Goggle map of the location also sends to the friends. It uses the SMS Manager a functionality of Android. The friends receiving the messages will thereby avoid taking the congested route and hence the level of traffic on the congested road will decrease, and the friends will reach the destination in comparatively less time. Traffic Detection System aims at the early detection of trafficcongestion [8]. The entire solution requires only a Smartphonehaving Global

Positioning System and good networkcoverage. The program installed on the mobile computesspeed based on sensor readings and compares them with predecided values of the counter and the speed limit in traffic congestion.

Route search applications different users have different search goals. To represent the needs of user information sometimes the search goals does not exactly represent user's specific informationthe contacts on social networking sites can also begetting the alert messages[7]. Android is a software package and Linux-based operating system for mobile devices such as tablet computers and Smartphone.. Android technology is based onJava software applications. This technology requires the use of a special software development kit (SDK) to create applications for an Android device.

Google Play, formerly known as theAndroid Market, is a digital application distributionplatform for Android and an online electronics store developed and maintained by Google. The service allows users to browse and download music, magazines, books, movies, television programs, and applications published through Google. Users can also purchase Chrome books and Google Nexus-branded mobile devices through Google Play.*GPSTracking*-TheGPS module calculates the geographical position of the vehicle. This helps in detecting the location/position, velocity of our system. The module output data like global positioning system fixed data, geographic position-latitude are passed to GSM Modem [5].

II. RELATED WORK

Real-Time Traffic Information Management using Stream Computing with the widespread adoption of location tracking technologies like GPS, the domain of transportation information management has seen growing interest in the last few years. In this paper, describe a stream processing infrastructure for processing large volumes of sensor data in real time to derive useful traffic and travel planning information. Have used this infrastructure to process floating car data for the city of Stockholm in real-time[3].

Our findings show that there is a great need for real-time traffic information management because of the tremendous variability in traffic conditions in a city like Stockholm. Also, our stream processing infrastructure can help meet this need by supporting the development of applications that can process large volumes of GPS and other data on a distributed cluster of machines. Intelligent Transportation Systems (ITS) have brought many advances in the transportation management field. An important development is the emergence and installation of sensor technologies for the collection of various types of data on the state of the transport system. Highlight some of our findings on traffic variability in the city of Stockholm.

Finding routes in other problem needs of Specific information different users may want to get information on different aspects when they submit the same query. Use lot for different queries, finding suitable predefined search goal classes is very difficult and impractical. To overcome these problems, User search goals can be used. It defines the information needed for a query.

Vehicle Tracking, Monitoring and Alerting System- The goal of this paper is to review the past work of vehicletracking, monitoring and alerting system, to categorize various methodologies and identify new trends. Vehicle tracking, monitoring and alerting system is challenging problem. There are various challenges encounter in vehicle tracking, monitoring and alerting due to deficiency in proper real time vehicle location and problem of alerting system. GPS (Global Positioning System) is most widely used technology for vehicle tracking and keep regular monitoring of vehicle. The objective of tracking system is to manage andcontrol the transport using GPS transreceiverto know the current location of vehicle. In number of system, RFID (Radio Frequency Identification) is chosen as one of technology implemented for bus monitoring system. GSM (Global System for Mobile Communication) is most widely used for alerting system. Alerting system is essential for providing the location and information about vehicle to passenger, owner or user[4]

III. PROPOSED ALGORITHM

Integrated android application based on location informationUser is alerted to location for finding traffic level before reaching that placeSearch function using location information of the route. Which allows us to find possible routes available

A. *Design Considerations:*

- Identify source and destination path v.d[s]=0 & d[v]=∞
- Turn on GPS&get current position for source node in form of coordinates calculate distance
- Keeping track of all paths.
- Considered all possible paths at beginning
- Identify different shortest path. If the temporary node linked to s that has lowest weight.
- Get position of that node by GPS & calculate distance
- Based on information in status record do until reach

B. *Description of the Proposed Algorithm:*

Proposal of an integrated android application based on location informationresultsit is allowed the passengers to make travel guide alsoUser is alerted to location for finding traffic level before reaching that place.Search function using location information of the route. Which allows us to find possible routes availableDisplaying search on the screen.User can get more possible or different possible routes from traffic location. Travelling will give more safe by the means of pre analyzed traffic level

In this paper, we use the current position in the Dijkstra's algorithm using GPS. From this position we calculate the distance from source to that position. In this we find a shortest path from a sources to others vertices v in a graph. GPS is a

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satellite based system that is used in navigation, tracking & mapping application.

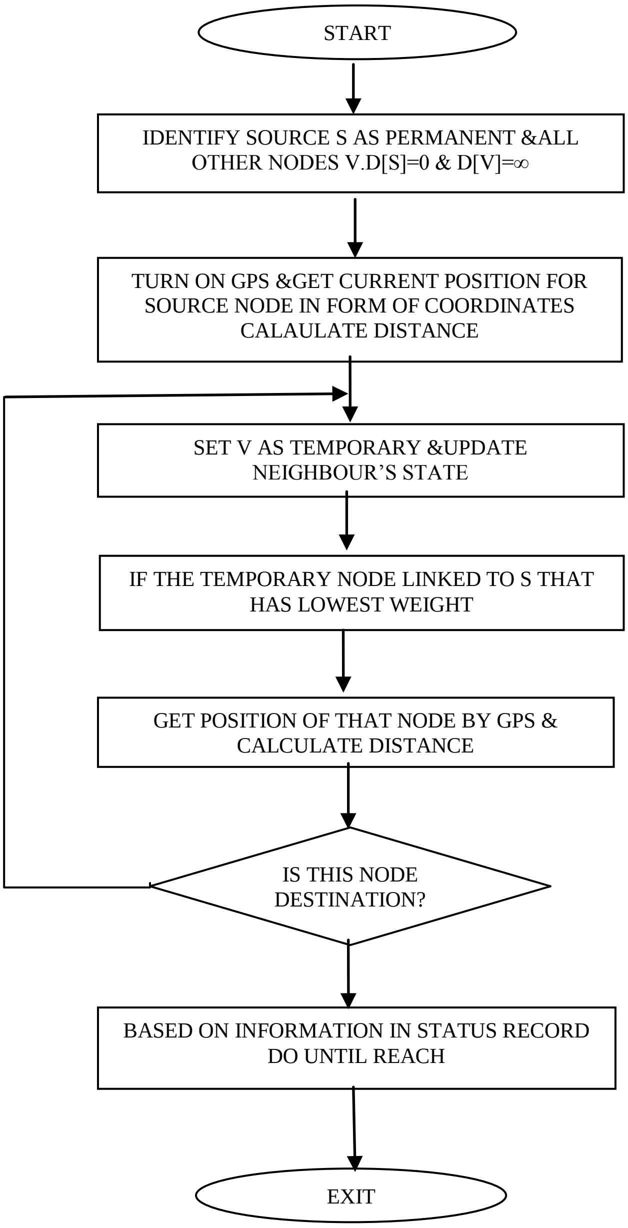

*Figure 1.*Data Flow Diagram

In this paper we use the concept of GPS in Dijkstra's shortest path algorithm for getting the current position of the nodes in the graph. We proposed a model & an algorithm for this. The concept developed is focused on one of the most well known shortest path algorithm: the Dijkstra's algorithm. Although the latter is sufficiently efficient for small network like a city sized one, its running time for country size or continental size geographical maps is prohibitive for real time application.

The Dijkstra algorithm is comprised of the following 5 steps:

Step 1:The process starts from node. Since the length of the shortest path from node a to node a is 0, then $d_{aa} = 0$. The immediate predecessor node of node a will be denoted by the symbol + so that q_a= +. Since the lengths of the shortest paths from node a to all other nodes $i \neq j$ on the shortest path are unknown, we put q_i = - for all $i \neq a$. The only node which is now in a closed state is node a. Therefore we write that c = a.

Step 2: In order to transform some of the temporarly labels into permanent labels, we examine all branches (c, i) which exit from the last node which is in a closed state (node c). If node i is also in a closed state, we pass the examination on to the next node.

If node i is in an open state we obtain its first label d_{ai} based on equation:

$$d_{ai}=min\,[dai,dac+\ l\,(c,i)\,] \qquad (1)$$

in which the left side of the equation is the new label of node i. We should note that d_{ai} appearing on the right side of the equation is the old label for node i.

Step 3: In order to determine which node will be the next to go from an open to a closed state, we compare value $d_{ai}$for all nodes which are in an open state and choose the node with the smallest d_{ai}. Let this be sdme node j. Node j passes from an open to a closed state since there is no path from a to j shorter than d_{aj}. The path through any other node would be longer.

Step 4: We have ascertained that j is the next node to pass from an open state to a closed one. We then determine the immediate predecessor node of node j and the shortest path which leads from node a to node j.
We examine the length of all branches (i, j) which lead from closed state nodes to node j until we establish that the following equation is satisfied

$$d_{ai}\ -l(i,j)=d_{ai} (2)$$

Let this equation be satisfied for some node t. This means that node t is the immediate predecessor of node jon the shortestpath which leads from node a to node j. Therefore, we can write that q_j = t.
Step 5: Node j is in a closed state. When all nodes in the network are in a closed state, we have completed the process of finding the shortest path. Should any node still be in an open state, we return to step 2. D(I,j)

C. *Usage and Implementations:*

To test the theoretical foundation of ETDA , a sample RM planner with support for artificial potential biased sampling was implemented. Pseudo code for the ETDA planner is outlined in algorithm

Algorithm:
Step1:INITIALIZE d[s]=0 for all vcV{S},where S as source, V as set of vectices

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Do d[v]=∞ //set all node's distances to ∞ excepts
Step2 :get the current position(x1,y1) of source node from GPS.
Source_X=X1;
Source_Y=Y1;
Dist=0;
Step3 : S is the set of visited vertices.
setS =φ // S is initially empty
Q=V // Queue initially contain all the vertices
While Q≠φ // While Q is not initially empty

Do U= mindistance(Q,d) //select element of Q with min distance.
S=S ʋ {U} //add U to the list of visited vertices

Step 4 :Get the position (X2,Y2) of the visited nodes from GPS
Current_X=X2;
Current_Y=Y2;
Distance=√(X_2-source_X)2+(Y2-source_Y)2
Dist=distance+dist
Pervious_X=X2;
Pervious _Y=Y2;
Step 5 : For all vc Neighbors[u]
Do if d[v]>d[u]+w[u,v] // if new shortest path found
Then
d[v]=d[u]+w[u,v]
Shortest path if desired then track back
Return dis.
Step 6 : Get the position (X2,Y2) of the visited nodes from GPS
Current_X=X2;
Current_Y=Y2;
Distance=√(X_2-source_X) 2+(Y2-source_Y)2
Dist=distance+dist
Pervious_X=X2;
Pervious _Y=Y2;

The world is modeled as a uniform and variable resolution grid with the world coordinates normalized, i.e. x, y, z ∈ [0, 1]. A World object begins by loading a bitmap image representation of the world where the obstacles are marked by a 1 and the free space is marked by a 0. Once the world representation is loaded the World object computes and stores φN . The World class provide access to the partial potential for points in W (truncated to the nearest grid point) and a function that tests if a point in W lies in Wfree. A RoadMap object is provided with a list of nodes and a start and goal configuration. It begins by building the roadmap graph. All nodes, including the start and goal nodes, are inserted in an array and are provided with a unique hash key for efficient reference. In addition all nodes are provided with pointers to their adjacent nodes.

The complexity of building the graph is O (n log (n)), where n is the number of nodes in the roadmap. However, building the roadmap is a parallel process and can thus take advantage of multiprocessor machines. Once the graph is built, the RoadMap object can be queried for a solution to the path planning problem. The graph is now search for the shortest possible solution path using Dijkstra's algorithm. Dijkstra's algorithm has O ((e + n) log (n)) complexity, where e is the number of edges and n is the number of nodes in the roadmap. Better algorithms that use a heuristic to guide the search, such as A* search, exists, but were not used because the behavior of a complete algorithm is easier to understand and analyze. Once a path is found, it is checked for validity.

The collision checking from is used for high efficiency. If the path is valid the planner is done, if not the edges and nodes found to be illegal are removed and the graph is searched again. This is repeated until either a solution path is found or the goal and start configurations get disconnected. If the goal and start configurations get disconnected the planner reports failure. No enhancement step is implemented at this stage

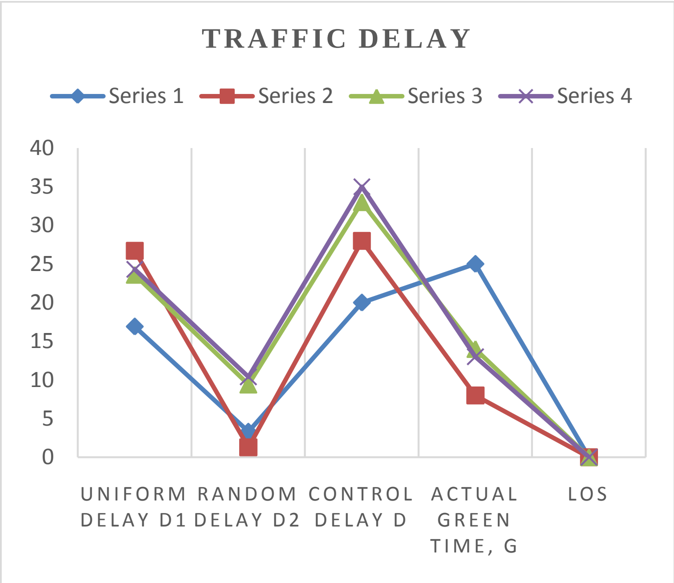

Figure 2. Traffic delay level

IV RESULTS AND DISCUSSIONS

Once the traffic level alerted the user the application will allows us to find the different possible routes from the user current location. The route directions and detection from the user current location is enable the user to find the way or location timing and distances and also the to know about what are the different routes available to reach destination with minimum effort that is short route selection. In this application the user gets the information about the possible routes between the source and destinations from the Google server with the developers Key and the details provided in the development console.

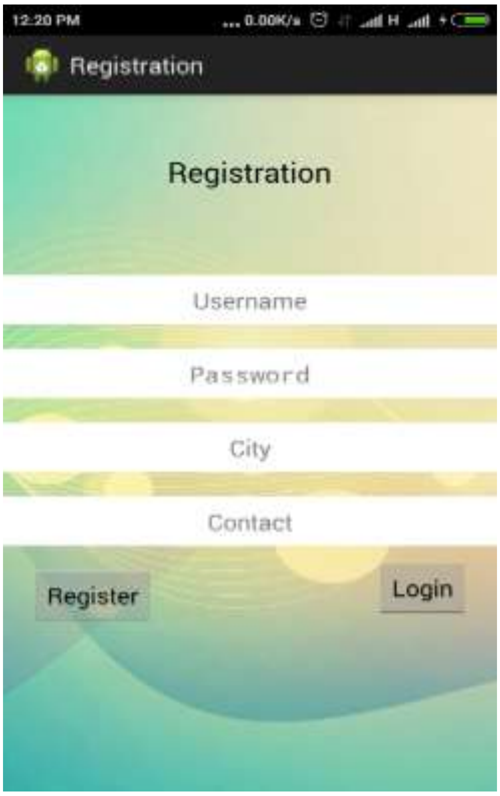

Figure 3. Registration for find routes

Figure 4. Given details for Registration

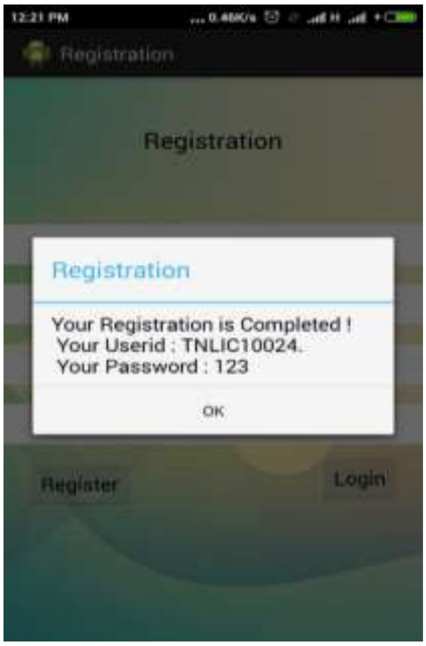

Figure 4. Registration Completed

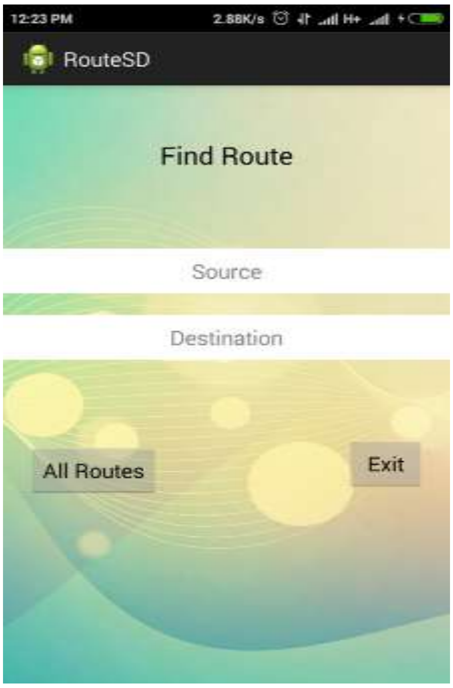

Figure 5. Set location for finding Routes

V Conclusions

Nowadays, Road traffic is a very big issue for the maintenance of road traffic for the nation. This work identified an important smart phone monitoring system to avoid such traffic and effective driving the monitoring system developed by using sensor in the smart phone with help of accelerometer, magnetometer and GPS. The classification machine learning techniques is all so used for the application annotation.

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