

Lone Traveler Security

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ABSTRACT

Most of the people become a victim to crime or harassment only when they travel alone i.e. when their location cannot be identified immediately to send aid. Thus, the best way to aid the victimized people is to identify their current location and send in help situated nearby. Our proposed system's objective is to help lone travelers to be safe and secure. Before any travel the user may input their destination as well as the mode of transport, the app estimates the time of travel. It also studies the user movement, the speed, etc. Whenever the estimated time gets exceeded or whenever there is a change in this behavioral pattern, a warning notification is sent to the user. If the user responds, no action is taken else the nearest police station and the patrol squads are notified. Thus a safety mobile application to minimize the risks of travelling alone can be designed.

Keywords: Tracking System, GPS, Location, Automatic Emergency Notification

I. INTRODUCTION

Now days, the connectivity between people is on the increase. This is due to the development of various technologies that enable people to get connected to each other with a single click. But in some cases, this technology is yet not developed fully to help people in dire situations. People travelling alone may be victimized to many crimes like robbery, assault or harassment. Many tracking systems are now available and many more on the developing stage. Each one better than the previous one.

The statistical reports show that the crime on lone travellers is still on the increase. This is due to the fact that location of the incident is not easily identified.

In this model a simple and yet an efficient model for tracking is devised. Efficiency is developed by automatic notification in case of deviations from normal patterns or in abnormal conditions that will be discussed later in this paper.

II. METHODS AND MATERIAL

MOTIVATION

The Model was based on the statistics of crimes that were reported against people travelling alone. The crimes like stalking, robbery, sexual assault and murder are on the increase and they usually have people travelling alone as their Victims.

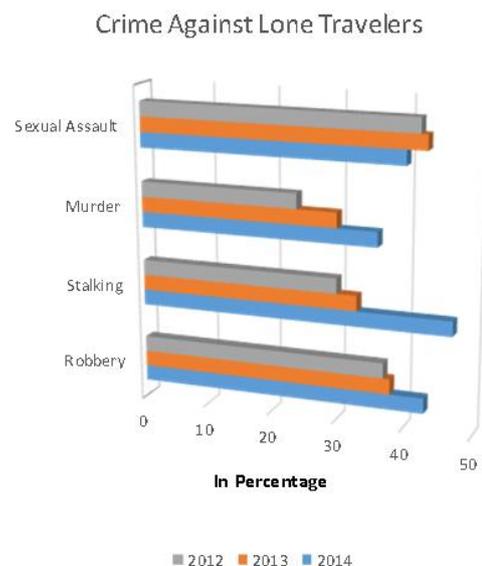


Figure 1: The rough statistics is represented through bar chart

This serves as a proof to support the lone traveler security issues and thereby stresses the importance to provide a simple and efficient mobile application to deliver security to people travelling alone.

THE BASIC MODEL

In this paper, we have formulated and designed a basic model for this problem. This can be implemented as a simple mobile application which can be discussed in the next section.

The User must login into the application and input their destination and mode of transport before the journey. Then the Application calculates the necessary time to reach the destination from the starting point. During every journey's start, the server is notified. A message will be sent to the user in periodic intervals from the server to maintain connection state.

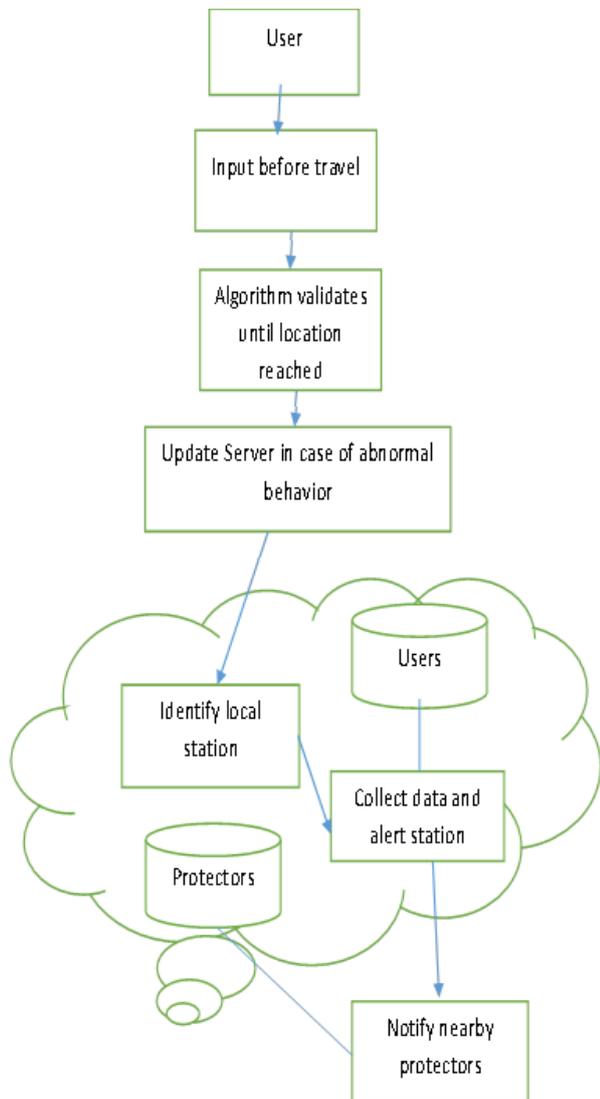


Figure 2: Protectors mentioned in the architecture diagram are normally police squads and night guards.

The application will read the user's behavioral pattern and any deviations in this pattern can be identified using simple background processes. When this deviation occurs, the application sends an alert message to the user. If the user responds, no action will be taken else an alert message including the current location will be sent to the nearby police squad in order to provide help to the user.

The basic overall system architecture of this model is given below in the Figure 2

III. RESULTS AND DISCUSSION

The basic model can be implemented as a mobile application with enhanced security and authenticity. This implementation can be gone through in a stage-wise method as follows.

A. User Registration

The User must install the application in their mobile devices. They must register by providing their name, address and other personal details. The authenticity of the information provided must be verified by asking the user to submit scanned copies of ID proof, Address Proof etc.

B. The Start of the Travel

The user must input the destination into the application before starting the journey. The application will calculate the estimated time at which the user will reach the destination.

The efficiency of calculating the total travel time is increased by taking into account other additional criteria like the mode of transport, route taken.

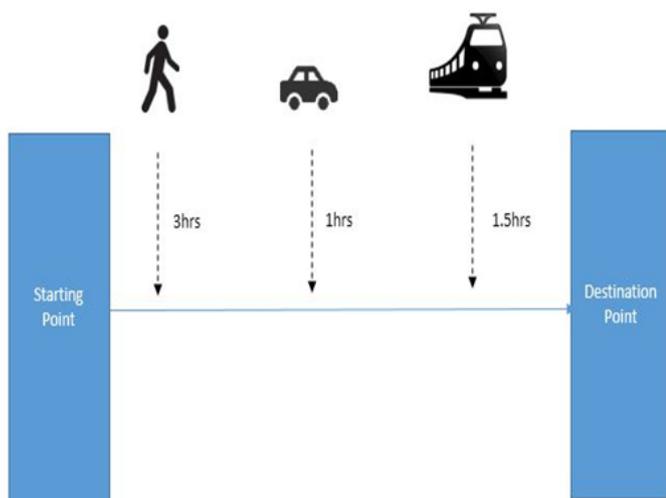


Figure 3: Change in the mode of transport

This is due to the simple fact that change in the mode of transport or the route taken will change the time taken to reach the destination rapidly as shown in Figure 3

C. Behavioral Studies

The user behavior is studied continuously. The patterns are monitored and appropriate action is taken depending on it. Whenever there is a deviation in these patterns the server gets updated with the abnormal behavior.

D. Notification System

At the end of the calculated time of the journey, a message is sent to the user. If the response is obtained, no further action is taken. Else, the protector (the police squad) is notified.

In other cases, whenever the abnormal behavior of the user gets updated in the server, a warning message is sent to the user. If proper response is obtained, there will be no further actions else the protectors are notified.

If the User wants to voluntarily notify the Police Squad and the protector, a SOS button is provided. This button can be pressed by the user to notify the protector.

E. Protector Notification

Whenever abnormal patterns, time lapse or voluntary SOS button is pressed, the location of the User is identified using GPS. Then the location is compared with the locations of all available protectors. The nearest protector(s) is notified and alerted. In this way, the help can be provided quickly.

IV. CONCLUSION

Thus this tracking model of mobile application can help in safeguarding the travelers traveling alone. We have proposed a formal model for detecting crimes that occur to people who travel alone by using simple background processes by validating abnormal behavioral pattern and notifying authorities at the earliest

The main advantages of this system can be listed as

- Possible Crime prevention/detection
- Low cost
- Quick notification when crime occurs
- Provision of Voluntary as well as Involuntary help Request

This mobile application can be practically used in day-to-day scenarios where women go to late night shifts or have to travel to the work place alone.

The above discussed model is simple, efficient and also cheap in comparison with other models. This also checks the user's authenticity and reliability of the proposed system is improved.

V. REFERENCES

- [1] Akinode 1.1., Alawode A.J. and Ojuawo 0.0., "Improving National Security Using GPS Tracking System Technology," Proceedings of the 1st International Technology, Education and Environment Conference African Society for Scientific Research (ASSR), Ogun State, Nigeria, 2011.
- [2] Al-Bayari, O., B. Sadoun, "New centralized automatic vehicle location communications software system under GIS environment," International Journal of Communication Systems, Vol 18, Issue 9, April 2005, pp. 833-846
- [3] Deepak Punetha, V arthika Mehta "Protection of the Child/ Elderly/ Disabled/ Pet by Smart and Intelligent GSM and GPS based Automatic Tracking and Alert System", 2014 International Conference on Advances in Computing, Communications and Informatics (ICACCI)
- [4] Hapsari, A.T., E.Y. Syamsudin, and I. Pramana, "Design of Vehicle Position Tracking System Using Short Message Services And Its Implementation on FPGA," Proceedings of the Conference on Asia South Pacific Design Automation, Shanghai, China, 2005.
- [5] Chris Thompson, Jules White, Brian Dougherty, Adam Albright and Douglas C.Schmidt, Vanderbilt University, Nashville, TN USA, "Using Smart phones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders".
- [6] Tamil, E.M., D.B. Saleh, and M.Y.I. Idris, "A Mobile Vehicle Tracking System with GPS/GSM Technology," Proceedings of the 5th Student Conference on Research and Development (SCORED), Permala Bangi, Malaysia, May 2007.