INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL STANDARD SERIAL NUMBER
INDIA

Impact Factor: 7.488

Survey on Safety Detector System at Public Places

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ABSTRACT: In today's time the safety of persons is a major concern in India and other countries. To raise the awareness isn't seems to be sufficient enough as it doesn't give justification to increasing number of crimes in the country and creating a challenge in front of the society. Since many decades Individuals are facing physical, verbal, sexual and mental harassment which even leads to casualty. In the minds of every individual they don't feel safe when they move freely on the streets or at the public places in the odd hours. More accidents occur for women, children and elderly people who always feel that they need the support to move around. With the help of advanced technology individuals can make use of a simple gadget which can be used whenever they are in unpredictable circumstances to establish a sense of awareness and alert to other women who are travelling to the same route especially during the night time.The device acts as a safety alert and helps women to analyse how safe a particular public place is.

I. INTRODUCTION

In our day to day life we see lot of examples of people getting harassed, stalked, voyeur. Everyday we see news flashing up on the TV where women are getting raped, beaten & abused. And at the most what we could do is feel sad for 2 minutes and gets back to our regular routine as if we are helpless & can't contribute in stopping this cycle of abuse/harassment.

Many people are aware of reporting mechanisms but how many of the victims actually go and report when they face any kind of harassment/when their rights gets violated..? Hardly few!
According to NFHS (National Family Health Survey) less than 10% is the reporting rate in our country. There are various reasons why women can't report, for eg: Social stigma, Fear of reputation, Unaware of legal process, Threat from the victim etc. This is the culture that gets followed in our country and deep down we all know this picture will never change easily. Which is why, What if we take action before such incidences takes place.? What if we give importance to PREVENTION more than the CURE .?

We believe that to women and everyone should feel safe & they should stay informed about their rights to ensure a secure mobility. As our country is moving towards the digitalization, this application is a baby step towards making women empowered & informed which will automatically leads public places to become safer for them. This app is a tool that works to enable public places to become safer through collection of data through crowdsourcing.
This app will indulge women with the power to express themselves to digital medium and help them contribute in eradicating this chain of abuse. With this app women will be notified about safety of a particular route they are travelling/ roaming. And they can take necessary measures or plan their route accordingly.

II. SYSTEM USED

Recommender System:
During the last few decades, with the rise of Youtube, Amazon, Netflix and many other such web services, recommender systems have taken more and more place in our lives. From e-commerce (suggest to buyers articles that could interest them) to online advertisement (suggest to users the right contents, matching their preferences), recommender systems are today unavoidable in our daily online journeys.
In a very general way, recommender systems are algorithms aimed at suggesting relevant items to users (items being movies to watch, text to read, products to buy or anything else depending on industries).

Recommender systems are really critical in some industries as they can generate a huge amount of income when they are efficient or also be a way to stand out significantly from competitors. As a proof of the importance of recommender systems, we can mention that, a few years ago, Netflix organised a challenges (the "Netflix prize") where the goal was to produce a recommender system that performs better than its own algorithm with a prize of 1 million dollars to win.
In this article, we will go through different paradigms of recommender systems. For each of them, we will present how they work, describe their theoretical basis and discuss their strengths and weakness.

In 4 Years To 2019, Crime Against Women Rose 23%
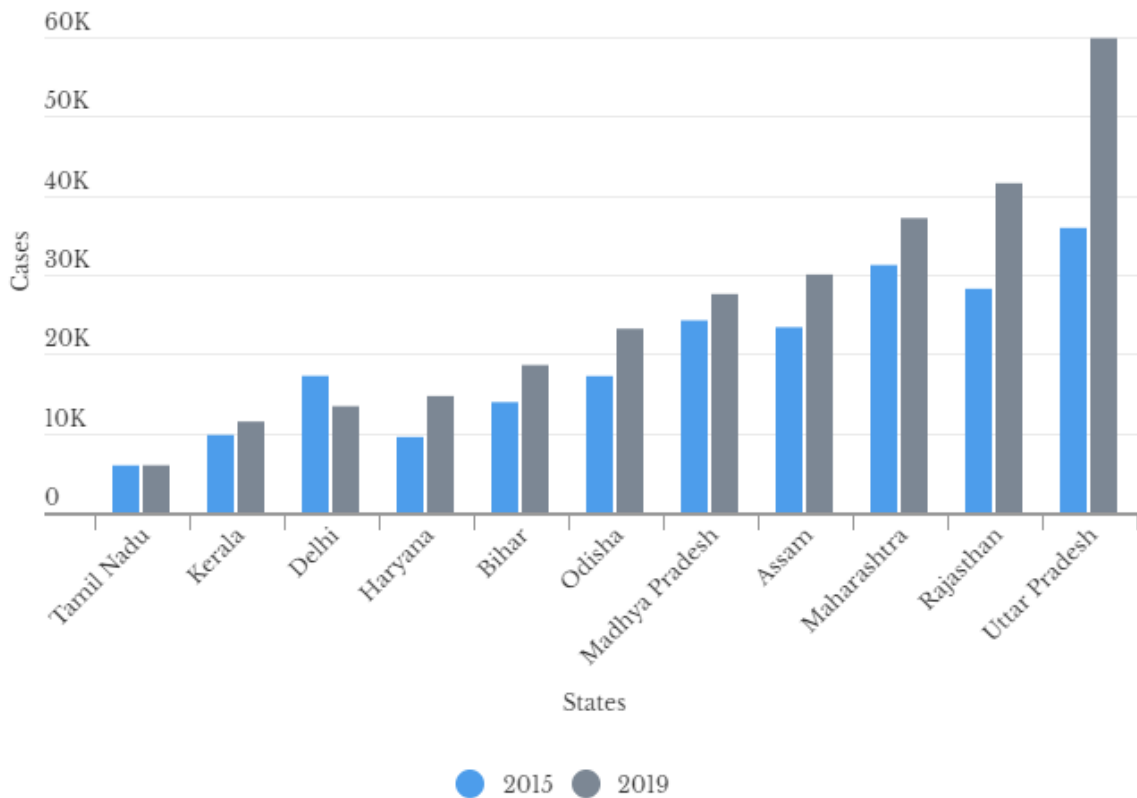
Source: Table 3A.1, Crime in India report 2017 & 2019, National Crime Records Bureau
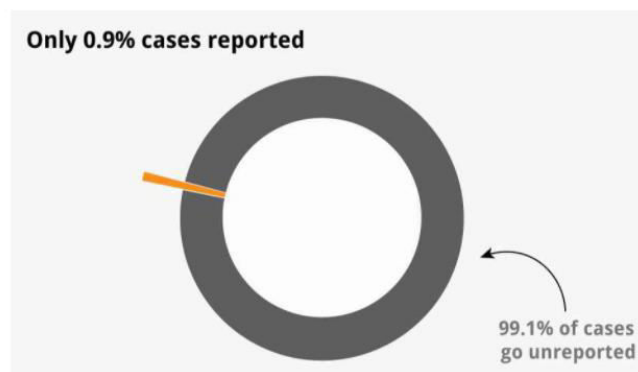
As per the records of NFHS 2016 - 17 (This survey gets conducted once in every five years)

III. EXISTING SYSTEM

 In the existing system there is no monitoring system for girls, it should create many problems for them and the no safety mechanism to protect the girls from the misbehaviour activities. In addition, in the existing system there is no alert mechanism for the girl's safety, it should be done by manually only. In today's time CCTV cameras are everywhere but not sure how many of them are functional and at which extent it has been useful to deter the crime. Incidences do take place in spite of police patrolling.Majority of the women hesitate to approach police station directly to speak about the discomfort/pain when something happens to them either publically or privately.
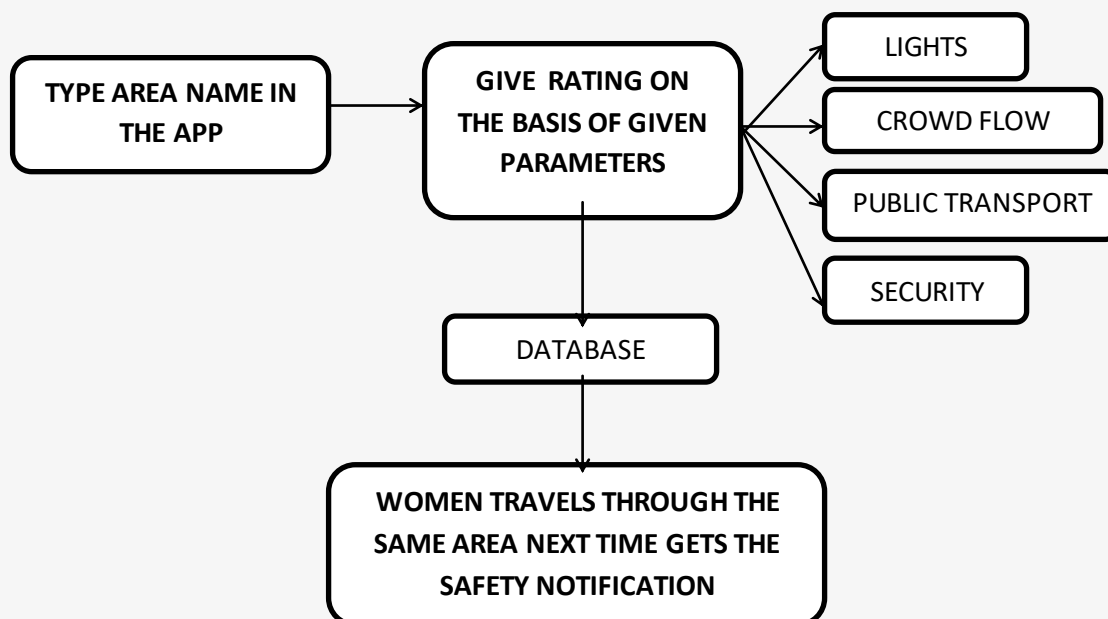
Disadvantages
 • All the existing systems must be connected to the GPRS service to work properly, hence cannot be used during emergency if there is no internet connectivity.
• There is no hidden camera detector which is portable to ensure our privacy.
• Monitoring was tedious.
• Mischance in arriving rate.

IV. PROPOSED SYSTEM

1. This application will act as a safety alert to all those who chose to travel/roam alone, especially women.
2. We will already have database collected of the entire area including bus stop, railway stations, market places etc.
3. Users can do a Safety Audit to provide a better understanding of their city/area and add comments too.
4. They can report problems such as poor/no lighting, broken/blocked footpath, open wiring etc. While travelling, they can view Safety Audits to view safe and unsafe locations, and plan their routes accordingly.
5. Women using this application whenever chose to go through the same route/area will get the notification as soon as she turns her GPS on or when she puts the area name in the map.
6. She can refer to the ratings and can stay alert and be cautious in taking necessary precautions.
7. (In case of emergency she will also be notified about nearest police station/ helpline no., local women safety group.) - Optional

Proposed system with architecture:

1 Advantages of the Proposed System

• It is an all-in-one system. Hence no need to carry multiple devices.

• GPS tracking feature tracks the user lively when you are the move after triggering the emergency button.

• It records audio, which can be used for further investigations.

• When the battery is running low, it automatically sends the location the prestored contacts.

• The second distinct feature is, it also detects the hidden cameras which help in our privacy.

• This device works without internet connectivity.

Major challenges in recommender system

•**Lower Accuracy:**To overcome lower accuracy problem there is need to develop new hybrid approaches which will enhance the efficiency of recommendation process. Because, Diversity Recommender system are anticipated to increase diversity because they help us to discover new products. Some algorithms, may accidentally do the opposite. Here recommender system recommend popular and highly rated items which are appreciated by particular user. This lead to lower accuracy in recommendation process.

● **Scalability:** Traditional CF algorithms will suffers from scalability problems as the numbers of users and items increases. For example, consider a ten millions of customers O(M) and millions of items O(N), with that the complexity of algorithm is „n‟ which is already too large. As recommender system play an important role in E-commerce application where system must respond to the user requirement immediately and irrespective of users ratings history and purchases system must make recommendations, which requires a higher scalability. Twitter is large web company to scale the recommendations of their millions of users it uses clusters of machines.

Data Sparsity: When we talk about Data sparsity, we must take this into consideration that, In collaborative filtering method recommendation of item is based on past preferences of users, so that new users will need to rate enough count of items to allow the system to catch their preferences accurately and thus allows for authentic recommendations As we know that usage of recommender system increases very rapidly. So that many commercial recommender system uses large datasets. Therefore , the user-item matrix used for filtering could be very large and sparse and because of that performance of recommendation process may get degrade. The cold start problem is caused by the data sparsity .

•**Vulnerability to attacks Security** is one of major issue in any system which are deployed on web. Recommender system play an important role in e-commerce applications and because of that recommender systems are probably targets of harmful attacks trying to promote or inhibit some items. This is one of major challenge faced by the developer of recommender system

CONTENT BASED-FILTERING

One of the most important aspect in this process is the Content-based filtering (CBF). It tries to recommend items to the active user based on similarity count which is rated by that user positively in the past [16,14,5]. For example, if a user likes a web page with the words Mobile, Pen drive and RAM, the CBF will recommend pages related to the electronics world. Item description and a profile of the users orientation play an important role in Content-based filtering. The tf–idf representation is most extensively used algorithm (also called vector space representation). Content-based filtering algorithms try to recommend items based on similarity count. The best-matching items are recommended by comparing various candidate items with items previously rated by the user.
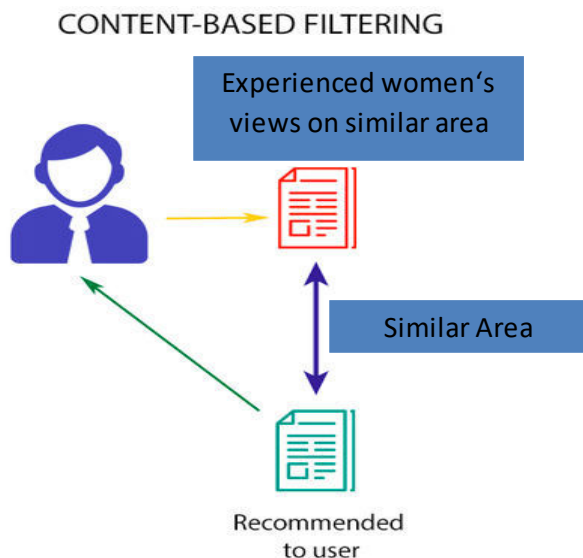
For creation of user profile mostly system concentrates on two types of information:
1. A user's preference model.
2. User's interaction log with the recommender system.
3. Basically, the profile of the item is used by these methods for (i.e. a set of distinct dimensions and characteristics) qualifying the item within the system. Creation of a content-based profile of users is done with help of weighted vector of item features. Importance of each feature to the user is denoted by the weights. It can be calculated from individually rated content vectors using a various proficiencies.

Content based filtering includes the following steps:
1. Educe the attributes of items for recommendation.
2. Compare the attributes of items with the preferences of the active user.
3. Recommend items according to features that fulfil the user's interests.

Advantages of content-based filtering:
1. Content-based recommender system provides separate and liberal platform to users through exclusive ratings which are used by the active user to build their own profile.
2. Content-based recommenders system are sufficient enough to recommend items which are not still placed by no one. This will be beneficial for new user.
3. Content-based recommender system maintains crystal clear transparency to their active user by providing explanation how recommender system works.

3 Limitation of content-based filtering
1. It becomes very hard to generate the attributes for items in certain areas.
2.It actually is harder to get feedback from users in Content Based Filtering because users do not actually rank the items (as in CF) and which is why, it is not possible to say whether the recommendation is correct or not.
3. Content Based Filtering gives the same types of items because of that it goes through an overspecialization problem.

V. CONCLUSION

In this paper, we have proposed the designing and implementation of a safety system for women in the form of partial wearable. Going serially as per the objectives mentioned, a location tracking subsystem was successfully implemented and the corresponding results were logged. The successful streaming of images of a live event on a web page was done within an intranet. The further implementation of the system will be performed in accordance with the goals mentioned in the future scope

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