Public Crime Reporting and Monitoring System Model using SDM

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Abstract - *Every year there are so many crimes happened in every country. but all of them crime are not reported. Because many victims and witness are scared and embarrassed to report that crime. So we are developing a public crime reporting and monitoring system that contain SDM module which insights from the cognitive interview approach to obtain more information from witnesses and victims. Internet-based crime reporting systems allow victims and witnesses of crime to report incidents to police 24/7 from any location. However, these existing e-mail system that provide little support for witnesses' memory recall leading to reports with less information and lower accuracy. We report here on information extraction from police and witness narratives. These systems keep innominate information about witness and victim.*

Key Words: embarrassed, monitoring, innominate, cognitive.

1. INTRODUCTION

Information technology can accommodate by helping solve and prevent crimes more efficiently. Every year millions of crimes are happened in the world. In 2003, the Federal Bureau of Investigation reported that 10.3 million property crimes and 1.38 million violent crimes were committed [1]. Many victims and witnesses are too scared or embarrassed to report crime event. In some cases, interviewers may record answers inaccurately or illegibly, or may fail to record them [2]. Reporting crime to police is important for authorities and people because more accurate information allows policy makers, law enforcement officials, and police departments to control violence and allocate resources (i.e., policies, budgets, legislation, and program evaluation) more impressively. Accurate information benefits to people as well because with it they can identify locations with high and low crime rates, take preventive measures, and make informed decisions on where to live.

Although reporting crime has many social change and individual benefits, it is common for criminal acts to remain unreported. Victims and witnesses have many reasons for not reporting a crime [3, 4]. Among these causes, fear of sentiment, embarrassment or shame, believing the crime is too insignificant or a personal issue, believing that reporting will not make a difference, and being unable to reach an authority are often cited [5]. Our SDM system combines information extraction (IE) and principles of the cognitive interview [6]. The cognitive interview is a psychological technique that helps people recall more information about an incident. In order to prestige its principles, we encourage the use of language so that people do not need to fill out numerous structured reports.

Such forms may be complex or difficult to understand leading fields left blank and incomplete information. By using natural language, people can report a crime more easily and thus more information can be collected. To enable such reporting, we need to extract crime-related information to ask follow up questions and compile a final report. Our aim is to obtain as much information as possible. To this end, we developed a large lexicon that combined with rule-based system can extract crime-related entities. Those extracted entities are triggers for our system to ask questions according to the principles of the cognitive interview.

With online public crime reporting and monitoring system model using SDM and the memory enhancing techniques used in investigative interviews we aim to design a Crime Reporting System that is a convenient and safe way for victims and witnesses to provide more information correctly in a format that is immediately reusable. We report here SDM module on our system: the Suspect Description Module (SDM). Additional modules including location, vehicle and weapon descriptions will follow the same design and development methods as this one. We determine how effective the SDM is at processing language input from witnesses and matching this information to the standard police format. In particular, we measure remember and accuracy when extracting information about suspect descriptions from witnesses' written crime narratives.

2. EXISTING SYSTEM

In existing system, every year millions of crimes are committed in each and every country. Since between one half and two thirds of all crimes are not so reported, because every time witnesses has go to police station to make a complaint. Many victims and witnesses are too scared or embarrassed to report incidents[6]. Detectives do not have sufficient time to interview crime victims and witnesses and they are not providing proper information to police Moreover, This is a long and time consuming procedure. Lots of paper work increases. Witness fearing for complaint to report the complaint.

3. PROBLEM STATEMENT

Public need awareness of their neighborhoods. Everyone cares for the lives of children and their beloved ones so they

should be aware of the current situations in the area. This research aims towards common people or public to help them in their lives by notifying them the current situation of their neighborhoods. General Public and law enforcement agencies may use these kind of applications in many ways to keep the community aware of the current situations and to help them to live together by communicating and sharing information with each other.

What are the locations of crimes in the surroundings?

How to report the crime with evidence to law enforcement agencies?

4. PROPOSED SYSTEM

In this one module system i.e Internet-based crime reporting systems allow victims and witnesses of crime to report incidents to police 24/7 from any location. However, these existing e-mail and text-based systems provide little support for witnesses' memory recall leading to reports with less information and lower accuracy. These systems also do not facilitate reuse and integration of the reported information with other information systems. We are developing an anonymous Online Crime Reporting System that is designed to extract relevant crime information from witness' narratives and to ask additional questions based on that information. We leverage natural language processing and investigative interviewing techniques to support memory recall and map the information directly to a database to support information reuse[6].We report on the evaluation of the Suspect Description Module (SDM) of the system. Our interface captures 70% (recall) of information from witness narratives with 100% precision. Additional modules will follow the design and development methods used with this module.

5. SYSTEM ARCHITECTURE

Witness: a person who provide crime information to the police or a person who sees an event, typically a crime or accident, take place. Police are appealing for witnesses to the accident

Police: police extract the information from the witness and generate the questions details storage and police generate the report.
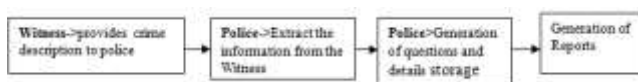

Fig -1: Architecture Diagram

6. SUSPECT DESCRIPTION MODULE (SDM)

This module prompts witnesses asking them for a description of the facial features of the crime suspect. The SDM uses natural language processing to analyze

information in the witness narrative and extract that which is required in a standard police report.

Public Crime Reporting System meant to give more easiness to the users that they can add and retrieve information so quickly. When you open this web application at the front end all the most wanted criminal blog, emergency dial number, help blog, are available to everyone. There are primarily two types of users they are victims & police department, the administrator is the master user; which is the Police department in our system. The police department gets the most number of priorities than the other users. There are different functions are given to the police like add type of crime, definition of crime & example of crime. Also add the different type of crime related question dynamically. They can also view the suspect and witness information. Police department also add most wanted criminals, the police department administrator can view the different application forms. And finally extracting information from victims and make Report. In proposed system. Victim's fill the criminal related form, and also fill their information without any fear will be kept in contact by an automated notification by E-mail message.
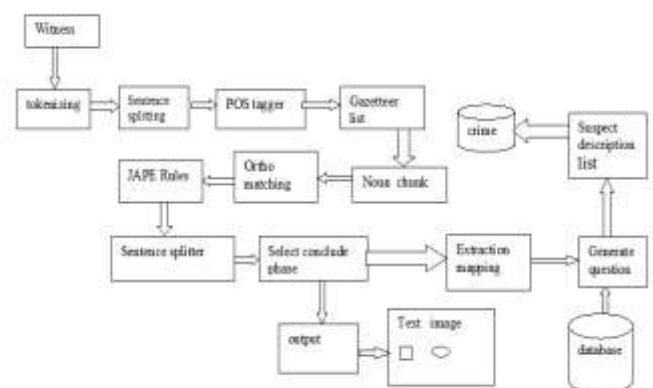

Fig -2: Suspect Description Module

The SDM was generally successful in extracting information from narratives that use simple and deterministic noun phrases. For example, phrases like "White female," "dark brown hair," or "medium length hair" were consistently and correctly extracted and identified by the SDM. On the other hand, phrases like "face somewhat red," "hair beginning to grow back in," "nose seemed red," although relevant, were not extracted. The SDM had problem identifying features that were described using complex noun phrases, for example, those that use correlative conjunctions like "her lips were not big but full", or those that describe more that one noun like "crooked mouth and nose." And the SDM was able to classify clearly all the features that it was able to extract. For example, terms such as "he," "female," and "man" were classified as suspect's gender, and "35-45 years old" or "in her 30's" were always correctly classified regardless of format as the suspect's age. The data collected in this

evaluation and the experience of testing the behavior of the SDM will be used to further refine and complement the JAPE rules used for information extraction as we develop our Crime Reporting System.

We used SDM and leveraged several of its modules and plug-ins. We adopted, without adjustment, the tokenizer, sentence splitter, part-of-speech (POS) tagger, noun chunks, and ortho-matcher

1. **Tokenizer**–The tokenizer splits text into tokens such as punctuation, words, numbers, and symbols.
2. **Sentence Splitter**–The text is split into several sentences. Since the example only contains one sentence
3. **POS Tagger–**Each token is annotated with its part-of- speech (POS) tag. This is a grammatical tag, e.g., verb, noun, or adjective.
4. **Noun Phrase Chunker–**The chunker uses the tags from the previous components to mark noun phrases.
5. **Gazetteer List–**Our lexicons are used as gazetteer lists. We have divided our lexicon into 126 gazetteers. Each rule only uses related gazetteers rather than the entire gazetteer.

7. CONCLUSION

We accomplish high precision and recall when testing our modules with police and witness. We plan to collect additional witness narratives using crime video system to further to match our system and test the question interaction components. Our final goal is to provide a credible online public crime reporting system people can use to report crime innominate that will encourage people to recall more crime information, and will provide a meaningful report and a graphical result for police investigators to solve crimes more quickly and efficiently. It is time efficient and require less paper work. The online public crime reporting system helps to solve the case quickly. This system provides safety to witness. In future scope, it can be modified to give the SMS integration. We can place the system on the cloud so the maintenance of the data can be reduce.

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