Original Article

Impact of Crime Reporting System to Enhance Effectiveness of Police Service

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Abstract - *Crime reporting is a service that police provide. By the time number of reported crime cases get increases. But law enforcement finds out there is a gap between reported crimes and not reported crimes. Numerous reasons may involve for this gap. It is not a good thing to giving a chance for criminals to stay safe in the community as innocents, and that motivates criminals to do more crimes. Because of that, the community at high risk of being a victim. And as law enforcement, they are unable to do their jobs because many crimes are not getting reported. Sometimes that affects the ongoing investigations too. To fill this crime report gap, some law enforcement launched online crime reporting systems for the public to report crimes. So, this paper discusses how crime reporting systems are going to help law enforcement and ongoing investigations. And the involvement of the public in these systems. The effectiveness of the system to police is also discussed in this paper. This paper has included previous studies to show the impact of crime reporting systems in modern-day policing.*

Keywords - *Crime Reporting, Police, Privacy and Security, Crime Reporting Systems, Applications.*

I. INTRODUCTION

People use technology to make their jobs easier, for entertainment, communications, and their safety. Use technology to detect crimes in the area and storing criminal data records. A recent mobile application named Mobile Vic PD was released by the Victoria police in Canada for fighting crime [1]. Furthermore, multiple applications and systems are waiting to capture the crime scene. This paper focuses on finding the disadvantages that lead some victims not to report crimes through these applications and systems.

Victims and witnesses always give priority to their safety and privacy. This is one of the major concerns why victims are not reporting crimes as well as social status also do a great impact on victims. Since that, criminals live among the society without getting caught. Victims are afraid to stand against what happened to them because of data leaks to the outside world. That make more harm to the victim. If the victim went under sexual assault, they would not report the crime because that impacts their career, private life, and social status.

Fake identities and false alerts mislead the police and ongoing investigations. Mostly this happens, and there is no way to confirm those reports true or false until investigation. Existing applications take some options to control these issues. But they are not effective. Because of these cases, real cases also had to wait in line too.

Furthermore, police take time to investigate or respond to reported crime or clues, that is discourage public to report crimes to the police. When a victim reports a crime, they look for favorability from the police. But when the police took time to respond, they get disappointed. This can be happened due to reporting many crimes, but the problem is that it discourages the victims. So, through a crime reporting system, they expect effective and efficient actions to their cases.

II. LITERATURE REVIEW

Victims have different aspects, it`s all about their choice to report or not about the incident, but until they are not reporting a crime, there is no way to capture the criminals or suspects. To increase getting number of reports, existing systems should be the favorable system for the victim to report.

The results from previous studies clearly show. In Dutch studies, declining, increasing, and stable trends were found, whereby the declining trend could be explained by a changed composition of the crimes. In an American study, an increasing willingness to report crimes was found, while British and Canadian studies showed a declining willingness to report crimes[2]. This study shows the way social behaviors change from country to country. It is about the community how strongly keeps trust in their local policing process and how those responsible departments and agencies work to restore justice.

And this victim's willingness can affect due to their religion, culture, region, and mental impact of the incident. Some religions say God will punish the criminals, and you must confess to god. Because of this kind of belief, victims are not reporting the crimes. As some cultures see, if

someone is sexually assaulted, that brings shame to the family. So, victims are also trying to keep it to themselves. Because of that, crimes are not reporting. If the victim was a celebrity or rich person, they willing to report, but they afraid after reporting anyhow, if that incident will get to know the public, that can be an impact on their life.

When it comes to victim's will, they consider the privacy and safety of their lives. The media is always looking for hot news, and victims do not like to be in a hot spot in the news. So, they always look at the confidentiality of crime reporting systems. As a victim, I easy to talk about the incident to the family, friends, and relatives. Because they always are favorable for the victim. When victims are reporting an incident to the crime reporting system and through the police, they expect favorability as their family gives.

Recent studies show that willingness is different based on gender and age. Gender will do a significant impact on victims' decisions to disclose the crime to the police. The expectation is those female victims will have a higher rate of reporting crimes than male victims. And age will determine whether a victim will report victimization to the police or not. Older victims will be more likely to report crimes to the police than younger victims (Boateng, 2018). More likely victim's marital status, occupation, and income cause the victims' willingness; this study clearly shows what causes people's decision-making process. Furthermore, reducing victims' willingness will make a gap between reported crimes to the police compared to happen cases. So, when making a crime reporting system need to concern about the victim's privacy from beginning to end of the process. Suppose the police have a bad history of leaking data to the public. That also may cause victims' willingness to report crimes. As previous papers show [3], there is a high willingness in America because victims trust their police. And police are also improving their privacy to keep reported crimes securely.

While it may take years for technology's place to be fully realized and regulated in law enforcement, there is no doubt it is changing the field of police work forever, and the world is watching. Issues of privacy, consent, and police brutality will pave the way for the future of these technologies, and how—or whether—police continue to take advantage of the latest innovations to solve crimes and keep the people safe[4]. Police must find a better way to handle people to keep them safer. They must prove with the latest technological involvement, and all the problems are going to be solved. Update their systems timely with the newest technology and assure the privacy of the data. Police must encourage society to use their crime reporting system to report crimes and the importance of reporting crime. By doing that, police can gain public trust again, and due to that, trusted people will report more crimes.

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. People help them in their lives by notifying them of the current situation of their neighborhoods. General

Public and law enforcement agencies may use 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. This enhances the positive image in peoples mind that lead to reporting crimes to the police. Like that, positivity helps to encourage the community to keep reporting. In the end, both parties will get happy.

Crime Stoppers, New Orleans has launched a new free mobile crime-fighting app for Android and iPhone platforms, called Tip Submit. The app was created by Tip Soft and Crime Reports and is known to be the first anonymous tip submission mobile software. By design, Tip Submit allows citizens to submit crime tips to Crime stoppers securely and anonymously. The system identifies tipsters by their tip number only, which it assigns to the tip[5]. This system properly shows how important they concern about the person who gives a tip. Every tip is very important to catch criminals. Because of being anonymous, people do not have to worry about their safety because either police also don`t know who gave a tip. So, if the information leak to a third party, it does not affect the person who gives a tip. This is big protection to witness or victim. But as a Police force, they must be careful while they are handling the tips because that tip can be a prank or spam to mislead the police. So, in such a system, there is good security to a person who gives tips. But on the police side, they have a problem with the reliability of the information they get. These systems encourage society to keep reporting about crimes, but as a law enforcement unit, they are having an issue with the effectiveness of the information they received, so they must handle them carefully. If police received multiple tips about the same scenario, there is a good possibility of the tip can be true. Anyhow through this application, people will get motivated to report crimes.

With time every crime reporting system needs to be updated or change the system. That do a positive impact on people, as earlier Canadian studies showed a declining willingness to report crimes [6] makes communities unsafe, and it gets harder to do policing in the area for law enforcement units. So, they apply a different system to encourage people to report crimes. And to involve them in policing is a good trick to get more crime reporters rather than not reporting. Every country must protect its citizens from doing that, and they must take some precautions.

A recent mobile application named Mobile Vic PD was released by the Victoria police in Canada for fighting crime. The mobile application can be used to report minor crimes, offer anonymous tips to police, stay updated on crimes in progress, receive missing child reports or check on stolen property. As the criminal data is not available remotely, there is a communication gap between the police officials investigating any case. The disadvantage of this application was that it was prone to fake reporting of crime, and there was no other way to verify that the incident was true [7]. This application was able to achieve the goal, which is Canadian law enforcement units

expected. To change public willingness to report crimes. As previously discussed, application this application also anonymously crime reporting to police, but these applications are not to use for emergency purposes. They are used to help law enforcement units keep the area safer. Not contacted for emergencies or to report a serious crime. These applications were able to encourage the public to stay vigilant and helping the law enforcement units to police, raiding, and help for ongoing investigations. These reporting details are stored in the database. After an officer confirms the details or tips, they got. They dispatch that information to the relevant parties. If these applications able to confirm the information right after they are reported value of the information will be high, and it will help to increase the efficiency of the crime reporting systems effectively. Many countries use systems to capture the crimes, following table 1 summarized crime-fighting applications.

Table 1. Popular Crime-fighting Applications

Application	Advantages	Platform
Submit tip	• Allows Anonymous tips • Track's location of uploads	Android/iOS
WebCast	• Associate crimes with places were they occur	Web-based
Mobile Vic PD	• Allow Anonymous tips • Allows updates of crime in progress	iOS
Account	• Verification of information in the field	iOS
Copy link	• Quick situational awareness and geospatial searches	Android/iOS
IPOL Mobile	• Latest crime • Awareness • Vehicle ownership • checks	iOS

This paper show use of applications [8]; each of every application gives different features to the victims and witness anyhow their last goal is to help law enforcement units to keep safer the area. As an impact of that, people try to use more of this kind of application to assure their safety. The common thing is most of the applications give a chance to report anonymously. People love to be anonymous and provide the data because that protects their identity, so they do not have to worry about their safety. Some applications use a good method to confirm the information. By verifying the information using the public as an example, if they receive an anonymous tip about the ongoing robbery, they notify the nearest tipsters around the situation. So those tipsters also can inform anonymously is

true or false, using the application so, it is an effective method to respond to the situation quickly as possible. Every application uses different methods to gather information. Mostly these data store in cloud storage. Security of those methods is high, and quickly can retrieve the data. Many Asian countries still use file base manual systems. These are not effective when compared to these applications. These existing applications can prove that people always like stay anonymous and report crimes. In Canada, the app called "Mobile Vic PD" able to prove that because there are studies shows that people do not feel willing to report crimes. [9] [10]. After this application is launched, willingness is changed. This research shows people's attitudes towards the existing system and technology-based systems. There is a survey in that paper that proves society willing to report crimes on technology base systems rather than a traditional system [11].

If the system provides anonymity so, people willing to report police. Even if it`s about police brutality, a person you cannot go to the police and file a crime against police mostly it will not be inquired. But In an application that proved security, people do not hesitate to report incidents. Police also know if they did not inquire, it would lead to amess.

Now clearly can see without these kinds of systems, police also cannot control all the matters alone. But if these systems exist, police also getting in trouble if they broke the law. In southeast Asian country law enforcement use a manual method to report a crime. Mostly use a book to write down. But if the book is loose or someone tears the page in the book. Relevant inquiries will and crime reports will disappear. Because of that, the victim will discourage from reporting crimes to the police. That can lead criminals to live safely as innocents among the society, public and police relationship will fail, the number of crime case reports will decrease compared to real criminal cases. And more often public will lost the willingness to report crimes. When police confirm the tips from the tipster, they must encourage them to report more crimes until the public and police keep their relationships closer. The area that lives will become safer for all. Not only tips. Crime reports also do a great impact because a proper investigation can catch criminals easier. Technologies[12] do a great job for modern-day policing the area[13]. In the survey, the majority ask for online systems because they believe this is the best way to inform law enforcement units about the crimes and to give tips about the crimes. In the existing file base crime reporting processes, people must stay for a long period to do complete the process. When it comes to the online system, they do not have to waste their time. Quickly they can respond.

Violating traffic rules is a crime that no one reports to the police unless an accident. Traffic rules violation has become very frequent nowadays, and it is not possible to catch all such violations manually by the traffic police. Hence various researchers and scientists have tried to devise automated traffic rule violation detection systems to tackle the problem [14]. Police use CCTV and

speedometers to catch the people who break the law. In western countries, law enforcement units stay undercover until someone breaks the traffic laws and arrest them. But using a single app also can do the same. If these crime reporting systems able to report traffic violations, that will be a great relief for police and other law enforcement units

Due to the rise of traffic violations, rules violations due to traffic and corruption problems, and many other issues are created. Until all system works manually, and no one is going to receive the fine automatically. Because of that, corruption gets increases. If the system is automated fine will be automatically added to the person who breaks the law. Corruption also gets reduced over time. Because it is not easy to cheat, these kinds of systems will help to reduce traffic problems and minimize traffic rules violations.

Many existing crime reporting applications are not designed to report road traffic violations. But this is an important part that every application must include. In Sri Lanka, we see many traffic rule violations. Urban areas like Colombo three-wheelers mostly violate traffic rules. Sometimes those actions lead to traffic jams. So, if the existing applications could add that feature, that will be a great help for the drivers, Law enforcement, and Especially pedestrians.

Road traffic accident in India is increasing despite recent legislative amendments, awareness programs and enforcement of traffic rules. Road users' behavior is the primary reason for accidents in 70%- 95% of cases.DK clearly shows many accidents took place because of traffic rule violations. These violations can be minimized if the law enforcement units introduce a system to give tips or report about traffic rule violations [15]. As fear of being punished, bad drivers will try being disciplined and respect the rules, and on the other hand, it is some help to identify the rule breaks and punish them. That encourages the public to support the police and law enforcement. If the system helps to protect the witness's identity anonymously, witnesses do not have to worry about safety. That encourages them to report more often. Now you see the importance of these applications. Many counties launch applications to report crimes. But people have no faith in those applications is one reason they failed. Some applications only provide limited options to do in the application. Because of that, people get bored with those applications, and that affects people's willingness to report crimes. When law enforcement expects help from the public, they must provide security to save those people by giving good privacy and protections if these applications can reward people for successful tips like level up in the applications. What motivates them to report more crimes. That is a positive impact that law enforcement is also expecting by launching these applications.

These applications help to decrease the crime rates because using tips, law enforcement catching the criminals, so no criminals to do more harm to society, and

it is demotivating the people who plan to do crimes. Not only that crime reports, or tips help for the ongoing investigations too. When published details about wanted people. The public can provide tips or details about them.

When we look at the most popular applications [16], they build for iOS and Android. Because today everyone uses mobile phones and that is a part of their life. So, it is easy to inform your law enforcement through the mobile phone since application on it whenever a person becomes a witness or victim related to any situation like road traffic violations, accidents, robbery, stabbing, murdering, rape case, bullying, or something related to that. Can quickly inform the police using the application. As a person, it is everyone`s responsibility to protect your community unless that person might be the next victim. When it comes to effectiveness and efficiency, it is different from application to application, but commonly these applications much better and efficient than traditional manual systems. As law enforcement, they have more crime reports to solve that earlier, commonly after launching these applications in their countries, this happened.

No matter how good the system is launched. It is all matter of willingness to report crimes. People will report crimes if the system provides all necessary privacy and data protective measures. That able to protect victim and witnesses. As law enforcement concern is about the information, they receive if the system able to prove the reliability of the information that is received, the system will be effective the law enforcement productivity. In the end, every party's expectation is to make a safer area to live in and caught every criminal who lives in the society. That was the main goal to achieve. To achieve it public, law enforcement, victims, and witnesses must work together and must keep a closer relationship between them. These kinds of crime reporting systems help to do that. Technology helps to keep all safer. The impact of these systems is very high. It helps to give good quality of life and give a chance to live without being afraid of anyone. Family, kids, females, elder people all can live safely and happily because of these systems. Those who plan to do crimes get fear to do crimes. Because they know these systems are existed to caught them. And it is not easy to stay safe after doing a crime. So eventually crime-free society will be created for all.

III. METHODOLOGY
This literature review used articles, journals, and papers. Previous crime reporting relevant studies used for this paper by reading. Those read data gathered, analyzed, and edited to input them to this research. And used previously done surveys by the other researchers. Because of the pandemic situation, it is not easy to gather primary data; because of that, this paper used secondary data for its work. All gathered data from the publications. Many of them got through the research gate web application. And all of those gathered data sort into specific order to keep the flow of the research to make interest, important and understandable for readers. All the sorted data order to the importance of the data to analyzed and remove some not

relevant to the research in the publications. When selecting the information must consider the trustworthiness and how effective that information to your research. This will help to enhance the productivity of the research. This research is based on review research papers, so you must think about the quality of the information you gather and how to involve those to create effective research. When making this research, I have thought about those things and sort data to order, and include them in the research which has been done to improve its importance and productivity to readers. Existing application tables also add to the research to compare the features they give. So, the readers could have a chance to get a clear idea picture about the applications. To paper is written to discuss the importance and impact of the crime reporting systems to the readers and people who interest in the relevant topic.

IV. ANALYSIS

This paper discusses how crime reporting systems will help the law enforcement units to keep the area safer. When a victim is reporting a crime or witness reporting crime, law enforcement units` behavior impacts that. Bad behavior and mistrust lead people not to report such incidents. People's willingness is the main factor to report a crime or not. Previous studies show how strongly that impacts the police when policing because there is a gap between real crimes and crimes getting reported. So, police must fill this gap, and the public has a prior history of data leaking to the public from law enforcement. To motivate the public, law enforcement units must improve security and privacy. At that point crime reporting system is important. These systems provide anonymity and other security features to protect people and report more crimes to the police. And these systems are more effective and efficient than traditional manual systems. It gives more reliability to the crime reporters. Within a short time of period, victims can make a crime report. These things help to motivate the public to use these applications and report crimes. Because of quickly confirm information, it enables law enforcement units to respond quicker and enhance the productivity of the law enforcement. Because of that public will encourage to report crimes more without any hesitation. Another positive impact of this crime reporting system is easy to confirm the information, and currently, happening crimes also will be reported. Different systems use different methods to confirm the information. Misleading or fake information is also reported by the people, but because of confirming methods, law enforcement can identify information is true or false. So, we see every fact connects. And their relationship is stronger. And there is a problem with these systems. Most of the systems did not give much attention to the violations of road traffic. Many Asian countries have this issue of no specific way to report road traffic violations.

V. CONCLUSION AND FURTHER WORKS

After all, analysis is done that clearly showed how crime reporting systems do a positive impact on the community and law enforcement units for modern-day policing. These systems can make the public willing to report crimes and confirm the information they give. These systems are much effective and efficient than manual crime reporting. Now there is no mobile application in Sri Lanka to report a crime or give tips about a crime. Using an application makes it easier to identify crimes and capture the criminals and make them a safer country to live its citizens. If could implement an application that able to report all kind of crimes and give tips and verify that information through the application with protecting reporter's identity and their tips can do a great positive impact to the society and its great help for law enforcement for policing.

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