Warning Button Crime System in Supporting the Management of Public Services in the Legal Area of Polres Kota Tangerang

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Abstract. The integrated police service center (SPKT) is the place for managing public services in the form of receiving reports and handling the first reports and complaints from the public. The issue of technological development is also included in the criteria of police services in supporting the management of public services in order to obtain information and solve problems quickly and accurately. Therefore, there needs to be innovation in the public reporting service system in the area of Polres Kota Tangerang. The Warning Button Crime System is a tool that can make it easy for people to contact the police when a crime occurs. This tool consists of two parts, namely the transmitter side which is stored in the strategic area and the other side is the receiver stored in the police station. By utilizing the Arduino nano and uno microcontroller which is connected to the SIM 800L Module, it can function to send a message to the Polres Kota Tangerang, with the aim of being able to provide services easily to the public in notifying and reporting criminal acts or anything else to the police. So that the police are able to know more about the location of the incident correctly and can take preventive actions to overcome it. The management of changes made within this police institution can improve performance efficiently and effectively towards the achievement of objectives to ensure public security.

1. Introduction

In accordance with the UUD 1945 Pasal 30 ayat (4), the National Police of the Republic of Indonesia or often abbreviated as POLRI is a state tool that plays a role in maintaining public security and order, upholding the law and providing protection, aegis and service to the public in the context of maintaining security domestic. The enactment of the Republic of Indonesia Law Number 14 of 2008 which states that public information disclosure which came into effect on 30 April 2010 is an important momentum in encouraging public information disclosure in all agencies and institutions in Indonesia, especially at the Indonesian National Police (POLRI). This Law has provided a legal basis for the right of every person who obtains public information where each Public Agency has an obligation to provide and serve public applications quickly, on time, at a low cost and in a simple manner.

SPKT (Sentra Pelayanan Kepolisian Terpadu) or the integrated police service center is a place that facilitates the field of services concerning public services in the form of receiving reports and first
handling reports and complaints from the public, the presentation of public information generally related to the interests of the public in accordance with the provisions of the Law. The department in charge of providing police services to the public, both in the form of first receipts and handling of reports or complaints and police assistance services, together with related functions goes to the scene to carry out security and crime scene processing activities in accordance with applicable laws and regulations [1].

With this guideline, public unrest will be overcome safely and comfortably. If a crime occurs, the police are an important part of the public at any time. At present, the way to contact the police is to contact the telephone line number 110 or visit the police station. This method is felt to be less effective in maintaining a sense of security in service to people. When there are people who want to need police assistance in a situation of urgency or a crime such as robbery, the applicant can only contact the SPKT section of Tangerang City Police. The process of receiving information is spend time, so there can be a slow preventive action against crime and this has an effect on the ineffectiveness of the police service system.

Based on the existing problems, this research provides alternative solutions to problem solving, namely by designing a public information service tool to facilitate the public in overcoming the existence of crime, both in the work environment or in its strategic surroundings. Besides being easy to operate, a Warning Button Crime System can provide more effective and efficient services. The purpose of this tool is to be able to function as a supporter of police duties in implementing maximum service and to facilitate the public in reporting about the existence of crime, as well as increasing the productivity of police officers in the work and as a form of POLRI's responsibility for the environment and police duties as protectors, aegis and servant to the people.

2. Methods

There are several methods used in this research, the first method is data collection. The data is collected based on observations to the legal area of Polres Kota Tangerang that can support the collection of information to analyze problems and solve it. The next step asked several departments related to public services in the police and asked about any media that has been used before. The correspondent was given questions related to conditions and regarding the problem of public service issues and questions about some cases that are often reported to the department. Other data collection was obtained from several literature reviews of various materials both through the literature of books, applicable law and writings or scientific articles from several international journals related to this research.

Data collection was conducted from several previous researches obtained from several studies conducted by researchers, for example in the use of Arduino board which is similar to research conducted by H Sujadi which discusses the creation of tools that can detect a porous tree, to assist in the sorting of trees which should be felled and not felled by the party who has the authority of the general management of BMCK [2]. Then another research from Nivedita Majumdar who describes a panic
button that will ensure a minimum safety in time. A simple switch will trigger the device that consists of Arduino board and GSM Module. The Arduino board sends a signal to the GSM Module with a SIM Card, which will send an emergency message to the contact pre-defined in the system, along with the exact GPS co-ordinate of the user position with the panic button [3].

Previous research was also carried out by Priyanka Shinde which was a guidance from Prof. Archana Kadam which discusses the use of an emergency panic button which is important application based on mobile and used to provide facilities to the customer who suffers from the accident [4]. Another related research by Oludele Awodele which discusses A Real-Time Crime Records Management System for National Security Agencies [5]. This research is also the result of the development of the prototype alarm panic button design, which has been designed and tested well by Ahmad Roihan [6].

After getting various data, another method is analysis. Based on the analysis of the needs obtained from data collection, the research will make a warning button crime system by using Arduino to resolve problem and as need by stackholder in supporting the management of public services in the legal area of Polres Kota Tangerang.

The other stages of the method are system design, and the system proposed in this research is to make a prototype of a warning button crime system. In the design method, there are several requirements specifications needed one of which is the creation of a flowchart system. Figure 2-3 show the overall process of the system.

![Figure 2. Flowchart design of the transmitter Warning Button Crime System](image1)

![Figure 3. Flowchart design of the receiver Warning Button Crime System](image2)

The prototype can be described as an example of a tangible product or system that can be changed as desired before being realized. The prototype is the original model which is an example, while the model is a representation of a system or process that exists in the real world [7]. Warning Button Crime System consist of several device as illustrated in Figure 4-5 and to simplify the picture in this design phase, a block diagram is made. Each component is described in one part where the components have their own inputs and outputs.
From some of the methods used, it can be concluded that this research is a development of several previous researches relating to the use of new technology, so this is in line with the government's mission in developing and increasing research and publication in Indonesia. Then the limitation of this research object is only in Polres Kota Tangerang in Indonesia.

3. Results and Discussion

Polres Kota Tangerang is an element of the district or municipal level region which is responsible for maintaining public security and order, law enforcement as well as protecting, aegis and public servants based on the laws and regulations, Pancasila and UUD 1945. Legal area of Polres Kota Tangerang covers part of the Tangerang Regency regional government covering an area is 641.4 Km\(^2\) which consists of 19 sub-districts of the total area is 641.43 Km\(^2\). The geographical condition of the Polres Kota Tangerang area is adjacent to the west of the duty area of Polres Serang, south of the task area of Polres Bogor, east of the task area of the Polres Metro Tangerang and Polres Kota Tangerang Selatan and north of the task area is a Java Sea.

This research is part of the management of change with the meaning that is the creation and maintenance of an internal environment in an organization that works in groups, can do efficiently and effectively towards the achievement of the goals of the group, then this also has the function to complete work with people in groups formally organized. So that between people and the police can have their respective roles.

The Warning Button Crime System is functioned as a supporter of the POLRI's duties in implementing maximum service and to facilitate the public in reporting about the existence of a crime and can improve the service productivity of the POLRI members. In addition, this tool is also a form of the responsibility of the POLRI agency for the environment and duties of the National Police as a protector, aegis and servant to the public.
Figure 6-7 illustrates the overall prototype design of the device, either transmitter or receiver. In the design results required some analysis and testing. System analysis for both hardware and software programs is done to get compatibility between program listings with hardware and software that has been done by embedded systems. As for writing the overall program listing using the Arduino IDE application software.

Hardware testing performed on the SIM 800L module is to check the network or the process of sending messages can run well. The working principle of the SIM 800L module is to send an SMS notification when the button on the transmitter system is pressed, so that it gives instructions to the LED, buzzer and siren to activate and turn on when receiving an SMS instruction from the telephone number on the transmitter system. Then the testing performed on Arduino is to be able to control, especially in the process of sending, capturing, processing the SMS signal to be received from and to the SIM 800L module. This whole system will not work if there is no SIM card installed on both devices.

While testing on software is using the Arduino IDE application. After testing with the Arduino IDE application software, the test is carried out again so that the SIM 800L module can send an SMS notification to the mobile number in the specified format. So that the results of this research both software and hardware get good results and run as they should.

4. Conclusion
If a crime occurs, the police are an important part of the public at any time. Previous method is felt to be less effective in maintaining a sense of security in service to people. The process of receiving information is spend time, so there can be a slow preventive action against crime and this has an effect on the ineffectiveness of the police service system. Therefore the latest system with Warning Button Crime System is functioned as a supporter of the POLRI's duties in implementing maximum service and to facilitate the public in reporting about the existence of a crime. the community only needs to press the button provided and the police will immediately know the location and can take preventive actions to overcome it. The management of changes made within this police institution can improve performance efficiently and effectively towards the achievement of objectives to ensure public security. Other research can also be developed towards the Internet of Things [8][9] so that in its implementation, the police and the public can find out through smartphone devices via internet that can be accessed together, so that all security and stability is guaranteed with realtime.
5. References

[1] POLRI 2017 Sentra Pelayanan Kepolisian Terpadu (SPKT) https://www.polri.go.id/pdf/Layanan%20SPKT.pdf

[2] Sujadi H, Bastian A and Tira 2018 Journal of Physics: Conference Series http://iopscience.iop.org/article/10.1088/1742-6596/1013/1/012163/pdf

[3] Majumdar N, Bhargava P and Shirin RK 2014 International Journal of Computer Applications http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.679.70&rep=rep1&type=pdf

[4] Shinde P, Taware P, Thorat S and Waghmare T 2012 International Journal of Scientific & Engineering Research https://www.ijser.org/researchpaper/Emergency-Panic-Button.pdf

[5] Awodele O, Ernest EO, Olufunmike AO, Oluwawunmi OS and Anita AU 2015 European Journal of Computer Science and Information Technology http://www.eajournals.org/wp-content/uploads/A-Real-Time-Crime-Records-Management-System-for-National-Security-Agencies.pdf

[6] Roihan A, Rifa’i A and Wijaya C 2018 Prototype alarm panic button system pada wilayah hukum polres kota tangerang Creative Education of Research In Information Technology and Artificial Informatics 4 1 7-17

[7] Roihan A, Sunarya PA and Wijaya C 2018 Proc. The 6th International Conference on Cyber and IT Service Management (Medan) vol 1 (Medan: Universitas Potensi Medan/IEEE)

[8] Roihan A, Kusumah H and Permana A 2018 Prototype fast tracking of detection offenders smoking zone berbasis Internet of Things Jurnal Informatika Mulawarman 13 2 111-117

[9] Roihan A, Ferry S and Trengginas CP 2018 Proc. 3rd International Seminar on Application for Technology of Information and Communication vol 3 (Semarang: Universitas Dian Nuswantoro/IEEE)

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