

# Prisoner and Goods Control System Design Evidence Using MVC and UAT Models at the Provincial National Narcotics Agency

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**Abstract**— In Indonesia, there is a special agency tasked with dealing with the misuse of prohibited goods, namely the National Narcotics Agency, abbreviated as BNN. Apart from being at the center, BNN is also at the provincial level. At the National Narcotics Agency, there is a section or section that has a special function to manage the supervision of prisoners and evidence in the form of narcotics. The problem is, the administrative process is still irregular, archives are difficult to find, and several other important things, which are certainly very influential for the next process and follow-up. This study aims to help design a system that can manage the process of monitoring prisoners and evidence. For the research method, the author uses a prototype model, Model View Controller (MVC), and User Acceptance Test (UAT). The results showed that the system can work well in assisting the process of monitoring prisoners and evidence with a percentage of 54.29% strongly agree and 64.00% agree with the developed system model.

**Keywords**— prototype, evidence, BNN, MVC, UAT

**Abstrak**— Di Indonesia, terdapat sebuah badan khusus yang bertugas untuk mengurus penyalahgunaan barang terlarang, yaitu Badan Narkotika Nasional, disingkat dengan BNN. Selain di pusat, BNN juga berada di wilayah tingkat provinsi. Pada BNN, terdapat seksi atau bagian yang berfungsi khusus untuk mengurus pengawasan tahanan dan barang bukti berupa narkotika. Permasalahannya, proses administrasinya masih tidak beraturan, arsip yang sulit dicari dan beberapa hal penting lainnya, yang tentu sangat berpengaruh untuk proses dan tindak lanjut berikutnya. Penelitian ini bertujuan untuk membantu mendesain sebuah sistem yang dapat mengelola proses pengawasan tahanan dan barang bukti. Untuk metode penelitian, penulis menggunakan model prototipe untuk mendesain sistem, menggunakan *Model View Controller* (MVC) dalam proses desain dan susunan modul dan interface program, dan menggunakan *User Acceptance Test* (UAT) untuk mengukur penerimaan desain sistem yang dikembangkan. Hasil penelitian menunjukkan, sistem dapat bekerja dengan baik dalam membantu proses pengawasan tahanan dan barang bukti dengan prosentase sebanyak 54,29 % sangat setuju, dan 64,00 % setuju dengan model sistem yang dikembangkan.

**Kata Kunci**— prototype, barang bukti, BNN, MVC, UAT

## I. INTRODUCTION

In the life of a state based on law, every citizen is required to comply with the applicable laws. This aims to create order in society and maintain the life of the nation. One of the things that can disrupt the life of the state, especially for the nation's successors, is the rise of drugs or narcotics. Referring to law no. 35 of 2009, narcotics are substances or drugs originating from plants or non-plants, which are synthetic or semi-synthetic. Narcotics are substances that can cause a decrease or change in consciousness, loss of taste, reduce or eliminate pain, narcotics can cause dependence [1]. Judging from its function based on law no. 35 of 2009 concerning narcotics, in market 7 it is stated that narcotics are substances or drugs that are only used in the health sector or the field of research in the development of science[2], but by some of the community, especially the younger generation, these narcotics are used to be misused as illegal goods. The negative effects of this drug are extraordinary, especially among the younger generation of teenagers, because it can damage the physical or psychological condition of the user [3].

As described in the research of Ali Azhar, et al, drug use has a very large risk of harm. Using drugs can interfere with important organs in the body such as the lungs, heart, liver and can damage the reproductive system, the effect will cause various diseases. Drug use will also slow down the work of the brain, so it will cause a decrease in consciousness and cause drowsiness. Narcotics will also affect the brain which is the control center of the body and will affect the work of all body functions. Due to working on the brain, drugs will change the way of thinking, awareness, mood, and behavior of the wearer. In addition, drug use will have the effect of causing hallucinogens, namely a person can hallucinate by looking at an object, and stimulants of the body's organs work faster than usual on the heart and brain. Another effect caused is depressants which can damage the central nervous system and reduce the body's functional activities, it will become addictive and become addicted and organs can become damaged, and are at risk of causing death [4].

One of the efforts to prevent this moral destruction from occurring, the Indonesian government has established various instruments, regulations, or supporting devices. In terms of regulation, the government has provided a legal umbrella, namely through laws that have been changed several times. Initially, the Law on Narcotics No. 9 of 1976. In 1997, this law was replaced by Law no. 22. Finally, twelve years later, the law on narcotics was renewed again through Law no. 35 of 2009[5]. In addition to using the legal umbrella, efforts to eradicate narcotics are also carried out by establishing an institution called the National Narcotics Agency (BNN). This institution also underwent various changes in form and change of name through several regulations. BNN was originally named the National Intelligence Coordinating Agency (BAKIN) which was formed through Presidential Decree No. 6 in 1971, then changed its name again to the National Narcotics Coordinating Board (BKNN) in 1997. And finally, in 2002 it changed its name to BNN. To improve narcotics prevention in all fields, in 2007 the government also established the Provincial Narcotics Agency (BNP) and district/city (BNK). Until 2009, BNN was given the authority to investigate and investigate narcotics crimes and narcotics precursors[5]. Through the authority that has been given, BNN will have the task of supervising detainees and their evidence.

In the internal BNN, a special section was formed which has an important role to carry out the process of monitoring prisoners and evidence. Due to the importance of this section in dealing with narcotics, this study tries to help develop a computerized system model, so that it is handling, especially in the process of monitoring prisoners and evidence, can be maximized. A direct study conducted by researchers at one of the provincial BNNs, the procedure is still conventional, relying on archiving with ordinary stationery media that ranges with various kinds of problems. Through this research, it is hoped that all problems can be overcome.

To model the system, the researcher has also read some of the literature from several previous studies. The first research focused on drug rehabilitation data, conducted at the Pematangsiantar City National Narcotics Agency. The developed web-based system uses several software such as Adobe Dreamweaver CS6 and Mysql as the database. From the system development, various tables were formed including the register table, counselor table, patient table, admin table, family table, rehabilitation table, and type of rehabilitation table. From the model side, the system makes use of Flowchart, DFD or Data Flow Diagrams, and Entity Relationship Diagrams. This study concludes that the use of the Drug Rehabilitation Data Information System program can facilitate the management of drug rehabilitation data and the preparation of drug rehabilitation data reports at the Pematangsiantar City BNN [6].

The next study was conducted by Daniel et al. This study aims to create a web-based drug case settlement administrative information system. The case study was conducted at BNN East Java Province. In their daily practical work, BNN East Java Province still creates separate files manually and uses word and spreadsheet software. The process is physically printed and archived, making it difficult to find data related to completed narcotics cases. In making the system, the method used is the waterfall which consists of a communication

process through gathering requirements, planning, modeling, construction through coding, and system testing. Testing is done by the black box method, NFR (Non-Functional Requirement), and UAT (User Acceptance Test). The system has outputs in the form of suspect reports, case settlements, evidence, graphs of the distribution of narcotics cases, and graphs of narcotics case settlements [7].

The next research with the topic of making information systems to monitor drug users. The research uses the BNN of Musi Rawas Regency as the place for the case study. The Musi Rawas BNN office is a government agency tasked with monitoring the activities of substance abuse of PSYCHOTROPICS or DRUGS. The problem is that in the process of calculating drug users in their area it is not optimal and still uses the recording pattern on the Ms. Words. There is not yet a computerized system that uses a database so the recording and presentation of reports are still not accurate. The research method uses the waterfall and the monitoring information system was developed using the Model View Controller (MVC)[8].

Subsequent research discusses new student admissions. This study aims to build a system using the Simple Additive Weighting (SAW) method based on certain categories to select prospective students who are eligible to be accepted at school. The categories used are based on the value of Indonesian, Natural Science, Mathematics, number of certificates obtained from the city to the provincial level, and zoning to school. The results of the study show that the system built can help speed up decision making for the selection of new prospective students[12].

The next literature study is research with the topic of Application of the SAW (Simple Additive Weighting) Method in making a favorite lecturer selection system, so that the learning process can be of higher quality. The selection of favorite lecturers uses several criteria including student assessment, level of academic position, research that has been carried out, community service activities that have been carried out, and the level of discipline within the academic community. The results show that the system helps choose favorite lecturers[13].

The last research review discusses the selection of candidates for the chairman of the student executive body (BEM) in the university environment. This study aims to create a system that can facilitate and select the right candidate for chairman, not based on mere subjective interests. The method used in this study uses fuzzy multiple attribute decision making (FMADM) with the SAW (Simple Additive Weighting) method. The criteria used in this study include the frequency of participating in basic leadership training (LDK), academic achievement (GPA), the ability to create a vision and mission as well as non-academic achievements[14].

Based on the references obtained from previous studies that have been described previously, this study tries to make some differences in the hope of improving the quality of research. The changes are emphasized in the process of compiling the application and the final result of the system that has been built. In preparing the application, this research uses a Model View Controller (MVC) which helps in compiling the model syntax, control process, and user interface. To test the final results of the system design, this

study uses the User Acceptance Test (UAT), how far is the acceptance of the system by capturing direct responses from users of this system.

## II. RESEARCH METHOD

This research is structured using several methods according to its function. For the data collection process, the researchers used the methods of observation, interviews, and documentation. Observation is used because it is one of the data collection methods [9]. Through observation, information is obtained through direct observation of the object of research. Other important information, through the interview method, was carried out by conducting discussions and asking BNN parties who were directly involved in monitoring detainees and evidence. From the interview, it can also be seen that several obstacles occur in the current system. Additional information is also known by looking at related documents and used in conventional systems.

In the system development process, this research uses several methods, namely Prototype and Model View Controller (MVC). The prototype model was chosen in this study because this model can connect the customer's lack of technical understanding, while also clarifying what specifications are needed by customers when developing software [10]. Using this model, the system is structured by listening directly to the needs of the system, so that important modules of the system will be developed first that can be tested directly by users. As for the user trial, it will be verified using the User Acceptance Test (UAT) model.

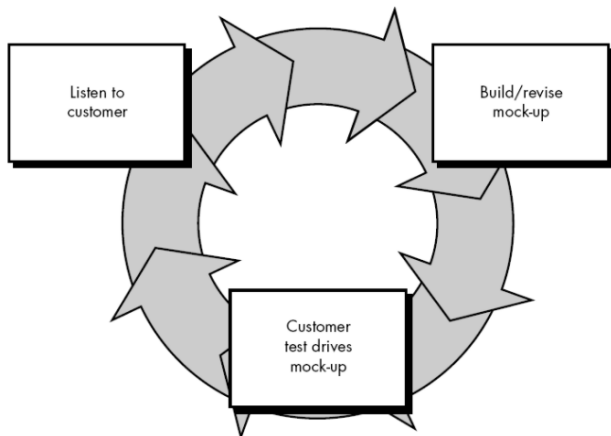


Fig. 1. Prototype Model

As a tool for presenting the current system analysis and system design, this study uses the diagrams contained in the Unified Modeling Language (UML). UML was chosen because it is one of the standard languages that are widely used in the industry to define requirements, make analyses & design, and describe architecture in object-oriented programming [11]. Some of the UML diagrams used in this research are Activity Diagrams, Class Diagrams, and Use Case Diagrams.

In addition to using a prototype, the system developed in this study uses the Model View Controller (MVC). MVC is a concept introduced by Trygve Reenskaug (Smalltalk), to make

one type of network data packet into another type of data along with processing (model), from the process controller (manipulation) and view (display) to be presented in a user interface.

## MVC Architecture Pattern

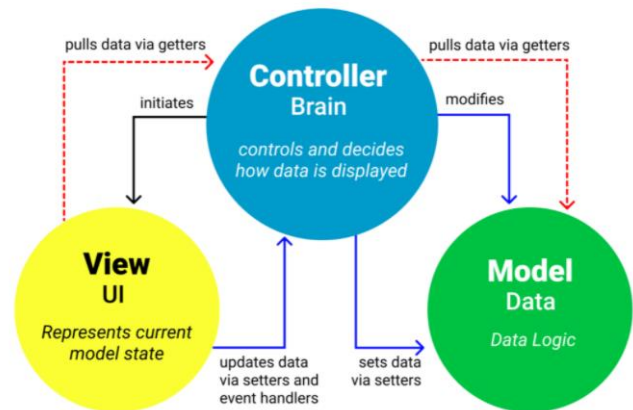


Fig. 2. MVC Model

The model section contains program code that handles and relates directly to the database to manage data, such as entering data, updating data, deleting data, and others, but cannot be directly related to the view section. While the view (view), contains all the details of the implementation of the user interface. The view is part of the program code that functions to regulate various website displays, usually, in the form of HTML script files, views are web pages that also function to display data and input from users. The part that connects the model and view is the controller. This section contains the commands that are responsible for processing data and sending it to a web page. The controller functions to receive requests and data from the user and then determines what the application will process [11].

## III. RESULT AND DISCUSSION

There are several stages in the implementation of the supervision of prisoners and evidence carried out at the Provincial National Narcotics Agency. The first stage starts with the investigator will hand over the suspect to the detention and evidence supervision section. The surrender of the detainees is accompanied by an arrest warrant (SPKap) along with a detention certificate (BAP) and a narcotics case report (LKN). Detention is carried out at the detention center for 3 (three) days. The detention of the suspect will be continued for the next 20 (twenty) days following the detention order (SPHan). If the investigation is still ongoing, the suspect will continue to be detained at the detention center. Evidence of detention through a warrant for extension of detention (JangHan) and the suspect is detained for 40 (forty) days.

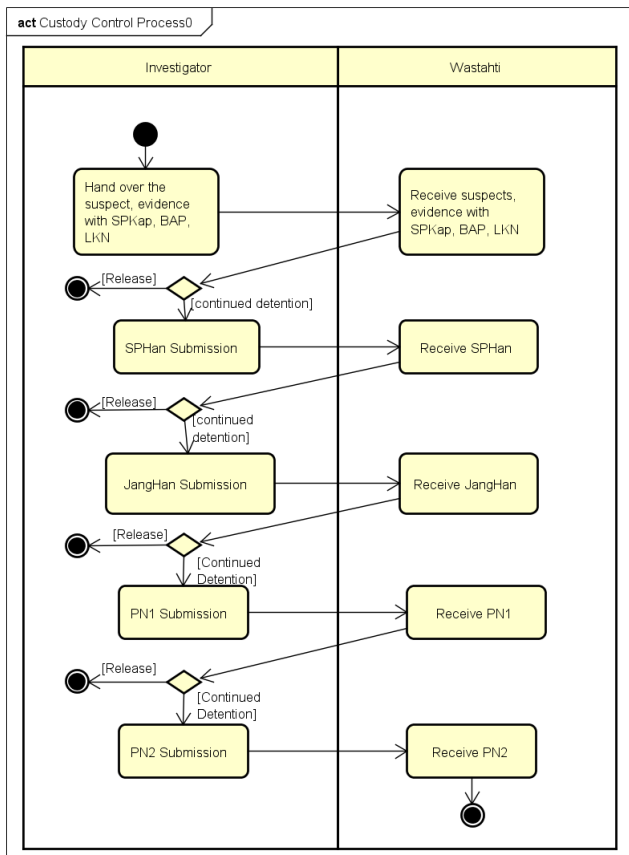


Fig. 3. The Process of Monitoring Prisoners and Evidence

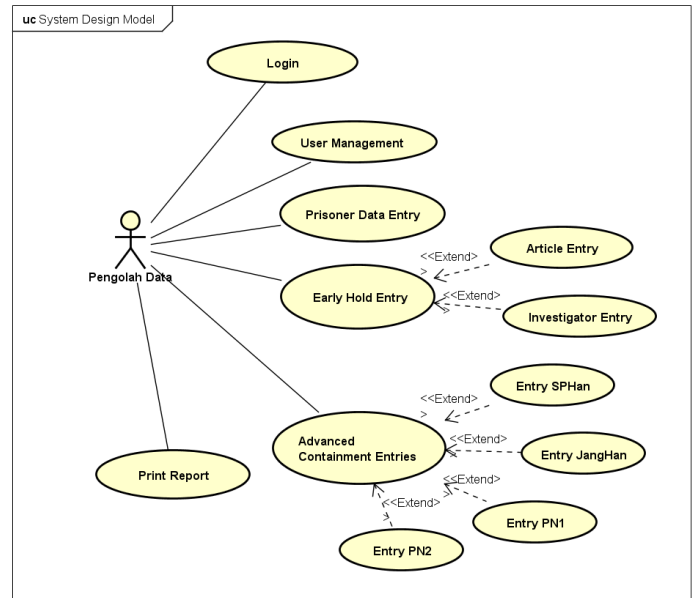


Fig. 4. System Design Model

The database design is poured in the following class diagram adjusting the proposed system between the database intended for storing prisoner data and the prisoner monitoring process.

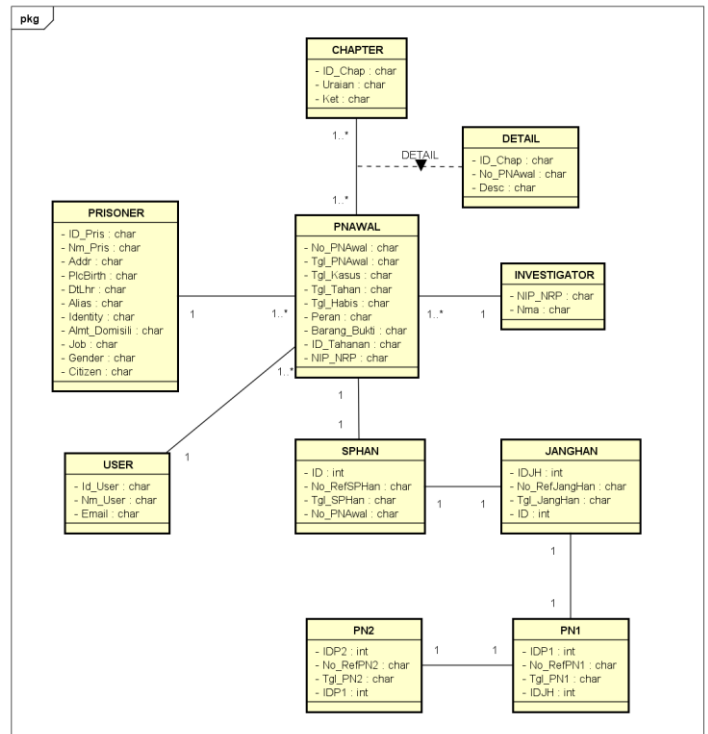


Fig. 5. Database Model

After the completion of 40 (forty) days and it turns out that the investigation has not been completed, the detention of the detainee shall be extended for another 30 (thirty) days. This order is listed based on a letter issued by the court (PN1). If it is necessary again for the purpose of examination, the suspect will be extended his detention period for another 30 (thirty) days as evidenced by a letter from the court (PN2). So that a maximum of 90 days for the suspect to serve his prison term. If this period has passed and is not processed further in court, the suspect will be released from detention for the sake of the law.

Through the analysis process of the ongoing system, several proposed systems are described in this research, namely the availability of a form to validate users, an initial form to record detainees, and a form to back up the initial detention process of detainees. To facilitate the entry process, the initial detention form is directly linked to the investigator's data and the provisions of the article imposed. Considering that the detention process went through several stages, the further detention process was prepared into several forms, starting from the entry of SPHan to PN2. The final system proposal is to provide a report that can facilitate the submission of data to the leadership regarding the recapitulation of prisoner data and case details obtained.

Here are some views of the system that has been compiled using the MVC model. The form is made according to user needs to be based on the system design which is described using a use case diagram.

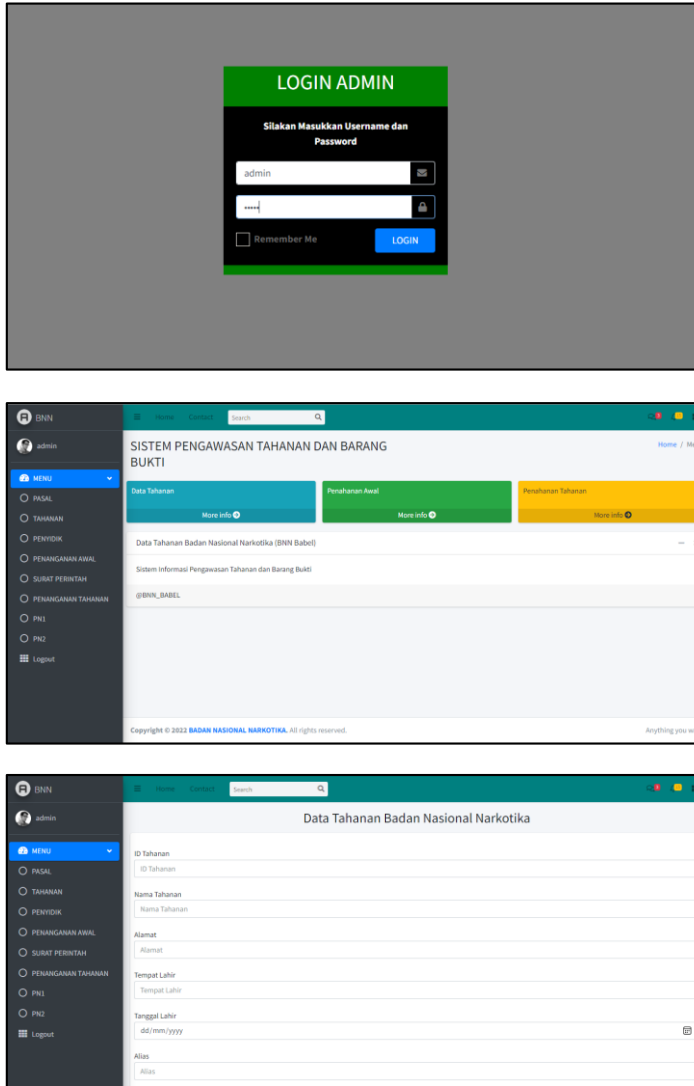


Fig. 6. Prototype System View

To ensure that the system model that has been built is under the needs and is accepted by its users, a testing process is carried out. Direct testing is carried out on users using the User Acceptance Test (UAT) model. The UAT test is categorized into five assessments, namely SS (Strongly Agree), S (Agree), KS (Disagree), TS (Disagree), and STS (Strongly Disagree). The test results are presented in the following table.

TABLE I. UAT TESTING TABLE

No	Question	SS	S	KS	TS	STS
1	The Prisoners and Evidence Monitoring Information System has covered all user needs	3	2	-	-	-
2	The web interface makes it easy to use the system (user friendly)	2	3	-	-	-
3	The Information System can handle the search for data and information related to the Supervision of Detainees and Evidence	3	2	-	-	-
4	The output of the Information System is following the needs	1	4	-	-	-
5	The process on each menu system is coherent and following what is needed	4	1	-	-	-
6	Data and information regarding custody surveillance and evidence are properly displayed and managed	2	3	-	-	-
7	When the system is run there are no errors/errors	4	1	-	-	-
<b>TOTAL SKOR</b>		<b>19</b>	<b>16</b>			

#### IV. CONCLUSION

Based on the descriptions and discussions that have been presented previously, the conclusions obtained from this study are that the model of the prisoner surveillance system and evidence has been successfully developed using the MVC method and can be accepted by users. This is evidenced by the test data carried out with the UAT model. The results show that 54.29% strongly agree and 64.00% agree that the system model developed can help and meet the needs in the process of monitoring prisoners and evidence. Using MVC also shows the results that data can be safer from data theft because the modules, processes, and views are separate. It is hoped that this system can be developed on a national scale.

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