CHATBOT APPLICATION DEVELOPMENT FOR NARCOTIC EDUCATION AND COMPLAINT USING DIALOGFLOW AND GPS ON ANDROID PLATFORM

Imam Sholehudin[1], Alif Finandhita [2]

[1,2]Teknik Informatika – Universitas Komputer Indonesia
Jl. Dipatiukur 112 – 116 Bandung
E-mail : imamsholehudin@email.unikom.ac.id[1], alif.finandhita@email.unikom.ac.id[2]

ABSTRACT

Badan Narkotika Nasional Provinsi is a instansce that trying to reduce the number of narcotics use in Indonesia. Trends in the types of narcotics in Indonesia such as marijuana is very dominant in Indonesia. The misuse of this kind of drug increased 2-6 % from previous year. The purpose of this research is to build and develop a chatbot application that can increase public knowledge about narcotics and make BNN more easier to receive and manage complaints from public. The development of this chatbot application is using waterfall method as development method. In this method, there are few stages of development, begin from communication, planning, modeling, construction the application itself and delivery the system to the users. In this research, this application created using dialogflow and also using specific API to control question and answers and using GPS Sensor on mobile devices to sending location of the reporter and the people who reported. The conclusion of this research is to educate public and provide them with a complete information about narcotics and to facilitate public who want to do report about drug misuse to BNN effectively.

Keyword : Chatbot, Education, Complaint, Narkotika

1. INTRODUCTION
1.1 Background
In the era of globalization, technology is increasingly developing. Humans always hold updates in all fields to support daily activities. Besides that, there are always impacts, both positive and negative impacts. This is a challenge for industrial companies and government agencies. One of the negative impacts produced is the existence of narcotics transactions which are increasingly easy to obtain. Therefore, government agencies are responsible for dealing with problems that occur in the community.

Drug abuse and illegal drugs always increase every year from all walks of life regardless of age and increase by 2-6% every year [1]. Of the 3.6 million addicts, on average 15 thousand people die and are dominated by young people with groups of children and the majority of students [2]. From the results of the questionnaire, it was found that the lack of public education about the dangers and the law of using narcotics is a phenomenon that cannot be ignored, so it is necessary to educate the public about the dangers of narcotics and legal abuse that will be accepted by its users..

On the other hand, the problem that occurs with government agencies that deal with this matter, which we commonly know as Badan Narkotika Nasional Provinsi (BNNP) Jawa Barat, namely the lack of human resources that can accommodate complaints from the public, and the absence of a system that is able to handle information and answer complex complaints or complaints within 24 hours.

Based on the above problems, it is necessary to make an education and complaints application for the community that can be used at any time to prevent and eradicate narcotics abuse in the surrounding environment..

1.2 Purpose and Objectives
The purpose of this study is to develop educational applications and narcotics complaints with the platform by using dialogflow and GPS on the android platform as community and BNNP in dealing with the reporting and education of narcotics abuse. So we get the following objectives:
a. Educating the public about information related to narcotics and the dangers of narcotics use.
b. Relieve BNN in receiving complaints and complaints from the public.

2. RESEARCH CONTENT
2.1 Theoretical Foundation
1. **Narcotics**
   Narcotics are substances or drugs that come from plants or not plants, both synthetic and semisynthetic, which can cause a decrease or change of consciousness, loss of taste, reduce to eliminate pain, and can cause dependence [3].
2. **Chatbot**
   Artificial Intelligence is a field of study on how to make computers able to do things that humans can do better. One application that uses artificial intelligence is the ChatBot application [4] [5] [6].

3. GPS

Global Positioning System (GPS) is a device that can determine the exact position of the earth's coordinates which can directly receive signals from satellites [7]. GPS can determine the position and navigation globally by using satellites. GPS can provide information about position, speed, and time quickly, accurately, cheaply, anywhere on earth at any time without depending on the weather [8].

4. Android

Android is a mobile operating system based on the Linux operating system. Android offers a comprehensive approach to application development. That is, an Android application that is built can run on a variety of devices that use the Android operating system both smartphones, smartwatches, tables, and other devices [7].

2.2 Researh Methods

The research method uses a quantitative descriptive approach because it measures the variable knowledge of the public about reporting abuse and rehabilitation of narcotics addicts [9]. In this research software development uses waterfall [10]. The flowchart built in this research method is:
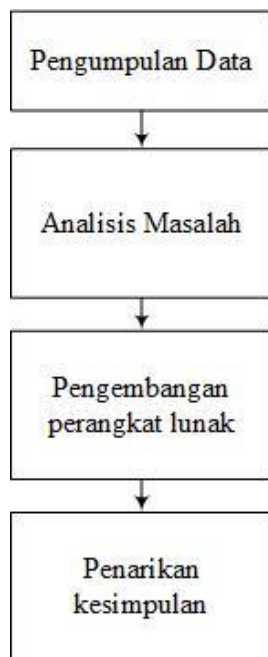

Figure 1. Flow of Research Methods

2.3 Results and Discussion
2.3.1 Analysis of Techology
1. Analysis of Dialogflow

This section discusses the use for text input and voice input as processed data material to obtain an answer value for the target user.
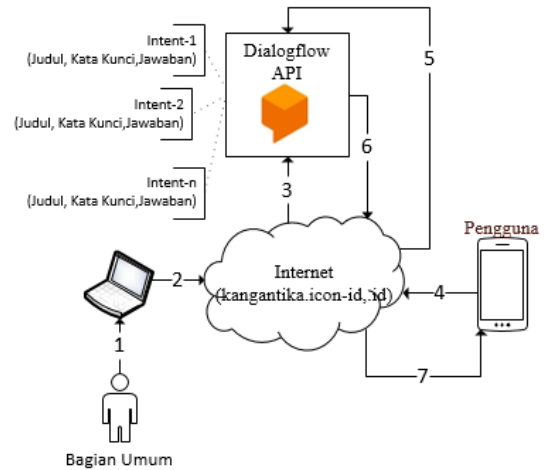

Figure 2. Application of Dialogflow in Research

Explanation from the analysis picture of dialogflow application is: :

1. Bagian umum / Employee BNNP Jawa Barat Explanation from the analysis picture of dialogflow application is:.
2. The stored data will be stored on the website kangantika.icon-id.id
3. Website will provide input data to dialog flow
4. Users who use the application from the mobile side will ask about narcotics-related matters.
5. The question will be processed by dialogflow to find the answer.
6. The answers obtained by dialogflow will be given to the website
7. The results of the questions obtained to users

Following are the forms of implementing API on backend applications

```
{
  "type": "service_account",
  "project_id": "chatbotbnn",
  "private_key_id": "id_private",
  "private_key": "-----BEGIN PRIVATE
KEY-----\ private key==\n-----END
PRIVATE KEY-----\n",
  "client_email": "admin-
194@chatbotbnn.iam.gserviceaccount.co
m",
  "client_id":
"115972052827104449858",
  "auth_uri":
"https://accounts.google.com/o/oauth2
/auth",
  "token_uri":
"https://oauth2.googleapis.com/token"
,
  "auth_provider_x509_cert_url":
"https://www.googleapis.com/oauth2/v1
/certs",
  "client_x509_cert_url":
"https://www.googleapis.com/robot/v1/
metadata/x509/admin-
194%40chatbotbnn.iam.gserviceaccount.
com"
}
```

Figure 3. Implement API on the backend

After that the application of the API on the mobile application. Here is a sample code in the file ChatbotActivity.Java

```
final AIConfiguration config = new
AIConfiguration("APIKEY",AIConfigurat
ion.SupportedLanguages.DEFAULT,AIConf
iguration.RecognitionEngine.System);
```

Figure 4. Implement of API on Mobile

2. Analysis GPS

In this analysis, it is used to provide the location or position of the complainant as an address guide for the National Narcotics Agency. The resulting value comes from the level of accuracy consisting of distance accuracy and time accuracy. The following GPS analyzes are generated:
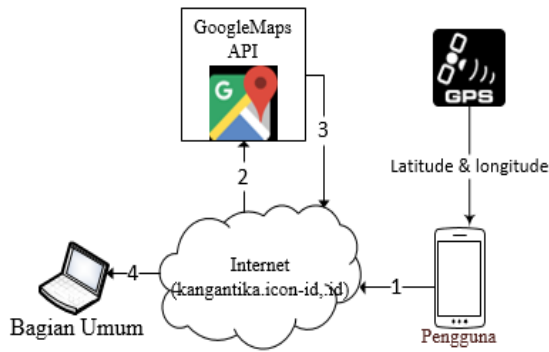

Figure 5. Implement GPS on Research

Based on the picture above explains that the report received will receive the location of the reporter, the reporting location uses geocoding where the system gets a string value from the user and is translated with the API to get the reporting location point. After that the application will capture the coordinates of the latitude in the form of latitude to be stored as a reference to the location of the reporter to review its validity.

2.3.2 Analysis Procedure

This chapter discusses procedures that will be made in the form of a system that is useful for solving problems in BNN Jawa Barat Barat in completing education and complaints. The proposed procedure is:
1. The public uses educational applications and complaints using email.
2. The community uses the application to ask questions and complain about narcotics abuse.
3. If the public wants to report send a message using the prefix I want to report
4. The system will ask for the address of the event
5. Community input address.
6. The system will store complaint information.

2.3.3 Analysis of User Needs

In this needs analysis is intended to find out users who can run the application that was built. As for users who can access the application, it will be explained in the following table:

Table 1. Analysis of User Needs

User	Responsible	Access Right	Skill Level
Community	Participate in narcotics prevention in the surrounding community	Asking narcotics information and reporting on the chatbot application	Understand using a smartphone
Employee BNN	Receive reports and complaints from the public.	Access report data and manage educational material	Can operate a computer, and can manage application.

2.3.4 Use Case Diagram

Following are the use cases of educational applications and complaints used by West Java BNNP officers. The use case subsystem used by the community:
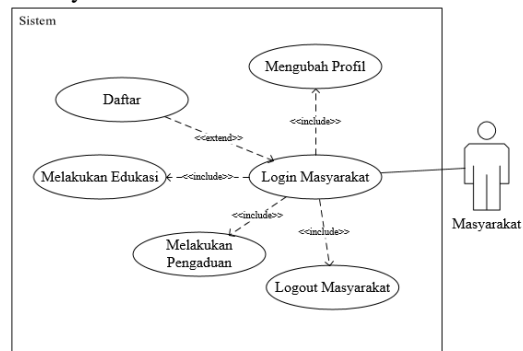

Figure 6. Use Case Diagram Community Subsystem

Next is the use case diagram of the West Java National Narcotics Agency subsystem which has its own use case design
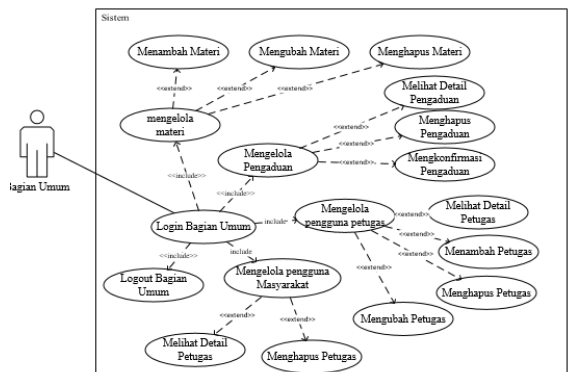

Figure 7. Use Case Diagram Subsystem Employee

2.3.5 Relation Schemes

The following is a picture of the relation scheme that is found in the development of education applications and complaints from the West Java National Education Agency:
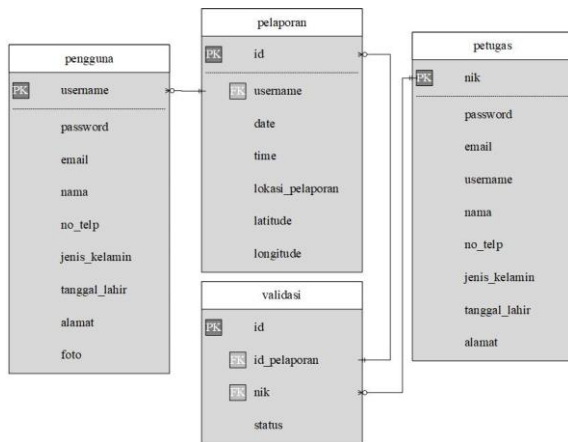

Figure 8. Relacion Schemes

2.3.6 Analysis Chatbot Application

At this stage shows the results of the analysis on the chatbot application which is used as a reference for the development of education applications and complaints of West Java Province BNN. As for some applications that become comparisons and references in the development of these applications, among others, simsimi applications, rinna applications, ria applications, each of which has advantages and disadvantages that can be used as research references.

2.3.7 Implement and Testing
2.3.7.1 System Implement

Implementation of the system, is the stage for implementing the design that has been done on the system so that it is ready to operate. The system implementation includes hardware implementation, software implementation, data implementation, and interface implementation.

1. Hardware Implement

The hardware used in implementing the information system created is as follows:

Tabel 2. Implementasi Perangkat Keras

No	Hardware	Specification
1.	Processor	Processor Intel E5400 Dual Core 2,8 Ghz
2.	Monitor	Monitor dengan Resolusi 19" (inchi)
3.	Memory	RAM 2 MB DDR3
4.	Hardisk	500 GB
5.	VGA	VGA 1 GB
6.	Keyboard	Standard
7.	Mouse	Standard

2. Software Implement

The software used in implementing the information system created is as follows:

Table 3. Software Implement

No	Software	Specification
1.	Operating System	Microsoft Windows 10
2.	Application Office	Microsoft Office 2016
3.	Web Browser	Mozilla Firefox dan Google Chrome

2.3.7.2 Testing
1. System Testing

System testing is the most important thing that aims to find errors or deficiencies in the information system being tested. The test intends to find out the information system that is made has met the performance in accordance with the design objectives.

The test used to test the new system is the black box testing method. Black box testing is focused on testing the functional requirements of information systems.

2. Alpha Testing

Alpha testing is a functional test carried out in an application builder environment by a group of users who will later use the application. The application builder will accompany and record errors and problems felt by users in testing. Alpha testing conducted on the application is divided into five parts, namely the test scenario and testing conclusions.

3. Scenario Testing

The scenario of testing the development of educational chatbot applications and complaints using test data based on data provided from some data that has been provided. The full test plan can be seen in the following table:

Table 4. Schenario Testing

Process	Item Test	Type Test
Login	User Login	Black Box
	Officer Login	
Registration	Registation Login	Black Box
Managing Data Officer	Add Officer Data	Black Box
	Change Officer Data	

Process	Item Test	Type Test
	Delete Officer Data	
Management Reporting	Confirmation Reporting	Black Box
Management Community Data	Add Community Data	Black Box
	Change Community Data	
	Delete Community Data	
Management Material Education	Add Material Data	Black Box
	Change Material Data	
	Delete Material Education	
Material Education	Material Education for Community	Balck Box

4. Beta Testing
a. Questonnaire Beta Testing

This research questionnaire was made with a list of 4 questionnaire questions submitted to 30. This test was carried out using the user acceptance test as the final stage of the test carried out to find out if there were still defects in the developed application.The questionnaire distributed was as follows:

Table 4. Question

No.	Question	A	B	C	D	E
1	Can this application educate you about narcotics?					
2	Does this application provide complete information related to the dangers of narcotics?					
3	Does this application help you in reporting or complaints about narcotics abusers?					
4	In making complaints, is the use of this application more effective than making cellular calls?					

b. Result Beta Testing

The results of beta testing from distributing questionnaires are as follows:

a. As many as 37% of respondents said that the application was very educational, 43% of respondents said that the application could educate, and 20% of the respondents said that the application was enough to educate the public.
b. As many as 30% said that the application provided very complete information, 47% said that the application provided complete information, while 23% of respondents said that it was quite complete in providing information related to the dangers of narcotics.
c. As many as 47% of respondents said the application was very helpful in making complaints, 20% of respondents said the application was helpful in reporting, 30% of respondents said the application was quite helpful in reporting, and 3% of respondents said the application was less helpful in reporting abusers
d. As many as 23% of respondents said that complaints using chatbots were very effective, 37% of respondents said that complaints using chatbots were effective, 30% of respondents said that complaints using chatbots were quite effective, and 10% said that complaints using chatbots were less effective

3. Finale
3.1 Conclusion

The conclusion of the research on the development of educational chatbot applications and complaints using Android is as follows:
1. The chatbot application can be used to educate the public about drug and legal information from its use.
2. Chatbot application can be used as community media in reporting narcotics abuse.

3.2 Suggestion

The suggestions for completing the chatbot edification and reporting application are as follows::
1. Add visual media in the form of images or audio so that they can better educate and add to the information presented.
2. Add reporting category features so that relevant agencies can more clearly identify the type of report provided.

BIBLIOGRAPHY

[1] B, N, Nasional. "Badan Narkotika Nasional Republik Indonesia". (Online) https://bnn.go.id/. (diakses 24 Februari 2019)

[2] A, Liem. 2010. "Efektifitas Pelatihan Anti Narkoba dengan Metode Reflektif Terhadap Pemahaman dan Intensi Penyalahgunaan Narkoba pada Murid SMA Kelas X". *Jurnal Penelitian*. Vol 13 No. 2 2010., 241-262

[3] Deputi Bidang Pencegahan. 2018. Awas! Narkoba Masuk Desa. Jakarta:Badan Narkotika Nasional

[4] M, F, Ramadhani. 2012. "Pembangunan Aplikasi Informasi, Pengaduan, Kritik, dan Saran Seputar Kota Cimahi pada Platform Android". *Jurnal Ilmiah Komputer dan Informatika (KOMPUTA)*.Vol 1 No.1 2012., 1-9

[5] Mahdiyah, Evfi. 2013. "Analisa Algoritma Pemahaman Kalimat Pada ALICE Chatbot dengan Menggunakan Artificial Intelligence Markup Languange(AIML)". *Kumpulan Makalah Seminar Semirata*. Vol 1 No. 1 2013., 193-202

[6] I, Afrianto. 2015. "Rancang Bangun Aplikasi Chatbot Informasi Objek Wisata Kota Bandung Dengan Pendekatan Natural Languange Processing". *Jurnal Ilmiah Komputer dan Informatika (KOMPUTA).* Vol 4 No. 1 2015. 49-54

[7] S, Hansun and M, B, Kristanda and M, W, Saputra. 2018. *Pemrograman Android dengan Android Studio IDE*. Yogyakarta: Andi.

[8] M, N, Rais and K, I, Santoso. 2015. "Implementasi Sistem Informasi Geografis Daerah Pariwisata Kabupaten Temanggung Berbasis Android dengan Global Positioning System (GPS)". *Scientific Journal of Informatics.* Vol 2 No. 1 2015., 29-41

[9] A, Finandhita and I, Afrianto. 2018. "E-Document Authentification With Digital Signature For Smart City : Reference Model". *IOP Conference Series: Material Science and Engoneering.* Vol 407 No. 1 2018., 1-6.

[10] R. Pressman, 2010, *Rekayasa Perangkat Lunak*, Yogyakarta: Andi.