

Design and Implementation of Android-Based Village Fund Monitoring Application

Ade Oktarino, Adam Afriansyah, and Arjon Turnip

Abstract— Village development is one of the priorities of the Indonesian government as stated in the third *nawacita* that is to develop Indonesia from the periphery. To improve the supervision of village funds in cooperation with the Jambi Regional Police, an application known as an android-based village fund monitoring called *Kadades* was built. The *Kadades* application is built with Java programming using the Eclipse application and the Apache webserver and is supported by the Android Studio operating system. The *kadades* system was tested and implemented for the past year and the application can be installed via play store with the keyword "*Kadades Polda Jambi*". In the test, the significantly decrease of villages violations about 9 reports out of 1,563 observed villages were achieved.

Index Terms—*Kadades Polda Jambi, Monitoring, Android*

I. INTRODUCTION

ONE of the government's policies in order to improve Village Development is to provide Village Development budget resources through the National Budget. This rule was built based on one of the third points of the President's *Nawa Cita*: Building Indonesia from the periphery by strengthening regions and villages within the framework of a unitary state. The granting of village funds aims to improve village welfare and justice through improving public services in the village, advancing the village economy, addressing development disparities between villages, especially with cities, and strengthening rural communities as a development subject. The government's noble goals must be maintained and monitored so as not to cause irregularities or violations of budget use. So that village funds can be used appropriately in accordance with the objectives and on target.

Evaluation results on the distribution and utilization of village funds in 2015 and 2016 showed that there were still many violations such as the use of the budget outside the priority program, all construction works were executed by third parties or service providers, expenditures were not supported by adequate evidence, and others. Based on the problem, the government made a memorandum of understanding (MOU) between the Ministry of Villages, the Development of Disadvantaged Areas and transmigration, the

Ministry of Home Affairs and the Indonesian National Police regarding the prevention, supervision, and handling of problems of village funds.

To provide acceleration and supervision of village funds use after the MOU, an application system with *Bhabinkamtibmas* (police operators) as an android-based operator was built based on the Jambi Regional Police Law. The application is named *kawal dana desa* (*Kakades*) with features including village data, documentation of the results of the use of village funds and integrated with Geographic Information Systems (GIS). The meaning of *kawal dana desa* is a monitoring system application for every activity of utilizing village funds. With GIS, any information in the form of coordinates, time, and field data can be monitored in real time by the supervisor. Both web-based application development [1]-[4] and the android system have been widely developed before, but the use of special applications for monitoring village funds was first developed. Separately the GIS application has also been developed for other applications [5]-[7], but its combination with *kakades* makes the application more powerful, user friendly, and informative.

II. METHODS

In designing, testing, and implementing the *Kakades* application, the research location as well as the case study used is the Jambi Regional Police, which is located on Jl. Jend. Sudirman No.45, Tambak Sari, Jambi Sel., Jambi City, Jambi 36138, Indonesia. The research process began by conducting observations, interviews, and collecting documents from both the police and several village samples. The *kakades* system was built using the Waterfall model, besides being easy to use it also tended to be more accurate. According to Pressman [9], [10] "the waterfall model" is a classic, systematic sequence in building software. This model is often called the "classic life cycle" [9], [10]. Called the waterfall because step by step must wait for the completion of the previous stage and in sequence. The steps that must be taken in the waterfall methodology are communication (project initiation and collection requirements), planning (estimating, scheduling, and tracking), modeling (analysis and design), construction (coding and testing), deployment (delivery, support, feedback). The stages of development include (i) System Requirement Analysis: analyzing all data collected (ii) System Design: translating the analysis results into a chart that is more easily understood by the programmer (iii) Unit Implementation and Testing: implementation of the design

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that has been made in the form software with the Java programming language using eclipse applications and apache web servers. (iv) System testing: Testing is done using the Android Unit Test available in the eclipse application to find out whether the system is built according to user requirements. (v) Maintenance: maintenance software such as making improvements to the current system or adding additional functions according to the user's wishes.

The flow of Kadades application from public or community and command center view are given in Fig. 1 and 2, respectively. Fig. 1 explain how the community provide or enter the data complaint to the *Kadades* system which are could be in the photos form with its explanation. The community reports irregularities in the use of village funds through the *Kadades* application by inputting photos, providing information on irregularities, and sending reports. The command center operator will analyze and forward the findings to the police station according to the reporting jurisdiction. In Fig. 2, Operational police personnel will supervise the use of village funds using the *Kadades* application by conducting village data collection, reporting, monitoring fund absorption activities based on the provided budget. Data is automatically stored in a database for other unit needs and can be accessed by the command center for data analysis and directly assignments to the *satwil / polres* for investigation if distortion fund is obtained.

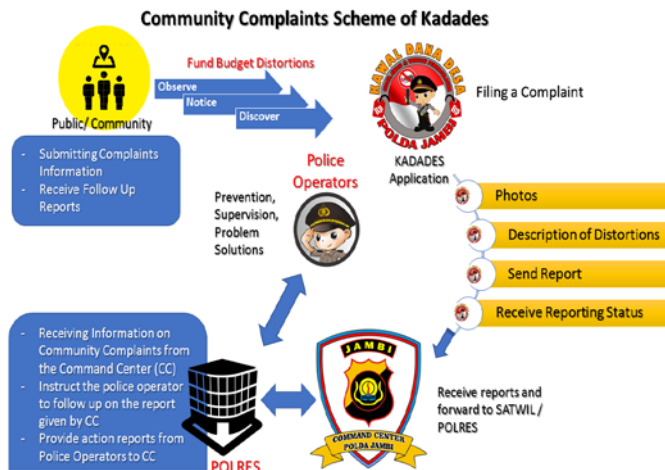


Fig. 1. Public/ Community Complaints Diagram of *Kadades* Application in Jambi Regional Police.

To maximize the *Kakades* based android application run well and as expected, the required smartphones with minimum specifications such as dual core processor, 512 Mb RAM, and 1 GB ROM. To support the applications other than the required hardware, software is also needed to run the android studio operating system.

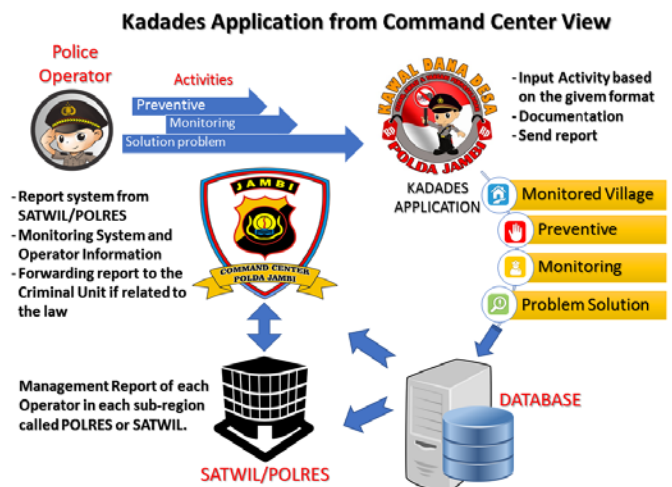


Fig. 2. *Kadades* Application from Command Center View.

III. RESULTS AND DISCUSSIONS

Village Funds are budgets sourced from the Indonesian government intended for villages and indigenous villages that are transferred through the district government and are used to finance governance, development and community and community empowerment. Village Government is the village head or what is referred to by another name assisted by village officials as an element of village administration. Village fund management is a whole series of activities that starts from the stages of planning, implementation and administration, reporting to accountability which is carried out in one fiscal year. Self-management is the implementation of work that is planned, carried out and supervised by itself. The task of the police operator is to conduct community coaching, early detection, and mediation / negotiation in order to create conducive conditions in the village.

Jambi is one of the provinces in Indonesia consist of 1 regions, 141 districts where there is a regional police (*Polda*). One districts consist of several village and in this work the *Kadades* were applied in 1,562 villages. The police work together with the regional government to protect the security of an area, both to prevent and to overcome the problem. In terms of preventing problems caused by the use of village funds, the Jambi regional police chief built an android-based monitoring system called *Kawal Dana Desa (Kadades)* with diagram context and data flow diagram level zero are given in Fig. 3 and 4. The box symbol indicates user or terminator: The external entity that provides input or receives output to or from the system, respectively, in the form of people, organizations, or other systems. The circle symbol shows the process: Activity to process input into output. Symbol D indicates data store: Storage of data in a database, usually in the form of a table. The arrow shows data flow: Flow of data in the system (between processes, between terminators & processes, and between processes & data stores).

Kadades application consists of four main parts as shown in Fig. 5 which are: Community complaints are features for reporting irregularities; The activity document is a collection

of documentation of the activities of the operator's police personnel in the field in terms of supervision and reporting; Internal Police are the login buttons for users and key officials of the Jambi Regional Police to use the application; Application information is a feature that contains the use of applications for police and community personnel as well as standard operational procedures in monitoring the use of village funds. Fig. 6 indicate (a) Login button from the internal part of the National Police button where there are several login buttons according to the respective job desk; (b) Display of personnel information after logging in; (c) Display Master data of jambi province village. Fig. 7 Indicate: (a) the display to add budget village funds which the police operator personnel enter the budget data of each village before being monitored; (b) Detailed input of the village budget; (c) Documentation of monitoring results.

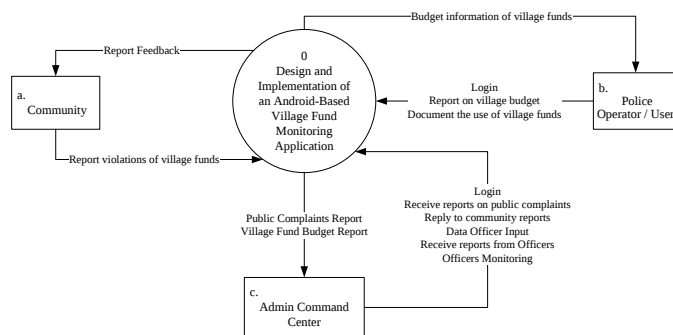


Fig. 3. Context Diagram.

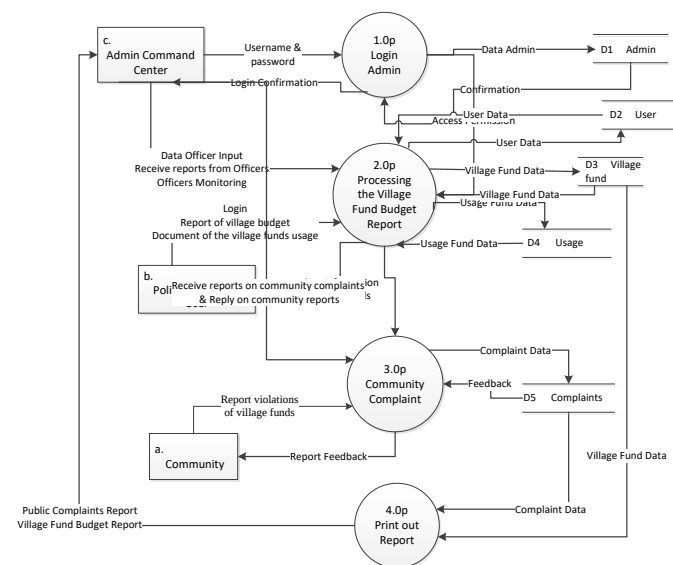


Fig. 4. Data Flow Diagram Level Zero.



Fig. 5. Main menu of Kadades Application (with header in Bahasa Indonesia).

Fig. 8 indicate the function of admin panel button which are consist of: Reference data is to enter master data which consists of religion, rank, type of regional police, type of police station, type of police, marital status; master data is the input of regional data, work units and members of the National Police; User accounts are the division of functions according to job desks, namely command centers, operators, headquarters, leaders, police operators, binmas, propam, and the community; Jurisdiction master data for inputting village data. The master data consists of: Village income, village budget, disbursement of funds, type of work, use of funds, complaints, police operator activities. Fig. 7 and 8 show the interface of: public complaint reports from the admin command center panel to follow up on the community reports that will be forwarded to the investigation stage and the location monitoring of police operator personnel and village locations with a real-time Geographic information system.

The Kadades application has been upgraded to the Play Store service and has been used as a whole by the regional police Jambi. With the application of the Kadades, the community can easily help monitor the use of village funds in accordance with their appropriations quickly and accurately. In terms of the police, this application is very helpful for the police in each village in reporting surveillance activities and monitoring the use of village funds. In terms of Jambi regional police, this application is intended to assist in reporting the use of village funds and as a tool in the investigation process if misuse of village funds is found.

From 1.562 villages which were installed and applied the Kadades application, 45 reports of alleged violations were obtained and 9 of them were proven to have committed violations and were subsequently prosecuted. Other benefits include: Information on utilizing village funds accessible to the community and all stakeholders; village officials are much

more careful in using the budget; reporting becomes more transparent; and the quality of development has significantly increased. This is proven by the decrease in violations of only about 9 reports compared to the previous year of more than 70 reports (without use of the *Kadades* application). The performance of the police force has also significantly increased because the application of *kadadas* is integrated with geographic information systems. The position of every police in the work area can be monitored by their supervisor and management in realtime at any time.

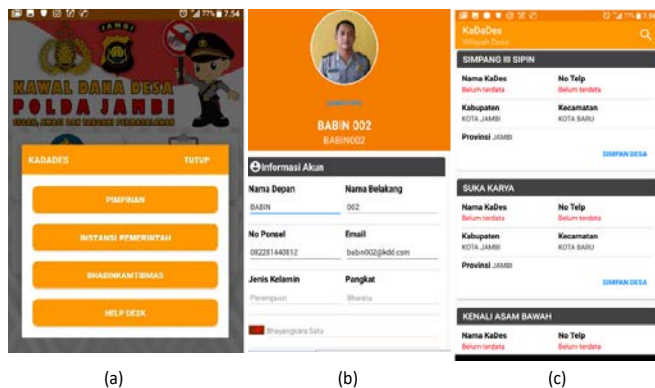


Fig. 6. (a) security: login, (b) user profile, (c) the village information data in Bahasa Indonesia.

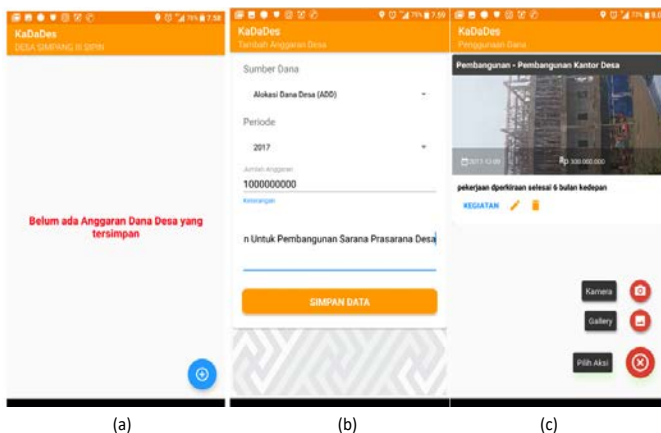


Fig. 7. (a) information of usage funds, (b) input data of funds, (c) Uploading data (file or picture) in Bahasa Indonesia.

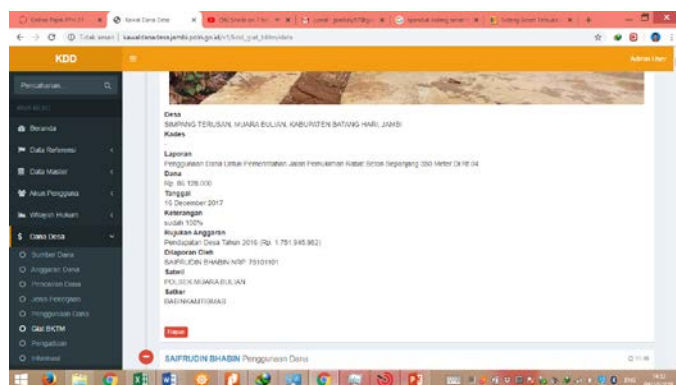


Fig. 8. Intertacing to insert or update Reference data; user accounts, and Jurisdiction master data in Bahasa Indonesia.

In preventing the operator from doing: Coordination with related institutions about the number of villages, budget, and the used funds in their respective regions; Know the sources of village income; Conducting socialization related to the use of village funds; Placing calls for use of village funds strategic places (public places); Socializing the application of public complaints about "*Kadades* application". In term of police monitoring, the operator carries out about village funds: assistance and evaluating to village officials which fit the village priority program, monitoring on the distribution, ensuring the Village Head to make a realization report, field inspection, community empowerment to make a report on alleged misuse, establishing good communication relationships with stakeholders including the village head.

If misuse of the village funds is found, the police operator conducts deliberations, coordinates meetings or discussions with Village Government officials to find solutions to problems while minimizing potential conflicts. At the investigation stage, the opportunity to recover state losses after an investigative audit by the relevant Apparatus becomes greater.

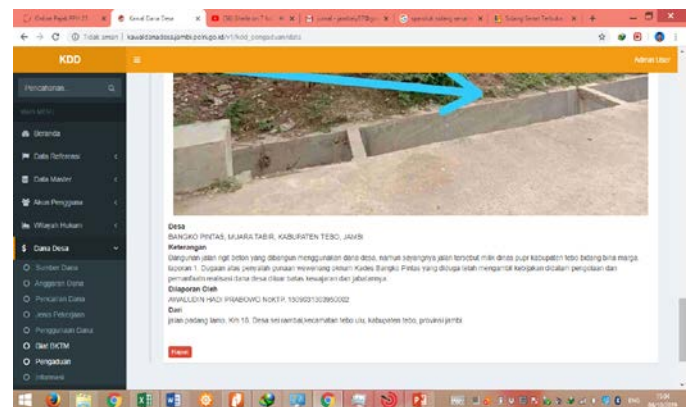


Fig. 9. Public complaints reports on the use of village funds received by the admin command center in Bahasa Indonesia.

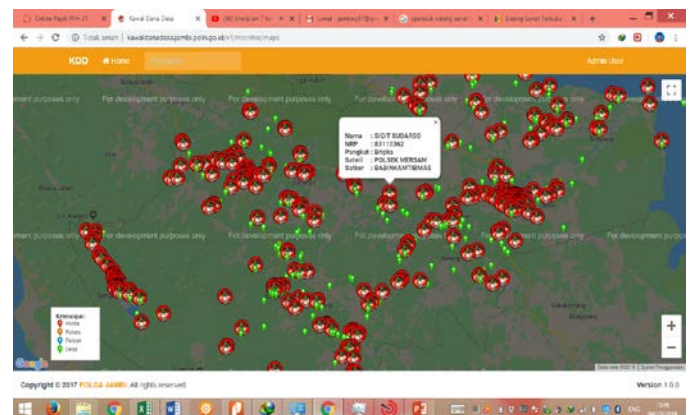


Fig. 10. Realtime geographic information system for personnel monitoring activities in Bahasa Indonesia.

IV. CONCLUSIONS

The violations of the villages fund were significantly decrease only about 9 reports out of 1,563 observed villages. The work performance of the police were significantly increase, village officials are much more careful in using the budget, reporting becomes more transparent, and the quality of development has significantly increased after the application of the *Kadades* system. The *kadades* system was tested and implemented for the past year and the application can be installed via play store with the keyword "*Kadades Polda Jambi*".

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