

# The Development Of Parenting Information System For Kindergarten Based On SMS-Gateway

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## ABSTRACT

Kindergarten is a second home for a children for about 5 – 7 years, it is accroded from national constitution No.20 year 2003 article 8 about early education for children. Based on it, kindergarten management should be able to coordinate with the parents in order to giving a centralized information to avoiding false information from irresponsible person.

Delivering an Information to the parents is always be an issued whereas the parents is not available to be contacted by the management, for instance when the students go to the kindergarten for the half of day, the management could not contact the parents due to limited communication, therefore the students is going home alone. The teacher also have an issues to communicate with the parents regarding the development of their children, the development of sensor motoric, and the development of social life of their children. Given the background, it need a centered information system based on short message service (SMS)-gateway by using waterfall a method which using Life Cycle Development System. The system which will be develop will help a parents to gathering centered information from Kindergarten Management, therefore, if there is newest information regarding schedule of holiday, event, study, the parents will be informed soon and well.

**Keywords:** *Short Message Service, Gateway, Sistem Development Life Cycle*

### 1. Introduction

According to data from the National Bureau of Statistics (BPS) Nasional, in 2013/2014 there are 4,174,783 students who attend in 74,982 kindergartens school in Indonesia.

Kindergarten as the first educational gateway in Indonesia, has the obligation not only to undertake education but also has an obligation to provide of security to the students. This is due to the frequent occurrence of children kidnapping, child sexual abuse (pedophilia) and child abuse cases. According to data from the National Commission for Child Protection (KOMNAS PA), in 2007 - 2008 there were 5,334 cases of violence against children such physical violence 1,382 cases, sexual harassment 1,858 cases and 2,094 psychological violence. One cause of the occurrence is due to lack of communication between parents and the teachers.

TK Taruna Jaya Bandar Lampung is one of the Private Kindergarten in Bandar Lampung which was established since 1986. It has 1 principal, 12 teachers, 1 cleaner with 6 classrooms each consisting of 2 class A and 4 class B, each class consists of 30 students

with 2 teachers who responsible with the class.

Based on pre-research conducted at TK Taruna Jaya Bandar Lampung, there are some cases where the management of TK Taruna Jaya was not able to contact the parents when there was some important information, for instance school schedule. Teachers are were also hard to communicate with parents regarding with child development, achievement, complaints, hobby, interest and talent, motoric development of children, socialization with friends and environment.

Given the background, a research was conducted to minimize the incident by building a parent-child information system based on SMS gateway. Thus parents will get direct information from the Kindergarten manager if there is the latest information about their children in kindergarten. Therefore, parents could monitoring the activities of their children even though they are home or still in working.

## 2. Research Method.

In this research, the data collection used this method:

### Interview

In this step, Interview is conducted to the management of TK Taruna Jaya. Interviewees include: Headmaster and Teacher at Taruna Jaya Kindergarten Bandar Lampung. This interview technique is conducted to get information about the stage of the process of delivering information on the development, achievement, complaints related to the children in Taruna Jaya kindergarten Bandar Lampung and to find out the problems in TK Taruna Jaya Bandar Lampung.

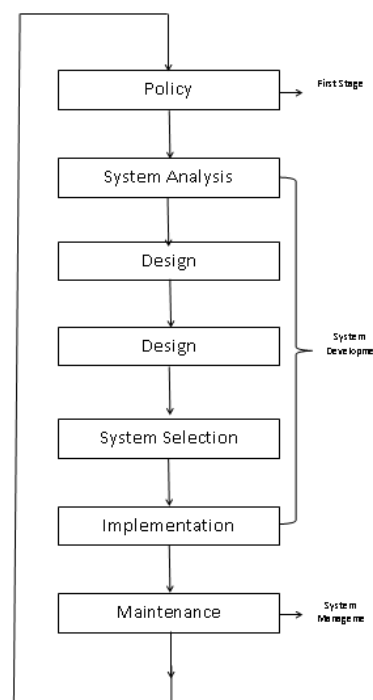
### Literature Review

This method is to searching and studying the related literature review about SMS Gateway application and software (Software) and hardware (Hardware) needed.

### System Development

This system is developed by using Waterfall Life Cycle method, this method is to analyzing of problem in business process at TK Taruna Jaya Bandar Lampung and to analyze process of information delivery at TK Taruna Jayatherefore the solution for the problem could be arranging. The laststage is to test the system that has been developed to ensure the system works properly.

In SDLC, each part of the system development is divided into several stages of work. Each of these stages has its own characteristics. The main stages of system development life cycle can consist of system planning stages, system analysis, system design, system selection, system implementation and system maintenance (system maintenance).



**Figure 1. SDLC**

## 3. Discussion.

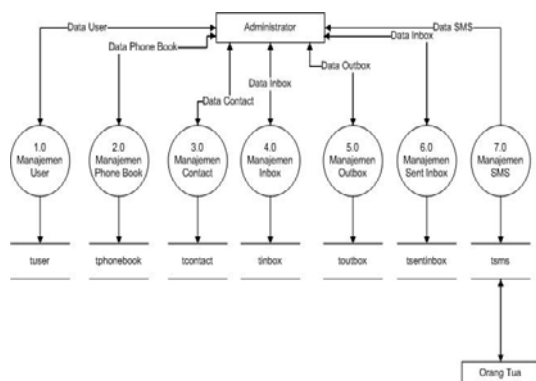
### Analysis of Design

This system is using structural programming, it used Data Flow Diagram and Entity Relationship Diagram analysis.

#### 1. Data Flow Diagram Level 0.

At DFD Level 0 it gives an overview of what processes will be performed with existing external entities. The main image can be seen in Figure 2. The SMS Gateway application will have 7 modules:

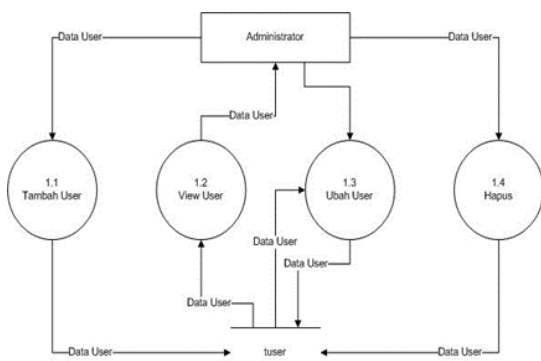
- a. User Management,
- b. Phone Book Management
- c. Contact Management
- d. Inbox management
- e. Outbox management
- f. Sent Inbox Management
- g. SMS management to create SMS format.



**Figure 2. DFD Level 0.**

## 2. Data Flow Diagram Level 1 Process 1: User Management.

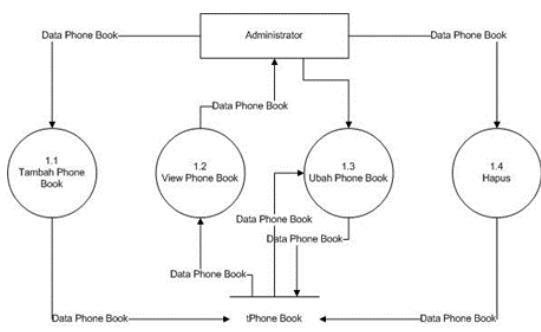
Data Flow Diagram Management User shows the process admin able to do the process of adding user, View User, Change User, Delete User, and then the data will be stored in the database. The process can be seen in Figure 3.



**Figure 3. DFD Level 1 Process 1.**

## 3. Data Flow Diagram Level 1 Process 2: Phone Book Management

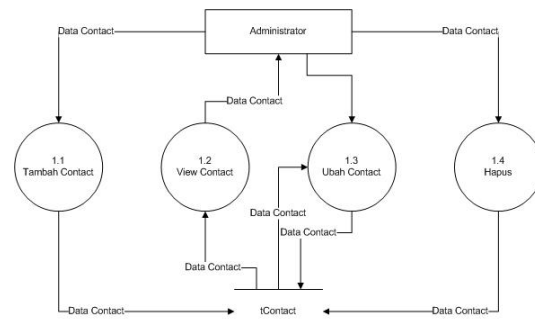
Data Flow Diagram Level 1 Process 2: Phone Book Management shows the process admin able to do the process of adding phone book, View phone book, Change phone booke, Delete phone book, and then the data will be stored in the database. The process can be seen in Figure 4.



**Figure 4. DFD Level 1 Process 2.**

## 4. Data Flow Diagram Level 1 Proses 3: Manajemen Contact

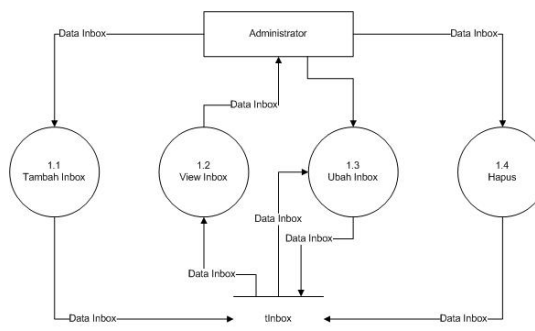
Data Flow Diagram Level 1 Proses 4 Manajemen Contact shows the process admin able to do the process of adding contact, View contact, Change contact, Delete contact, and then the data will be stored in the database. The process can be seen in Figure 5.



**Figure 5. DFD Level 1 Process 3.**

## 5. Data Flow Diagram Level 1 Process 5: Inbox Management.

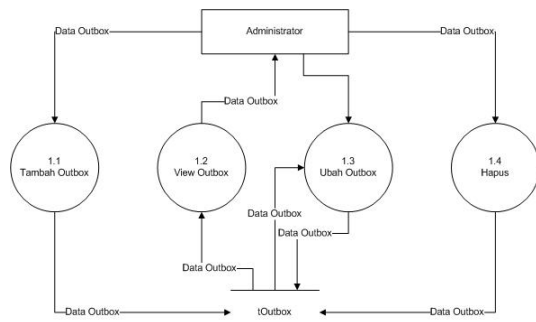
Data Flow Diagram Level 1 Process4: Inbox Management shows the process admin able to do the process of adding inbox, View inbox, Change inbox, Delete inbox, and then the data will be stored in the database. The process can be seen in Figure 6.



**Figure 6. DFD Level 1 Process 4.**

## 6. Data Flow Diagram Level 1 Process 6: Outbox Management.

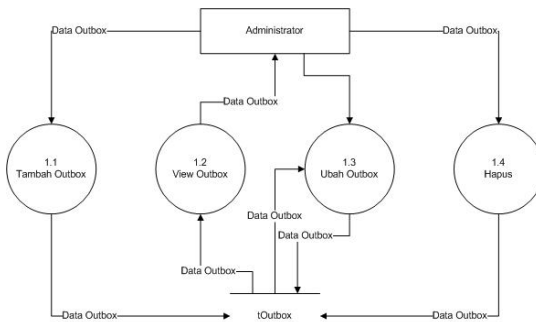
Data Flow Diagram Level 1 Proses 4: Outbox Managementshows the process admin able to do the process of adding outbox, View inbox, Change inbox, Delete inbox, and then the data will be stored in the database. The process can be seen in Figure 7.



**Figure 7. DFD Level 1 Process 5.**

## 7. Data Flow Diagram Level 1 Process 6: Sent Inbox Management.

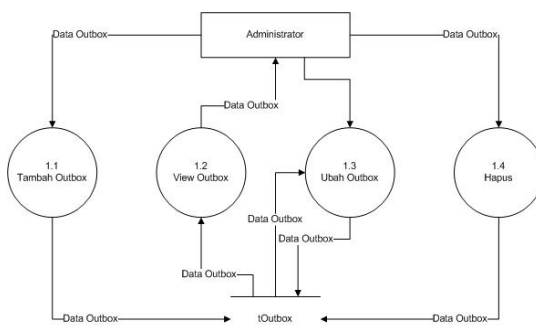
Data Flow Diagram Level 1 Process 6: Sent Inbox Management shows the process admin able to do the process of adding sent inbox, View sent, Change sent, Delete sent. and then the data will be stored in the database. The process can be seen in Figure 8.



**Figure 8. DFD Level 1 Process 6.**

## 8. Data Flow Diagram Level 1 Process 7: SMS Management.

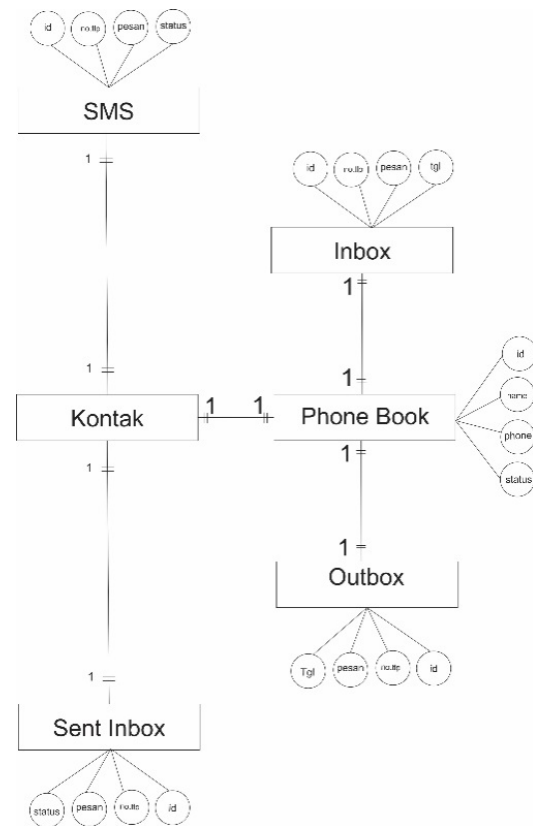
Data Flow Diagram Level 1 Process 7: SMS Management shows the process admin able to do the process of adding ssms, View sms, Change sms, Delete sms. and then the data will be stored in the database. The process can be seen in Figure9.



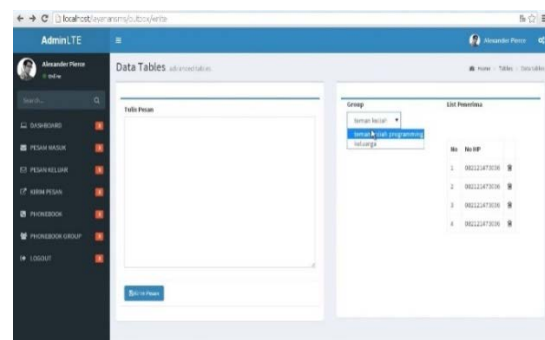
**Figure 9. DFD Level 1 Process 7.**

## Entity Relationship Diagram

For the ERD, the result is, Contact entity is related with SMS Entity, Inbox, outbox, sent, and phone book entity, as seen in figure 10.



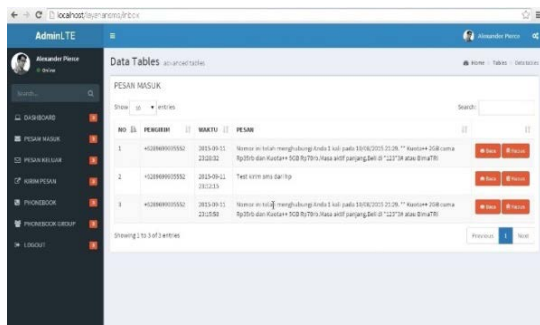
**Figure 10. ERD.**



**Figure 11. Inbox.**

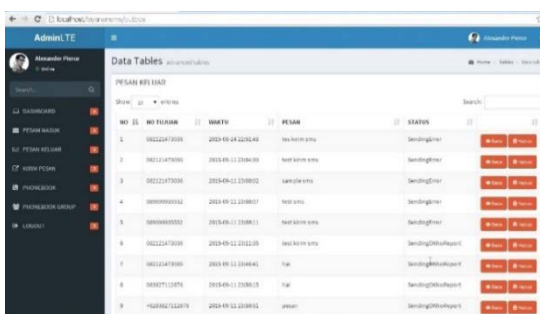
## System and Programs

1. Inbox.  
The Inbox page serves to receive and manage incoming messages.
2. SMS Broadcast.  
SMS broadcast page is to send bulk SMS to student's parents.



**Figure 12. Broadcast.**

3. Outbox SMS page  
SMS outbox page to manage all outgoing messages.



**Figure 13. Outbox SMS Page.**

#### 4. Conclusion.

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