The proposed guest verification information system design for the residential complexes

D Heryanto*, D D S Fatimah, A D Supriatna and R Setiawan
Department of Informatics, Sekolah Tinggi Teknologi Garut, Garut, Indonesia

*deni.heryanto@sttgarut.ac.id

Abstract. This study discusses the proposed information system design on how to verify guests in a housing complex that is quite dense and numerous, making it easier for environmental security officers to find and match guests and residents of the intended house. The purpose of this research is not only to improve the safety of the environment but also to find out the correct information from guests by verifying guest’s names to homeowners through a system designed. The method used in this study is the System Development Life Cycle (SDLC), which is a pattern for developing software systems consisting of the planning, analysis, design, implementation, testing, and management phases that form a workflow for planning and controlling design information Systems. The results of this study are prototype applications for guest verification in improving environmental safety in residential complexes.

1. Introduction
The rapid growth of the period in the world of technology that is demanded quickly in displaying the information needed by every individual, group, and even large organizations with various types of interests such as personal, financial information, legal information, and also on information relating to security. In another case study regarding information categories:

1.1. Submitter information
- Information for Individuals: Name, title, department, agency, office, address, phone numbers, and email address.
- Information for Entities: Name, address, and phone number.

1.2. Case information
It can be described with captures four types of case information along with the kind of examination requested. These are the type of cases (criminal or non-criminal), whether the subject is in custody, whether another laboratory has previously examined the evidence, and case identifiers. Case identifiers are the identifying numbers and, when applicable, operation name that uniquely identifies a case [1] “Information systems are a collection of information resources that are integrated into the collection, processing, maintenance, use, sharing, and dissemination.” [2] “Alison Anderson and Denise Longley developed information security, which took into account the information system environment, information systems, and information system assets.” [3] “Information systems run manual business processes to be automated and make them more efficient. Data and information are available to decision-makers as well as faster when information systems are used to change the exchange of information flow.
Orders can be carried out simultaneously in sequence, speeding up business processes. Information systems can also encourage new business models that would be impossible without technology.” [4]

Types of Information Systems:

| Type of System            | Information Inputs                              | Information Outputs                               | Users                        |
|----------------------------|-------------------------------------------------|---------------------------------------------------|------------------------------|
| Transaction Processing Systems (TPS) | Transactions; daily Events                     | Detailed reports; List; summaries                 | Operations Personnel; first-line Supervisors |
| Management Information System (MIS) | Summary transaction data; high-volume data; simple models | Summary and Exception reports                      | Middle managers              |
| Decision Support System (DSS) | Optimized for data analysis, analytic models and data analysis tools | Interactive; simulation; analysis                 | Professionals, staff managers |
| Executive Support System (ESS) | Aggregate data; external, internal              | Projections; Responses to queries                 | Senior manager               |

Furthermore, regarding the verification system, verification is an essential part of every system development program, and a person in the program organization must be responsible for all its parts.

From the example in Figure 2 above, the information system that is built must be able to verify data that occurs when the process in the order is in progress because it has been explained that verification is essential for making a decision (DSS).
2. Design model approach

This research uses the System Development Lifecycle (SDLC) model. SDLC “System development life cycle (SDLC) is a type of model that can play an important role in system development. The selection of SDLC is appropriate for certain types of information system design (IS) because it requires careful preparation and administration to guarantee the standards and quality of the final design that results in a good, effective, and efficient system.” [6].

![Classical SDLC Diagram](image)

**Figure 2.** Classical SDLC [6].

1) Motivation

Understanding the behavior of each individual or group of users is very important for the sustainability of the system.

2) Ability

The interface design will make it possible to provide a system that can provide feedback to users.

3) Triggers

The design results must produce differently from the others because, in this case, the design system plays a critical role in the success of making an application.

While the process steps on SDLC:

1) Analysis

The initial step in this SDLC is to analyze the requirements on the components, aiming to ensure that the system to be built can meet the objectives proposed by management.

2) Design

For this stage to conceptualize and choose the right software, a researcher does not have to proceed through each step of SDLC because the software product already exists.

3) Implementation

At this stage, it is the process of integrating program module segments, ensuring that each segment functions before all parts of the system being built are implemented as a whole.

4) Maintenance

Software updates (called “code loading” by vendors) and create maintenance schedules [7].

“Different from cellular applications have complicated systems and differ from desktop/computer applications; the Mobile Application Development Lifecycle (MADLC) model is recommended in a systematic approach to application development.” [8] “In essence, there are differences in runtime verification and design. For visual runtime verification is a system at the time of execution, so it requires a program that is realized and verification at the time of design can be installed during the design process.”[9] “Formal verification is essential to ensure that the software is free from errors.”[10].
3. Research methods
Data collection is poured into interviews, observations, and literature studies, and the application development method used in SDLC. The research framework, as shown in Figure 3 below:

![Research framework](image)

**Figure 3.** Research framework.

4. Result and discussion
The results obtained from this study are prototyping applications, as outlined in the following figure 5:

![Application interface](image)

**Figure 4.** Application interface.
In Figure 5 above is the main view of the application, where each house number in the app is a button designed to connect to each biodata that has been integrated with the telegram application of each homeowner, to make it easier for guards to contact the intended homeowner to verify if it occurs guest arrival. The flow of prototyping application is poured in Figure 5 below.

![Application prototyping diagram](image)

**Figure 5.** Application prototyping.

The weaknesses of this application are:
1. When there are no electricity/power outages that occur, this application cannot be used and must use a backup power source.
2. This application is very dependent on the internet network.
3. If a guest queue occurs, it is uncertain when the time will be obtained when verification is in progress.

That is the reason why this research integrates additional applications such as telegram in applications that are built, and then it can be viewed from a comparison table with the same application as the WhatsApp application.

| System interface built (Residential Complexes site plan) | Integrated/ install on the computer |
|---------------------------------------------------------|------------------------------------|
| Apps, Chat, Telp. | Telegram, Yes, Yes |
| WhatsApp       | Yes, No               |

**Table 2.** Difference between Telegram Apps and WhatsApp when installed on the computer.
So, WhatsApp application does not have telephone facilities when installed on a computer, while this research requires a two-way voice/telephone communication feature.

5. Conclusion
The system is created and installed on a computer/ touchscreen monitor device, making it easier for users to operate the application. However, there are still many shortcomings that exist in this application that are fixed in the future.

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