

Application of e-business in general elections (Study of utilization of a single identity number to support in the election process)

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Abstract

In approaching the technology era 4.0, providing the best service to the community is something that must be provided by the government, of course, the service must be supported by reliable and up-to-date information technology. One of the problems faced is how to provide the best results in providing services to the community. The services referred to in this study relate to a series of general election activities, where most people do not get the best service, including those not registered in permanent voters, some are not able to exercise their voting rights because their position is not close to the election location where they are registered. This research also expects the support of related parties so that this research can produce solutions that can be used to solve existing problems. Referring to the background of this study, the problems that can be identified are as follows: 1. Many people who can't be registered as permanent voters, 2. Can't exercise their right to vote, because the position at the election is not close to the location where they are registered as voters, 3 The number of ballots is damaged, or invalid so that voters can't use their voting rights. The scope of the problem is research focused on providing solutions so that the problem can be solved by utilizing information technology. The concept of E-Business will be applied in this research, namely Business to Government (B2G). The research method we use is applied research, because the results of the research can be directly used to solve problems faced and the application of E-Business by using the information systems development (ISD) method. The results achieved are applying the concept of Business to Government (B2G), which can be seen in Business to Government (B2G) business processes.

Keywords

The best service, Permanent voters, Elections, Voting rights, Damaged ballots, E-business, B2G, Business to government.

1.Introduction

In approaching the technology era 4.0, providing the best service to the community is something that must be provided by the government, of course, the service must be supported by reliable and up-to-date information technology. One of the problems faced is how to provide the best results in providing services to the community [1–3]. The services referred to in this study relate to a series of general election activities, where most people do not get the best service, including those not registered in permanent voters, some are not able to exercise their voting rights because their position is not close to the election location where they are registered [4]. The purpose of this study is to provide a solution to the problems encountered by using or the concept of E-Business [5].

This research also expects the support of related parties so that this research can produce solutions that can be used to solve existing problems and where later this research can also contribute to the nation by applying the concept of E-Business in it.

1.1Research problems

1.1.1Identification of problems

Referring to the background of this research, the problems that can be identified are: 1. Many people who can't be registered as permanent voters, 2. Can't exercise their right to vote, because the position at the election is not close to the location where they are registered as voters.

1.1.2Research restrictions

The scope of the problem is research focused on providing solutions so that the problem can be solved by utilizing information technology.

1.1.3Research purposes

Based on the identification of problems, the aim of the research is to create something that can solve existing problems by utilizing information

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technology, which is in the form of applying the concept of E-Business [6,7].

1.2 Research objectives and benefits

1.2.1 Research purposes

Referring to the identification of problems, the purpose of research is to make something that can solve existing problems by applying the concept of E-Business.

1.2.2 Benefits of research

The benefits of the resulting research are expected: 1. Can be used as a medium for data collection of general election participants or regional head elections, 2. Can be used by government agencies for data collection of general election participants or regional head elections.

2. Research method

2.1 Research methods

The research method we use is applied research, because the results of the research can be directly used to solve problems faced and the application of E-Business by using the information systems development (ISD) method [8].

Traditional systems development life cycle (SDLC) methods provide structured and formal steps. But the

method needs to be changed to adjust to the conditions of information technology and needs that are increasingly complex and require flexibility and great responsiveness.

For the development of e-business in this cluster, a combination of SDLC advantages that are structured and formal.

1. In this research, it will be shown the application of E-Business in solving existing problems.
2. The results of research in the form of scientific journals and the concept of applying e-business.

2.2 Data collection methods

Data collection methods used in this study are: 1. Observation or direct observation of research objects, observation techniques are carried out by structured observation by preparing a list of data requirements and data sources, 2. Literature study, data collection methods obtained by researching, studying, reading books, and looking for information from the internet in the form of journals related to E-Business and elections [9].

Figure 1 Shows the diagram of research stages.

2.3 Research stages

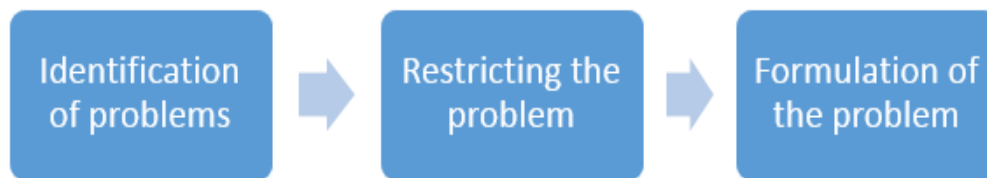


Figure 1 Diagram of research stages

a. Identification of problems

Referring to the background of this research, the problems that can be identified are:

1. Many people who can't be registered as permanent voters.
2. Can't exercise their right to vote, because the position at the election is not close to the location where they are registered as voters.

b. Restricting the problem

The scope of the problem is focused on providing solutions so that the problem can be solved by implementing E-Business.

c. Formulation of the problem

The main problem that will be examined in this research is how to produce the best solution that can

later be used to solve existing problems and hopefully this solution can be used for those who have the same problem.

2.4 System planning

The system design determines, how the system will be able to solve existing problems, several things that are in the design of the system include, designing hardware, software, network infrastructure. System design is an advanced stage of system analysis [10] where the system design illustrates the system to be built before coding in a programming language. In the design of a system can't be separated from the results of the analysis. The system design in this study is illustrated in the form of a concept, which can be seen in Figure 2.

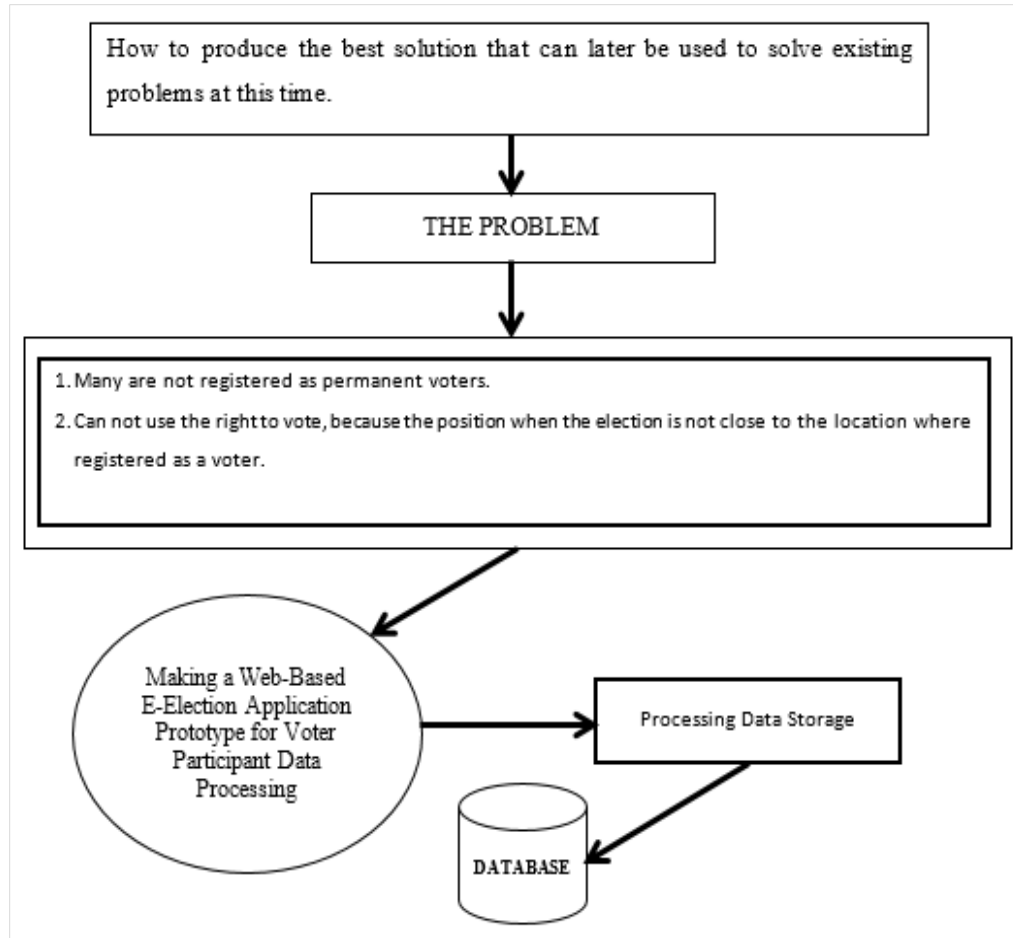


Figure 2 Research concept

Explanation for *Figure 2* as follows:

1. How to produce the best solution that can later be used to solve existing problems at this time.
2. Identifying existing problems.
3. Generate a solution by creating an application program for processing the data on election participants.
4. The processed election participant data is stored in a database that has been prepared.

This research is expected to provide the best solution of the existing problems, the expected solution is to make a prototype of the E-Election application to be able to process the data of election participants.

3.Results

3.1Deployment diagram

Deployment diagram [10] is a diagram that can provide an explanation of how some physical elements compile and run the system in a network

that will be formed. Deployment describes the details of how components are deployed in the system infrastructure, where the components will be located on the machine, server or PC, and shows how the network capabilities at that location, server specifications, and other things that are physical and in this information system there are components that support the running of the E-Election Application:

1. Popojicms Web Framework, tools used to create E-Election Applications.
2. Local Host Xampp Web Server, used to connect databases with E-Election Applications.
3. The database and localhost are stored on the server
4. E-Election can be used to help the data collection of general election participants or regional heads.

Figure 3 shows the deployment of E-election application diagrams.

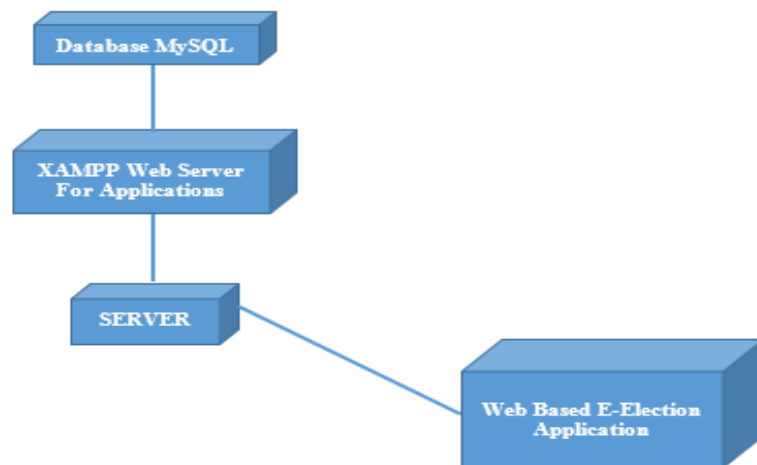


Figure 3 Deployment of E-election application diagrams

3.2 Designing architectural infrastructure

At this stage the concept of applying E-Business to the E-Election application is used, which is used to process data on general election participants or regional head elections.

The research aid *Table 1* used is:

Table 1 Research Aids

No	Information
1	Laptop Core I3, Windows 7

No	Information
2	Barcode Scanner Type EP2000
3	XAMPP Sebagai Server Localhost
4	Popojicms Web Framework

The infrastructure design of the E-Election Application is as follows:

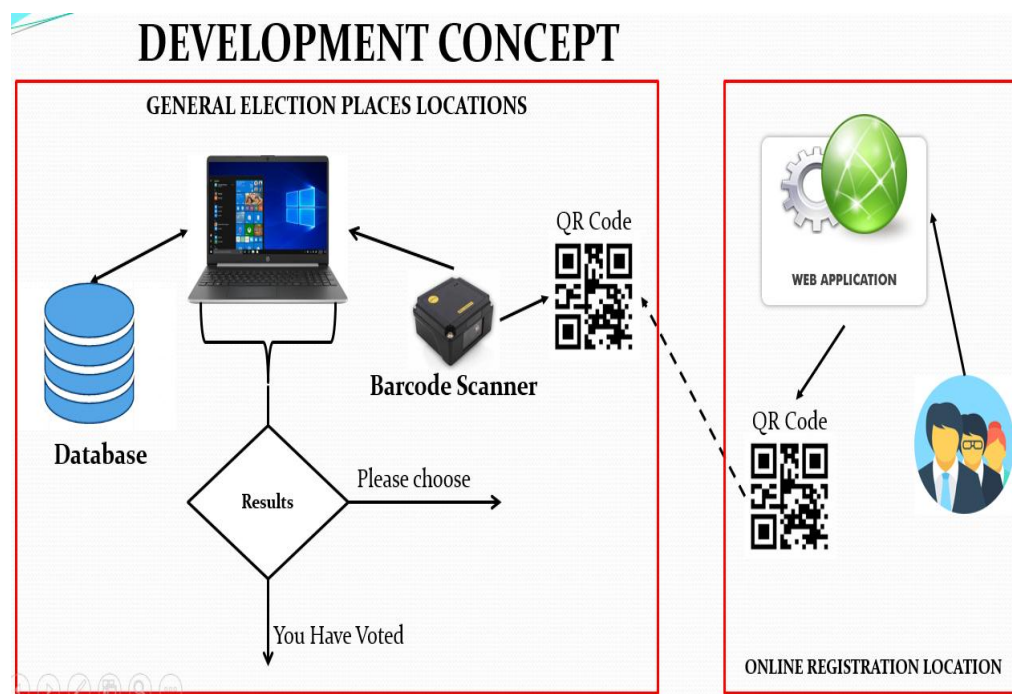


Figure 4 Application development concepts

In *Figure 4*, it looks at the infrastructure design model, which consists of:

a. Location of online registration

1. Prospective voters continue to register online on the web application that has been provided, by filling out the required identity.
2. After registering the data prospective voters will still be stored in the database.
3. Indicating that the online registration was successful, voters will get a QR Code, and later the QR Code [11] will be shown to the election location during the election.

b. Location of election place

1. QR Code carried by voters, scanned to validate data.
2. The QR Code is read and the results appear that the data matches those who are dating, then potential voters may vote.
3. And if the QR Code results are not valid, then potential voters are not allowed to vote.

3.3Single identity application

Flow Diagram of the use of the E-Election registration application is shown in *Figure 5*.

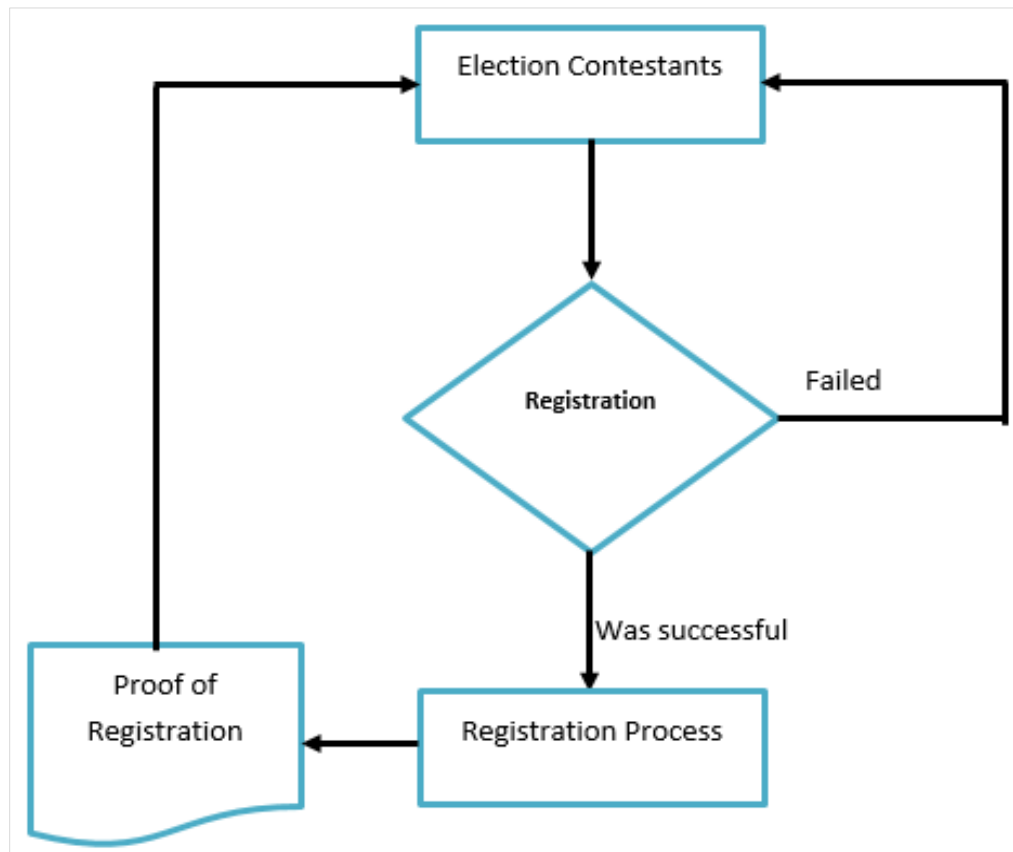


Figure 5 Flow Diagram of the use of the E-election registration application

1. Election participants carry out the registration using the E-Election registration application
2. If the registration fails, return to the election participants.
3. Registration was successful, proceed to the registration process and
4. Produce proof of registration held by the election participants.
5. Election participants enter a single identity number on the election participant registration web application.
6. Then the application raises data based on a single identity number that is in the population database owned by the government.
7. The data that appears is in accordance with the relevant data, then starts registering the data of election participants.

8. Successfully registered, will receive proof of registration of election participants, which contains a QR Code [11] and photos of election participants.
9. Evidence of registration of participants in this election which will be brought to the location of the election as valid evidence of voters.

Proof of registration is used to use the right to vote at the location of the election, without carrying proof of

registration, election participants are not allowed to vote.

Illustration diagram of a single identity data that will be used in the election data collection.

From *Figure 6* we can see the process of using a single identity number that is used to register or update data on election participants:

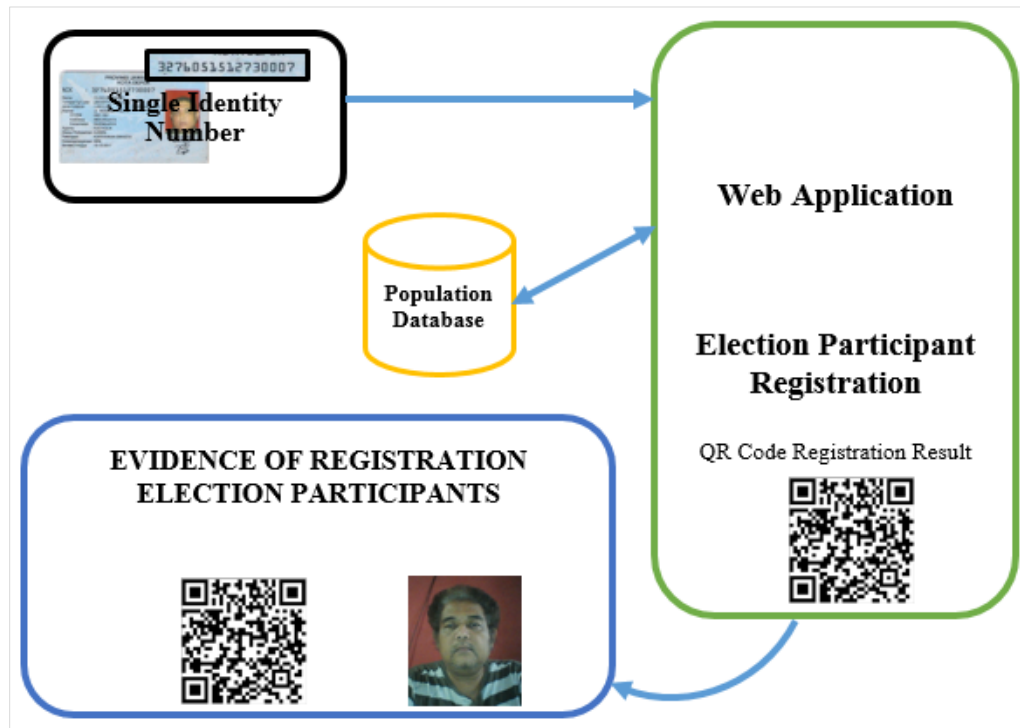


Figure 6 Illustration of the Use of a single identity

4. Discussion

4.1E-Business implementation

The implementation of E-Business that will be applied is Business to Government (B2G) [12, 13, 6], where later the private sector as an application manufacturing service provider collaborates with the government to implement this E-Election application. The Business to Government E-Election Model can be seen in *Figure 7*.

In *Figure 7*, it can be explained as follows, businesses or service providers providing applications, providing or making E-Election applications that can be used by the government with a leasing system or opening tenders for making E-Election applications. Which later the application can be used by prospective voters, it can be seen in

Figure 6, where the Single Identity Number can be used, and the ownership of the Single Identity Number data is only owned by the government.

The business process of the B2G concept can be seen in the picture below:

From *Figure 8*, it can be seen that application service providers work together with the government to create E-Election applications which will be used by election participants to register and conduct elections. Therefore, the application of E-Business B2G is highly recommended for making an E-Election application, without collaboration with the government the E-Election application can't be used at the national or regional scale.



Figure 7 Business to Government E-election model

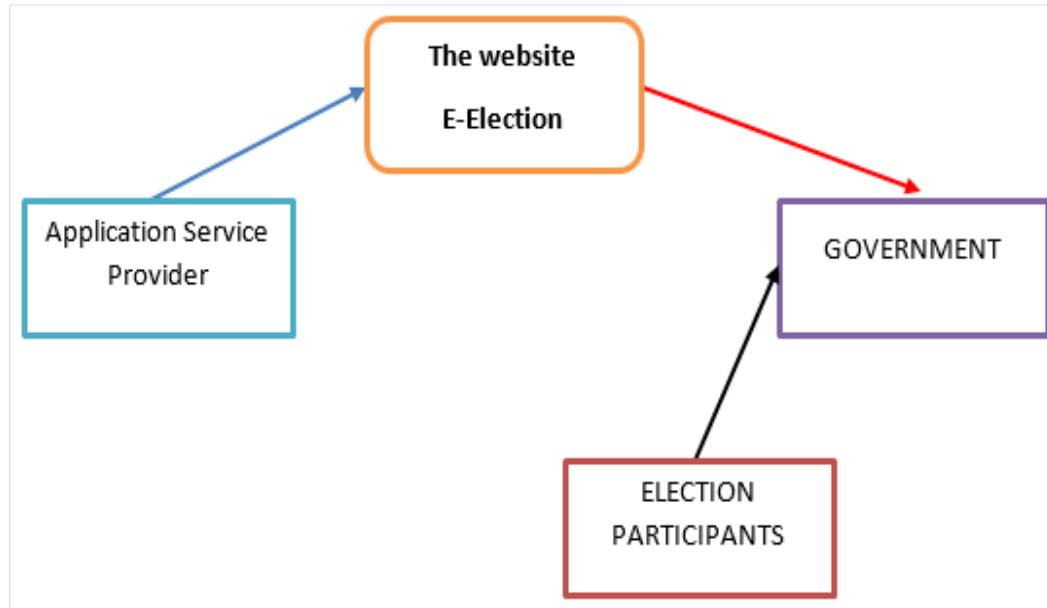


Figure 8 Business process of the B2G concept E-election

5. Conclusion

From the results of the discussion of the research that has been done, then in the study *"Application of E-Business In General Election (Study of Utilization of a Single Identity Number to Support In the Election Process)"* conclusions and suggestions can be drawn as follows:

1. E-Election applications can't be made without cooperation with the government.
2. By using the E-Election application, the public can easily register themselves as participants in the election or local elections.
3. The results of this study are the application of E-Business (B2G) to support the creation of E-Election Applications that can be used as solutions to problems that occur in the community.
4. Later the data generated is information data about the election participants or the regional head election.

5. Our suggestion is that this application can be made by inviting government cooperation as the owner of the Single Identity Number data.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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