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Preface

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Preface

It is our great honor and pleasure to introduce the Proceedings of the 2nd International Conference on Informatics, Engineering, Science, and Technology (INCITEST 2019). The second INCITEST was organized by Universitas Komputer Indonesia and was held in Bandung, Indonesia, on 18 July 2019. With the theme **"Building Competitive Advantage to Face Industry 4.0"**, the conference provides a platform to share ideas and current research in the areas of Informatics, Engineering, Science, and Technology with the participants from the scientist, engineers, researchers, practitioners, civil society and organization representative.

Following the success of the first INCITEST, the enthusiasm of second international conference INCITEST has increased. The high enthusiasm was reflected from high number of paper submission with more than 350 papers from the participants coming from several cities and countries. Therefore, it is allowed multinational and cultural exchange of ideas in facing the issue and challenges in Industry 4.0. In order to improve the quality of the papers and extend the publication, all papers have been carefully selected and peer-reviewed.

This conference can only succeed as a team effort. Our sincere thanks conveyed to the Rector of Universitas Komputer Indonesia for his support to the success of the event. We would also like to thank all participants for their contributions to the Conference program and for their contributions to these Proceedings. We also honored and grateful with the cooperation between the organizers of INCITEST 2019 with the international reputable publisher, Institute of Physics (IOP) for publishing the selected conference papers. We hope that the collection of the paper will be a valuable resource and will stimulate further research. Our highest appreciation also goes to the Reviewers, Editor and Advisory Boards who helped us maintain the high quality of manuscripts included in the Proceedings published by IOP. It is our pleasant duty to acknowledge the Directorate of Higher Education and Ministry of National Education for the budget support in INCITEST 2019.

We are looking forward to the third INCITEST next year that will be held on July, 2020 at the campus of Universitas Komputer Indonesia, Bandung, Indonesia.

Thank you,

Best Regards,

<u>Dr.Lia Warlina</u>
The Chief of the Conference

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Peer review statement

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Peer review statement

All papers published in this volume of *IOP Conference Series: Materials Science and Engineering* have been peer reviewed through processes administered by the proceedings Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

Conference Paper • *Open access*

Blind scanner Server and Batch Programming Implementation in the Process of
Automatically Scan Documents

Setiyadi, A., Setiawan, E.B.

IOP Conference Series: Materials Science and Engineering, 2019, 662(2), 022068

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1

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Information System Monitoring Access Log Database on Database Server

Setiyadi, A., Setiawan, E.B.

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Conference Paper • *Open access*

Web vulnerability analysis and implementation

Setiawan, E.B., Setiyadi, A.

IOP Conference Series: Materials Science and Engineering, 2018, 407(1), 012081

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Citations

Conference Paper

Blind scanner Server and Batch Programming Implementation in the Process of Automatically Scan Documents

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Blind scanner Server and Batch Programming Implementation in the Process of Automatically Scan Documents

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Abstract. The purpose of this study is to streamline the time in the process of archiving and scanning documents at government or private offices and to implement batch programming and blind scanner server applications in the scan process automatically. The research method used in this study is to use descriptive analysis methodology, which has two stages, namely the stage of data collection and software development stage. Based on the results of testing for this study, this research can make it easier for government or private offices to search for archives that have been scanned. This research can speed up the process of scanning document archives in government or private offices and integrating all scanning documents on one server. The lack of this research has not been able to convert letter images to ASCII characters that can be recognized by computers. The impact of this study is to provide benefits to government and private offices to accelerate the process of scanning the archives and integrating all scanning documents on one hardware.

1. Introduction

The rapid development of science and technology is very influential in the progress of business in the public and private sectors. They compete to increase professionalism in offices, shops, industries, factories, hotels, insurance, the world of education, and others. In an organization, there are several functions (marketing, finance, HRD, and others) where each has activities and job descriptions that are different from each other. To attain a competitive advantage and remain in the competitive market, organizations should focus on the employee job performance significantly. Archiving the job performance of the employees has been critical issue in both private and public sector organizations [1]. One of the information that is very important for business progress is the recording of the business activity itself. The record is in the archive. In offices, these archives are needed to help service or internal information needs. The International Standard Organization (ISO on Record management - ISO 15489) defines archives or archives as information that is created, received and managed as evidence and information that organizations or individuals use to fulfil legal obligations or business transactions [2]. As the technical means for creating, maintaining, and using documents are improving and becoming more cost-effective, individuals and families are seeking to preserve their old documents, especially traditional paper forms, as a connection to a past that may seem to be in risk of being of being swallowed up in the immense digital gadgetry in our Internet Age [3]. C. Hamilton et al explained that the archive are product of process which converts a certain number of documents into items judged to be worthy of preserving and keeping in a public place [4]. Based on the definition of

archives from several sources, it can be concluded that the archive is a collection of records of data and information collected and can be accessed and used and associated with a particular object.

Computer hardware is all the physical parts of the computer that serves to provide input, process and display output, and used by the system to execute commands that have been programmed[5]. One tool to read or store archives digitally is a scanner. A scanner is a device that reads text and/or illustrations that were printed on papers and translates it into a form that the computer can understands.

The scanner works like a copy machine, but instead of printing out copies. It creates an electronics (digital) images [6]. Blind scanner server is a software that allows users to share scanners with other users on a network. The Blind scanner server supports the command line interface for scanning archives [7]. The command line interface is a text-based interface that is used to operate software and operating system. The command line interface can be called using a batch programming language. Batch or instruction file is a text file that contains several series of commands to be executed by interpreters and uses DOS commands that are compiled and stored in a file. Batch programming languages can be combined with programming languages such as PHP, Visual Basic, C, and others. PHP stands for Hypertext Pre-processor which is a server-side web programming language that is open source[8], PHP is a simple script programming language used for processing HTML forms on web pages [9]. Based on the definitions of references, PHP is server-side script programming language used for processing HTML forms in web pages that are open source. PHP programming language is server side, which can run on local networks or internet networks. Computer networks have become a very important thing to support various activities [10].

Many archives cause the archiving process to take a long time, archiving systems that use the default scanner application from this factory can hinder the performance of the work unit in question because the archiving process using the default scanner application still uses manual methods, that is by pressing the scan button in the scanner application. Another problem is a large number of government offices and private offices that only have one scanner this causes the archive archiving process to be delayed because users who need a scanner will look for employees/employees who have used a scanner.

This research will implement blind scanner server software and batch programming in the process of automatically scanning the archive so that it can facilitate the archiving of users in government offices and in private offices.

2. Method
2.1. Data Collection Methodology
The method used in this study for data collection is to use descriptive research methods. The goal of descriptive research is to describe a phenomenon and its characteristics [11]. Descriptive research is purely data-derived in that codes are generated from the data in the course of the study [12]. based on on the descriptive research from the references, it can be concluded that descriptive research is research that describes a phenomenon, event, and gives an objective picture of a problem that is occurring at the present time. The method of collecting data in this study is divided into 3 parts including interviews, literature studies, and observations.

2.2. Software Development Method
The method used to build and implement this system adopts the waterfall model. Waterfall model which comprises five phases to be completed sequentially in order to develop a software solution [13]. The following is the waterfall model for software development methods can be seen in Figure 1[14].
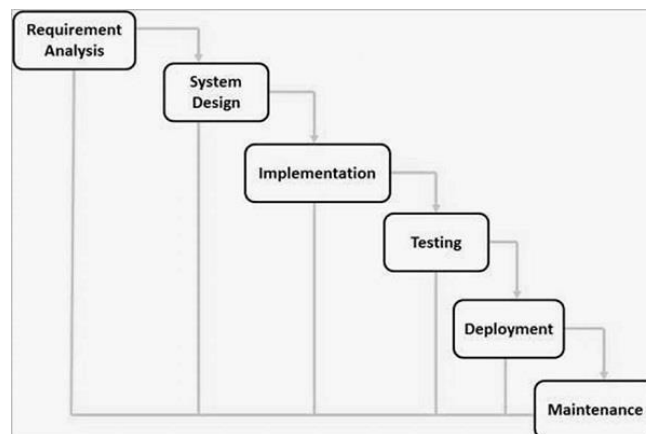
Figure 1. Waterfall Model

3. Results and Discussion

### 3.1. Analysis of Scanning Time Using a Factory Scanner Application

The scan time analysis is done to find out the scanning time of each file to be scanned. The following is the scan time of each archive can be seen on Table 1.

Table 1. Time Analysis of Factory Scanner Application Scanning

| Archives	Scanning Time Length
1	42 Seconds
5	210 Seconds
10	420 Seconds
20	840 Seconds
50	2100 Seconds

3.2. Proposed System Architecture

A system architecture is a plan or mapping of information needs in a system. Based on Figure 2, Blindscanner Server and Batch Programming Implementation in Archive Scan Process Automatically requires 5 hardware devices including 1 scanner, 1 server computer and 2 client computers.
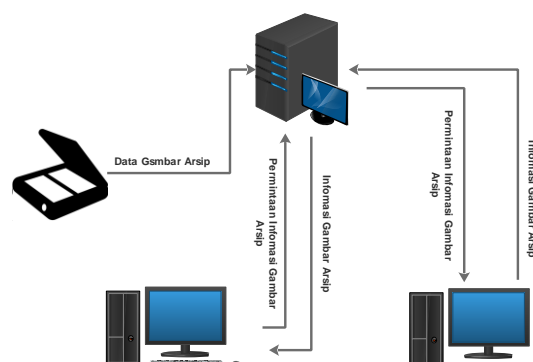
Figure 2. Proposed System Architecture

3.3. Designing The Application Interface

Interface design is a form of display of programs that will be created for the needs of interfaces with users. The following is an interface design of the blind scanner server implementation and batch programming in the archive scan process can be automatically seen on Figure 3.
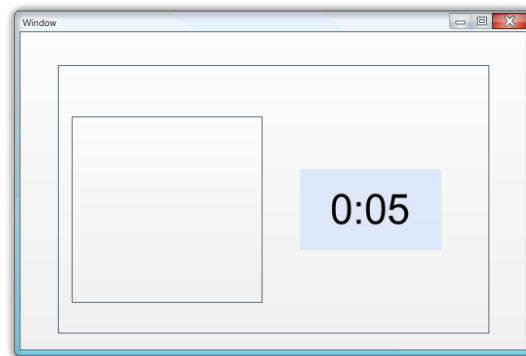
Figure 3. Designing The Application Interface

3.4. Implementation of Batch Programming on Applications

The programming language used in the implementation of Blindscanner Server and Batch Programming in the Process of Automatic Scan of Archives is the PHP programming language and Batch Programming.

The following is the code listing of the batch programming in the implementation of Server Blind Scanner and Batch Programming in the Process of Automatic Scan of Archives can be seen on Table 2.

Table 2. Batch Programming Implementation in the PHP Programming Language

```
execInBackground('call cmd.exe @cmd /K "C:\"Program Files
(x86)"\"Scanitto"\""scanitto.exe" -adf -resolution=300 -mode=2 -ext=jpg -
fname=buku -jpegcompression=25 -path= scan_result');
```

Based on Table 2, the following is an explanation of the code listing in the blind scanner server and batch programming implementation in the archive scan process can automatically be seen in Table 3.

Table 3. Explanation of Listing Code Implementation of Batch Programming in the PHP Programming Language

No	function	Description of Function
1	execInBackground	Call the exec In Background function
2	Call cmd	Call the Command Prompt application
3	"C:\"Program Files (x86)"\"Scanitto"\""scanitto.exe"	Call the blindscanner server application
4	-resolution=300	Set the number of pixels to 300
5	-mode=2	Set the scan results with color
6	-ext=jpg	Set the output screen extension in the form of images and extension jpg
7	-Fname=buku	Set the output file name with the file name that is the book
8	-jpeg compression	Compress file size 25%

3.5. Implementation of Scanning System Built Time

The implementation of scanning time on the system built is done to find out the scanning time of each file that will be scanned. The following is the scanning time of each file in the proposed system can be seen in Table 4.

Table 4. Implementation of Scanning Time in the Proposed System

| Archives	Scanning Time Length
1	30 Seconds
5	150 Seconds
10	300 Seconds
20	600 Seconds
50	1500 Seconds

3.6. Archive Time Scan Comparison Results

The results of the comparison of the scanning time of the archive were carried out to find out the time difference between the time of scanning using the factory default scanner application and the scanner application that had been built. The following is the result of the comparison of the time of scanning the archive can be seen in Table 5.

Table 5. Archive Time Scan Comparison Results

Archives	Scan Time using the Factory Application	Scan Time of Built-in System	Scanning Time Difference
1	42 Seconds	30 Seconds	12 Seconds
5	210 Seconds	150 Seconds	60 Seconds
10	420 Seconds	300 Seconds	120 Seconds
20	840 Seconds	600 Seconds	240 Seconds
50	2100 Seconds	1500 Seconds	600 Seconds

Based on table 5, The following is a comparison image from the bar diagram for the results of the comparison of the scan time of the archive can be seen in Figure 4.
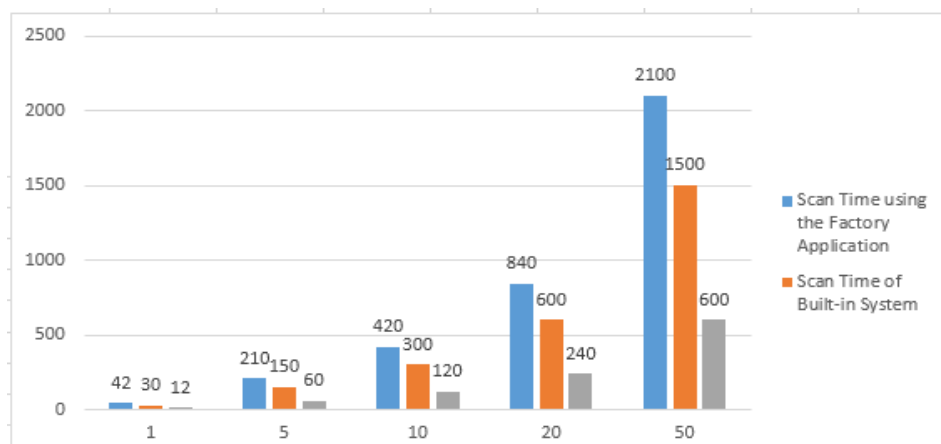
Figure 4. Archive Time Scan Comparison Results

Based on Table 5. the results of the comparison of the time of scanning the archive that scan the archive by combining the blind scanner server and batch programming applications and the PHP programming language can speed up the scanning process, where the scanning speed difference for one document is twelve seconds.

4. Conclusion

Based on the results of implementation and testing, this research has been able to integrate all scanning documents on 1 hardware/server. This research has been able to combine blind scanner server and batch programming applications and PHP programming languages that can facilitate government or private offices.

As for what can be suggested from the results of this study to be implemented as follow-up research that is using OCR technology for the process of converting letter images into ASCII characters that are recognized by computers and using bash shell programming languages to run on Linux operating systems.

Acknowledgments

References

[1]   D. Y. Jayarathna and W. A. S. Weerakkody, "Impact of Administrative Practices on Job Performance: With Reference to Public Banks in Sri Lanka," 2015.

[2]   *ISO 15489-1:2016, Second Edition: Information and Documentation - Records Management - Part 1: Concepts and Principles*. 2016.

[3]   R. Jimerson, "Embracing the power of archives," *Am. Arch.*，**69**(1), pp. 19–32, 2006.

[4]   A. Mbembe, "The Power of the Archive and its Limits," in *Refiguring the archive*, Springer, 2002, pp. 19–27.

[5]   A. Setiyadi and E. B. Setiawan, "Information System Monitoring Access Log Database on Database Server," in *IOP Conference Series: Materials Science and Engineering*, 2018, **407**(1). 12110.

[6]   D. Howton and R. I. C. Publications, *Computers in the Classroom*. R.I.C. Publications, 1999.

[7]   B. M. I. Software, "BlindScanner." [Online]. Available: http://www.blindscanner.com. [Accessed: 03-Oct-2018].

[8]   P. Sládek and J. Valek, "Dynamic modeling in PHP," *Procedia-Social Behav. Sci.*, **12**, pp. 157–163, 2011.

[9]   A. Mishra, "Critical Comparison of PHP and ASP .NET for Web Development," *Int. J. Sci. Technol. Res.*, **3**(7), pp. 331–333, 2014.

[10]   A. Setiyadi, "Implementasi Modul Network MITM Pada Websploit sebagai Monitoring Aktifitas Pengguna dalam Mengakses Internet," in *Seminar Nasional Komputer dan Informatika*, 2017.

[11]   H. Nassaji, "Qualitative and descriptive research: Data type versus data analysis." Sage Publications Sage UK: London, England, 2015.

[12]   V. A. Lambert and C. E. Lambert, "Qualitative descriptive research: An acceptable design," *Pacific Rim Int. J. Nurs. Res.*, **16**(4), pp. 255–256, 2012.

[13]   Y. Bassil, "A simulation model for the waterfall software development life cycle," *Int. J. Eng. Technol. (iJET*, **2,** 2012.

[14]   A. Setiyad and T. Harihayati, "Penerapan SQLLITE Pada Aplikasi Pengaturan Waktu Ujian dan Presentasi," *Maj. Ilm. UNIKOM*, **13**(2), 2015.