**PAPER • OPEN ACCESS**

# An implementation of virtual office information system services in basic telecommunication technique practices

To cite this article: Z Bonok *et al* 2021 *IOP Conf. Ser.: Mater. Sci. Eng.* **1098** 042052

View the article online for updates and enhancements.

# An implementation of virtual office information system services in basic telecommunication technique practices

**Z Bonok\*, B P Asmara and S Abdussamad**

Gorontalo State University, Gorontalo, Indonesia


\*zainudinbonok@ung.ac.id

**Abstract**. Information and communication technology has improved rapidly, but this technology is still underutilized in the world of education in Indonesia, especially virtual laboratories, with the existence of virtual laboratories the learning process becomes faster and more attractive so that the equality of learning can be done anywhere ant at any time especially with covid 19 outbreaks which swept the world, in Indonesian suddenly required to work and study online, for online lectures are often used but for practices where there are no facilities available for virtual laboratories, this research was conducted to design and plan using virtual office information system services and virtual labs can be accessed at any time with more efficient use of time. This research was carried out in the electrical engineering laboratory of Gorontalo State University. The method used in this research is to study literature and develop PHP programming software and AJAX programming technology and Cloud meeting zoom technology or vicon.ung.ac.id. The research tool is using tools in the form of laptop hardware or personal computer and software in the form of object-oriented programming language PHP and AJAX programming technology. The research results showed that the virtual office can process the implementation of office work in the laboratory with the work system being the target of work for laboratory managers, and students who are practicing Basic Telecommunications Engineering from the results of the Urgency Implementation of Virtual Office Information System Services in Basic Telecommunications Engineering practice, Electrical engineering laboratories can be used quickly and easily if supported by adequate network infrastructure. Digital telecommunications applications, conducting office / laboratory administration and practices activities can still be implemented with the presence of virtual office system services office / laboratory activities related to information services can be done with time efficiency, place efficiency, saving costs, Reducing barriers to a pandemic like this year 2020 with covid 19, so that the Basic Telecommunications Engineering Practicum will continue, can save operational costs when pandemics like covid 19.

## 1.  Introduction
The development of science and technology is now entering a new industrial era 4.0, therefore it is very interesting to study because the technology provides added value in human life in terms of creative and technological innovation, especially output which has a more comfortable environment. Thus encouraging people to always look for innovations in the context of providing adequate infrastructure and facilities in order to achieve more comfortable life goals. Among them by making it easier, speeding up human work, namely the Urgency of the implementation of Virtual Office Information System Services in the Basic Telecommunications Engineering Practicum. and among the technology that continues to experience progress, namely the virtual office (virtual office). Virtual office is a plan to

combine high technology through improving the work implementation process in order to increase work productivity. Virtual office has a concept that can be realized including. Incorporating and applying technology, updating the work implementation process at the office, increasing work productivity and job effectiveness.

## 2. Literature review

Utilization of communication network technology and the internet has experienced very rapid development, with the presence of virtual offices because the capabilities of today's information technology such as the world wide web (WWW), enables the development of new implementations in virtual offices by developing and exploring information technology capabilities. The use of information systems in a virtual office can provide a workable, trusted, and flexible system base that is used to create a virtual office platform. A number of companies have actively used the virtual office as a large organization such as Lockheed 'Agile Cable Production. Practitioners have begun developing the virtual office as an organization developed like the Agility Forum at Lehigh University. Virtual office systems have been developed at this time, especially in the procurement process. Since information technology emerged and is known by users, since then it can be used in various applications to simplify and speed up work.

The virtual office system is utilized within the scope of the Electrical Engineering Laboratory (Laboratory of Electronics and Telecommunications) Faculty of Engineering, State University of Gorontalo, because at least the benefits are for reference media which are urgently needed especially those engaged in media network within the same organization. Virtual offices use information technology to add to limited resources and cognitive abilities. Virtual laboratory or can be called as Virtual Labs is a series of laboratory tools in the form of interactive multimedia-based computer software, which is operated by computer and can simulate activities in the laboratory as if the user were in a real laboratory.

According to Farreira, some of the benefits that can be obtained by using online virtual laboratories are reducing time constraints, if there is not enough time to teach all students in the lab until they understand [1].

- Reducing geographical barriers, if there are students or students located far from the learning center (campus),
- Economical, does not require laboratory buildings, tools, and materials such as conventional laboratories,
- Improving the quality of experiments, because it is possible to be repeated to clarify doubts in measurements in the lab,
- Increasing the effectiveness of learning, because students or students will spend more time in the virtual lab repeatedly,
- Improve security and safety, because it does not interact with real tools and chemicals.

## 3. Research methods

The research method is as follows:

- Determine the parameters of the virtual office system service in the electrical engineering laboratory (Electronic and Telecommunications Laboratory) Faculty of Engineering, Gorontalo State University.
- Implementing a Virtual Office information service system for Basic Telecommunications Engineering practicums supported by Zoom Cloud Meeting technology.
- Results are tested and implemented in the Virtual Office information system service in the electrical engineering laboratory (Electronic and Communication laboratory), especially the basic telecommunications engineering practicum
- Implementation of Programming Research is carried out by gathering literature related to Virtual Office. This type of research is to study literature and develop PHP programming software and AJAX programming technology and Zoom Meeting technology, starting from

the web design stage, after the web design results are completed then the implementation stages (coding) are entered into the PHP and AJAX programming languages, the next stage stages testing to test whether the virtual office system can perform its functions correctly in this case the test on localhost and the last stage is implemented via the internet on the website http://bunggo.id/labelektro.

## 4. Research results and discussion

Results of the Design of the urgency of Virtual Office Implementation Based on the formulation of the problem in the previous virtual office system information system services, the importance of implementing virtual office information system services has a different form from offices in general, i.e. there is no physical building like an office that is often found. However, even though it is virtual, this office can still be used as an office function. If you look at developments in the current era, then in this study it can be concluded that it is so important to use a virtual office for information services in basic telecommunications engineering practicums in the Electronics and Telecommunications Laboratory which is one of the Laboratories under the Electrical Engineering Laboratory of the Faculty of Engineering, State University of Gorontalo: First the importance of using a virtual office because this virtual office can be accessed at any time. This is because the office access process can be done with an internet network connection.

Secondly, the importance of using a virtual office because it can work even though not in the same place. Although accessed online, but the use of this office will not interfere with productivity at work. If related to the current development, this virtual office can support mobility in the midst of intense competition. Third, the importance of using virtual office because it can streamline the use of time. Because the use of this virtual office does not require someone to come to a place, it is certain that it can make time efficient. Then for the Zoom Cloud Meeting Technology application can ensure the presence and participation of students in Online Classes. Some excellent features in Zoom Cloud Meeting are lecturers providing practicum to be able to record the implementation of online practicum carried out, this can be used as proof of performance that the lecturer has carried out one of his main tasks, namely teaching. Then there is a sharing feature that can be displayed in the Basic Telecommunications Engineering Practicum module and the lecturer can give a practicum to display a presentation slide or any video or file for students to see. Chat and file sharing features between lecturers and students are also very useful in Online Classes. Then how to use Zoom Cloud Meeting: For those who use PC / Laptop, please download the application at https://zoom.us/download. For those who use an Android / Iphone-based mobile phone, you can download it on Play store / App Store. Then install it. If as the presenter (who is the host who will hold the meeting) then you must have a Zoom Cloud Meeting account, please register an account, if done, you can start the Zoom Cloud Meeting application. With these superior features, the Zoom Cloud Meeting technical application can be relied on by lecturers to carry out online practicum.
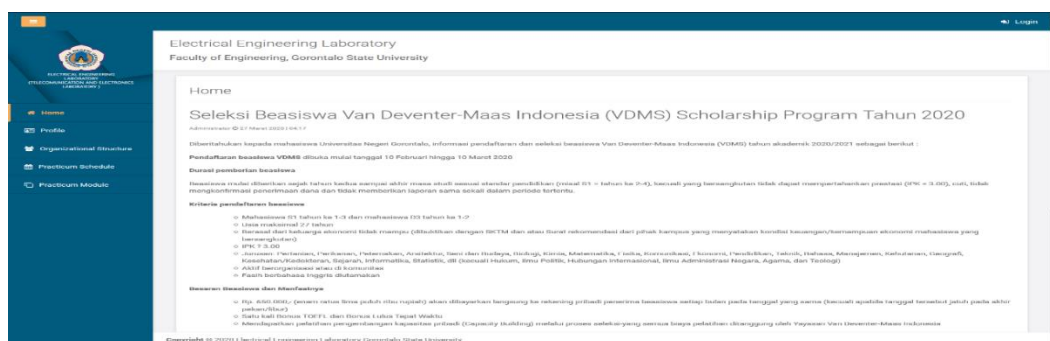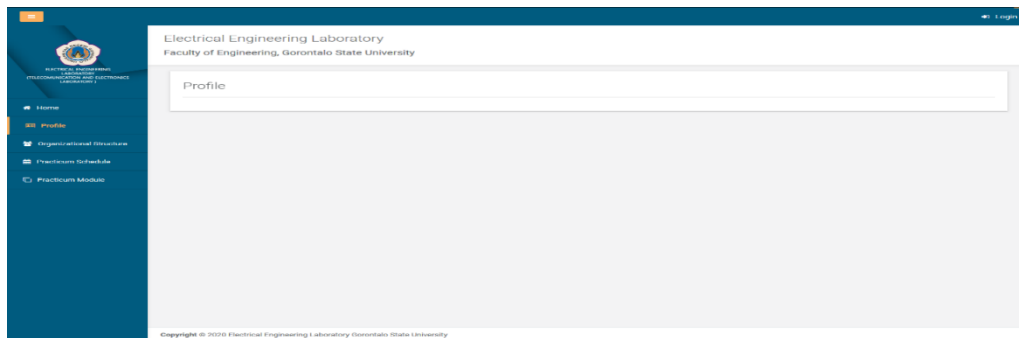


**Figure 1.** Home menu page.
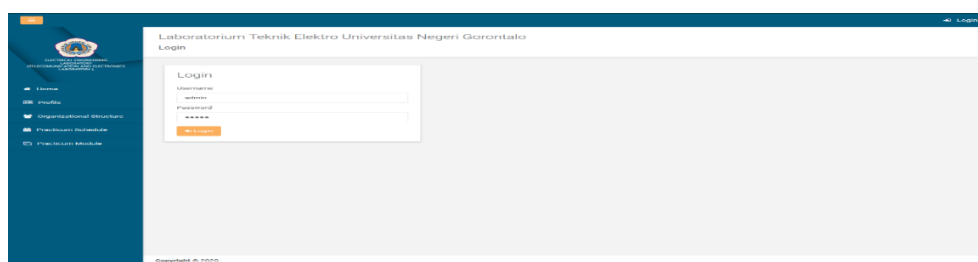
**Figure 2.** Profile menu page.



**Figure 3.** Practical module menu page.

Then for Software Procedure Classification Definition procedure is part of the program that carries out a particular program when called and returns to the caller. The heart of every PHP application is a form that can be considered a window. A form has a number of event handlers. Event is an event or program that is activated through an event [2-4]. Events which are also commonly referred to as event handlers are object procedures. Implementation of the Virtual Office System in the design of this study can be implemented in the virtual office system of the electrical engineering laboratory (Electronics and Telecommunications Laboratory) Faculty of Engineering, State University of Gorontalo.

Test Results to see whether the virtual office front page can be viewed via localhost then select internet explorer then enter localhost VO the results are shown in one of the following     views:
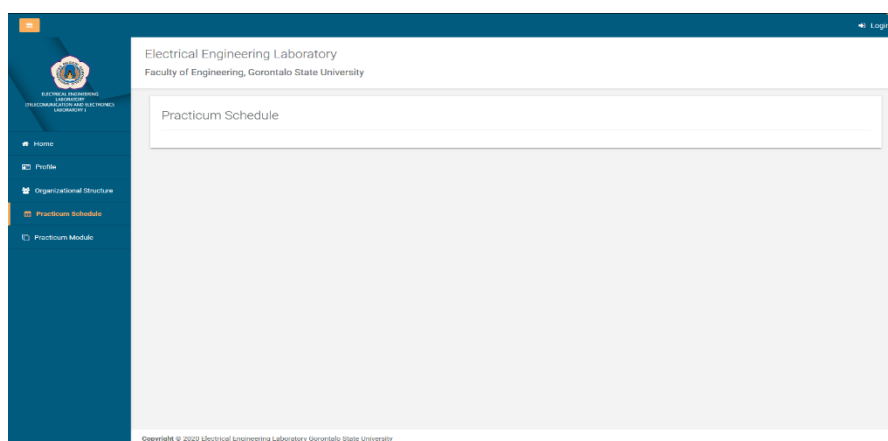


Figure 4. Practicum schedule page.

Second Test of Virtual Office via online internet To see whether the website page can be accessed, then the web browser is entered address http://bunggo.id/labelektro. This test is carried out through an on-line network (intranet) with the specifications used:

The first step is to connect to the internet, then the database is created on the MySQL server located on the server where the author is hosting. Then FTP tools are activated by entering the address of the server, user, password when connected, several directories will appear, which then enter the files into the folder specified by the server manager, usually the folder is set with the name public_html or htdocs, to be accessed later through the browser with the address http://bunggo.id/labelektro. Second Test Results To see whether the front page of the virtual office can be accessed, the web browser includes the url address http://bunggo.id/labelektro. The research results showed that the virtual office can process the implementation of office work in the laboratory with the work system being the target of work for laboratory managers, and students who are practicing Basic Telecommunications Engineering from the results of the Urgency Implementation of Virtual Office Information System Services in Basic Telecommunications Engineering practice, Electrical engineering laboratories can be used quickly and easily if supported by adequate network infrastructure, Can work even if not in one place, Digital telecommunications applications, conducting office / laboratory administration and practicum activities can still be implemented with the presence of virtual office system services office / laboratory activities related to information services can be done with time efficiency, place efficiency, saving costs.

## 5. Conclusion

- Virtual office can be accessed anytime.
- The importance of implementing a virtual office system for more efficient use of time.
- Reducing barriers to a pandemic like this year 2020 with covid 19, so that the Basic Telecommunications Engineering Practicum will continue.
- Virtual Office can save operational costs when pandemics like covid 19.

## References

[1] Ferreira J M, Sousa E, Nafalski A, Machotka J and Nedic Z 2009 *Collaborative learning based on a micro-webserver remote test controller*
[2] Suarga S 2006 *Programming Algorithm* (Yogyakarta)
[3] Gordon B 1999 *Basic Framework for Management Information Systems* (Jakarta: PT Pustaka Bingaman Pressindo)
[4] Hudson D L and Cohen M E 2000 *Neural Networks and Artificial Intelligence for Biomedical Engineering* (New York: IEEE Press)