

# Web-Based E-Learning Application to Support the Teaching and Learning Process at Genta Syaputra Senior High School

Euis Nurninawati<sup>1</sup>, Ruli Supriati<sup>2</sup>, Alpi Maulana<sup>3</sup>

University of Raharja<sup>1,2,3</sup>

Jenderal Sudirman No.40, Cikokol, Kota Tangerang<sup>1,2,3</sup>

Indonesia<sup>1,2,3</sup>

e-mail: [euisnurninawati@raharja.info](mailto:euisnurninawati@raharja.info)<sup>1</sup>, [rulisupriati@raharja.info](mailto:rulisupriati@raharja.info)<sup>2</sup>, [alpimaaulana@raharja.info](mailto:alpimaaulana@raharja.info)<sup>3</sup>.



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## Abstract

Along with the rapid development of technology today, we need a tool or method that can take advantage of existing technology in order to support the teaching and learning process at an educational institution, making it easier for students to understand the teaching and learning process using online methods in this COVID-19 era. The purpose of this study was to find out how the use of e-learning as a learning medium and the factors that influence it in SMA Genta Syaputra Regency were studied based on the characteristics of e-learning consisting of Non-linearity, Self-managing, Feedback-interactivity, Multimedia-Learners style, Just in Time, Dynamic Updating, Easy Accessibility and Collaborative Learning. This study uses a descriptive design using observation, interviews, and literature study. System analysis method using UML, analysis database using ERD and prototype design using Mockup. The results of this study concluded that the condition of the use of e-learning as a learning medium in SMA Genta Syaputra Regency is in a fairly good condition with a percentage level of 78%.

**Keywords:** Prototype, Media, E-learning.

## 1. Introduction

The development of increasingly advanced technology also affects the progress of education so that it can help improve the quality of human resources, the development of multimedia and information technology, as well as the use of the internet as a new teaching technique [1].

Genta Syaputra High School is accredited as one of the best high schools in Tangerang district. However, the teaching-learning system during the COVID-19 pandemic [2], which still does not use web-based E-learning applications for the teaching and learning process, does not apply standardization that regulates the running of online teaching and learning activities, causing the teaching and learning activities to be less effective student [3].

Based on the background of the problems that have been described and see the importance of developing a web-based E-learning system to optimize the teaching and learning process more effectively and efficiently which helps make it easier for students and teachers to give lessons, assignments [4],



materials without face to face. Based on the above background, this research is entitled **"Web-Based E-Learning Application To Support The Teaching And Learning Process At Genta Syaputra High School"**

## 2. Literature Review

No	Author and Title	Method	Research Results
1	Sudaryono, S., Rahardja, U., & Sari, H. E. (2019). Decision Support System On The Implementation Of E-Learning Students' Learning To Determine	Model design, output design, input design and database design.	students are able to interact flexibly wherever and whenever, to provide motivation to learn by using smartphones in supporting the learning process using e-learning [5].
2	Yulius, H., & Wijaya, R. A. (2018). Design Of Manufacturing Systems Using The Concept Of Enterprise Resource Planning (Erp) In Web-Based Khubah Sido Harind Producer Business. Technology, 6(2)	The method used is HTML (Hypertext Markup Language) is the language of the World Wide Web	I Based on the opinions of the experts stated above, it can be concluded that "Language in programming is used to create a web page"[6]
3	Handayani, I., Febriyanto, E., & Kristanti, C. Y. (2019). The Role Of Development Of Information And Communication Technology In Ilearning Plus Learning At Raharja University. Journal of Technological and Vocational Education, 16(2), 181-190.	This study reviews effective learning methods as methods used by lecturers that are not only focused on the results achieved by students.	an effective learning process can provide a good understanding that can be understood by students. This study aims to describe the role of the development of Information and Communication Technology in the iLearning Plus learning method at University ofRaharja [7].
4	Ariessanti, H. D., Warsito, A. B., & Rumoma, N. (2020). Utilization of Google Drive as iLearning Learning Media at Raharja College. Journal of VOI (Voice Of Informatics), 9(1).	"Utilization of Google Drive as iLearning Learning Media at Raharja College"	iLearning (Integrated Learning) comes from the thought of technological developments at Raharja College [8].

5	Abi Yodha, S., Abidin, Z., & Adi, E. P. (2019). Student Perceptions of the Implementation of E-Learning in the Information System Management Course for Students of the Department of Educational Technology, State University of Malang. Journal of Educational Technology Studies, 2(3), 181-187.	learning materials, as well as simplifying the refinement and storage of learning materials.	The material is presented in the form of soft files making it easier for students to access [9].
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Tabel 1. Literature Review

### 3. Research Method

In order to produce works that are in accordance with scientific theory and are effective, then in their preparation, there are several methods applied, including

#### 3.1 Observation

In this method, researchers make observations to the school SMA Genta Syaputra so that the authors can get the data needed to conduct research

#### 3.2 Analyze

Stages of analysis of a system or application is carried out before the design stage is carried out. The purpose of applying analysis to a system is to find out the reasons why the system is needed, formulate the needs of the system to reduce excess resources [10], and help plan the scheduling of system formation, minimizing distortions that may exist in the system so that the functions in the system works optimally. The analytical method used by the researcher here is to use the PIECES method, namely.

#### A. Performance

Parameter	Result
Throughput	Less effective for the online learning process, it is still manual and has not used applications that support the online learning process [11]
Response time	Response time in the learning system is often absence of online-based learning applications [12]

Tabel 2. Performance parameter

B. Information

Parameter	Result
accuracy	Information that learning materials are often less accurate because learning still uses manuals through short message applications [13]
punctual	Response time in the learning system is often absence of online-based learning applications
relevant	The delivery of material is often less relevant because of the lack of material presenters

Tabel 3. information Parameter

C. Economy

Parameter	Hasil Analisa
Fee	The delivery of material is often less effective because of the lack of material delivery so that every student working on an assignment must use paper and additional costs

Tabel 4. Economy Parameter

### 3.3 Design Method

The design method in this study uses the SDLC (Software Development Life Cycle) Extreme Programming PHP method. To provide an overview and design of the system development to be made, the author uses the UML (Unified Modeling Language) model using the Visual Paradigm application which consists of Use Case Diagrams, Activity Diagrams [14], Sequence Diagrams, and Class Diagrams. In this design the author also uses the PHP programming language with the Sublime Text code editor application. and the author also uses xampp as a PHP framework and a CSS framework to support the appearance and performance of the website to make it better, attractive, and dynamic. For phpmyadmin database design from xampp [15].

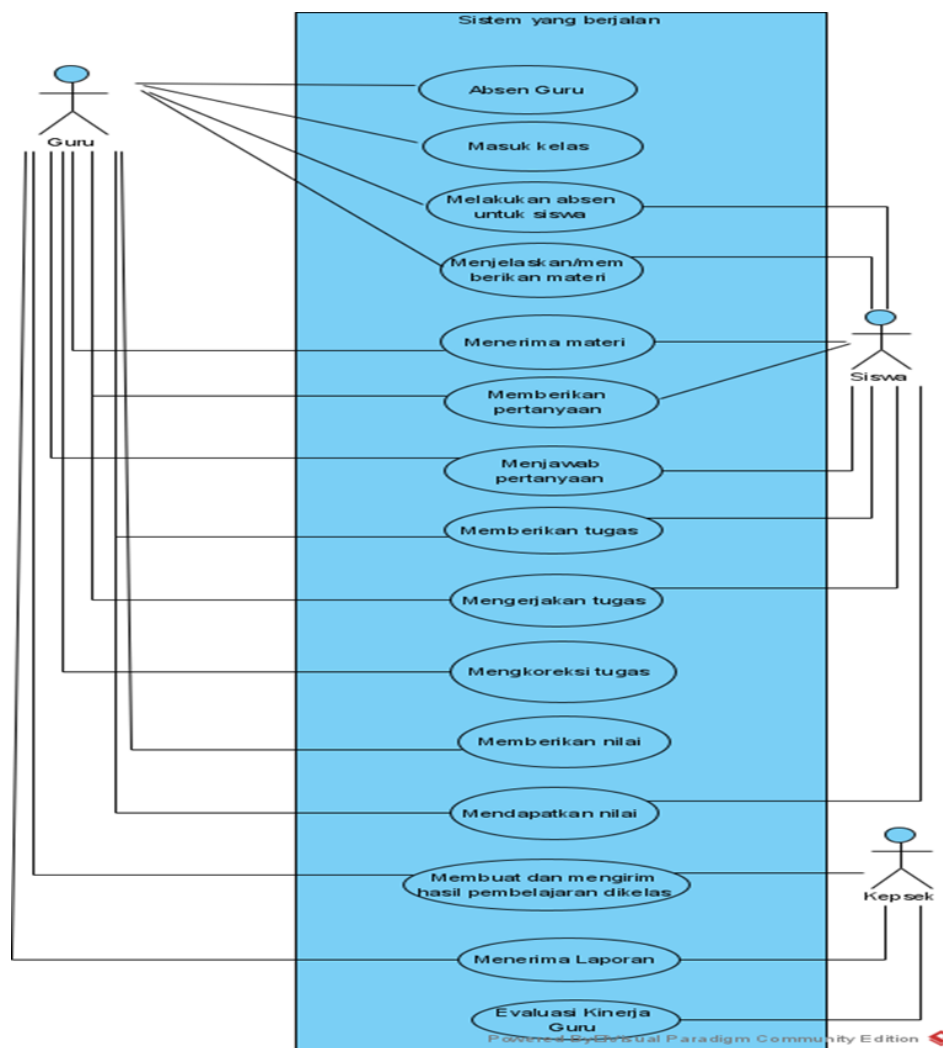


Figure 1. Use Case Diagram In Progres

Based On Figure 1. The Currently Running Use Case Diagram Contains:

- A. \1 (One) System Covering All Learning Activities.
- B. 3 Actor Who Carry Out Activities Including: Teachers,Students And Principals

15 Use Case Cases that are usually carried out by these actors include: teacher absences,entering class,giving student absences,giving materials, giving assignments, asking questions, conducting student absences, receiving materials, doing assignments, correcting materials, giving grades, crate and send learning outcomes, record grades, make reports [16].

#### 4. Result and Discussions

In the research that has been done, at this stage will display the results obtained from the proposed use case diagram that is suitable as a proposal in this study [17].

- A. Procedure Difference Between Current System and Proposed System

Based on the analysis and design that has been done, there are several differences between the

current system and the proposed system. Namely as follows:


**Tabel 6,** Performance Parameter

No	The running System	Proposed System
1	Using short messages to work on exam questions	It's fully computerized using a local server and web-based system
2	Processing for exams is still manual	Exam questions can be displayed automatically
3	Monitoring of exam question by teachers still uses short messages and paper media [18]	Monitoring process can be carried out via a web-based application by adding teacher's role and given access [19]

## B. Prototype Design



### 1. Login Page

*aplikasi e learning*




**SMK GENTA SYAPUTRA**

*Username*

 Type your username 


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*Password*

 Type your password 

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*User*



[lupa kata sandi?](#)

**LOGIN**

**DAFTAR AKUN SISWA?**

Figure 2. Login Page

## 2. Dashboard Page View

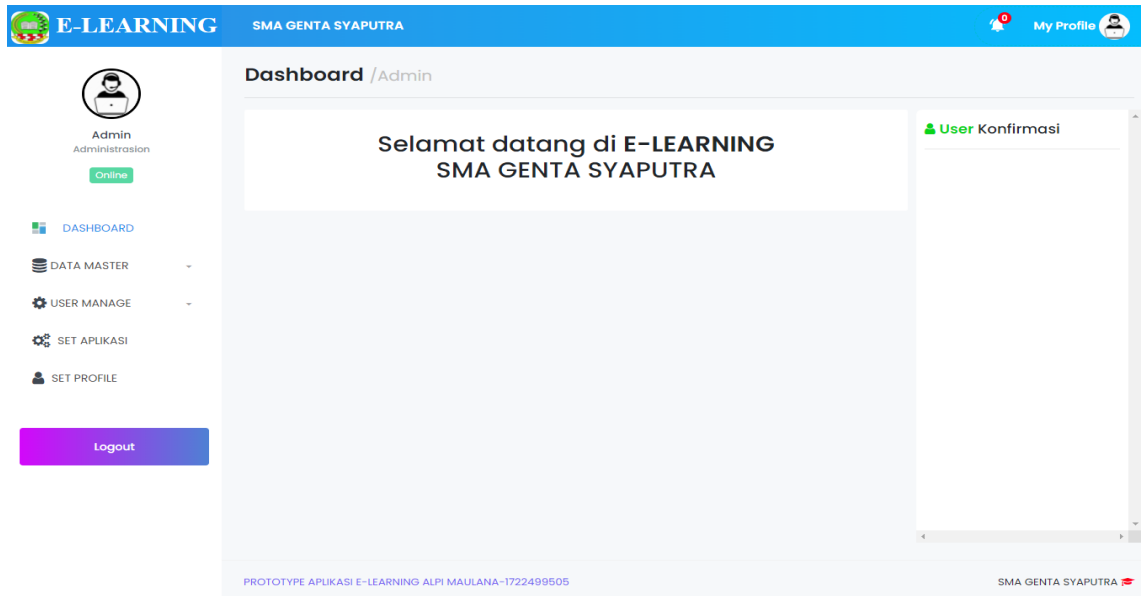


Figure 3, Dashboard Page View

## 3. Exam Question Page View

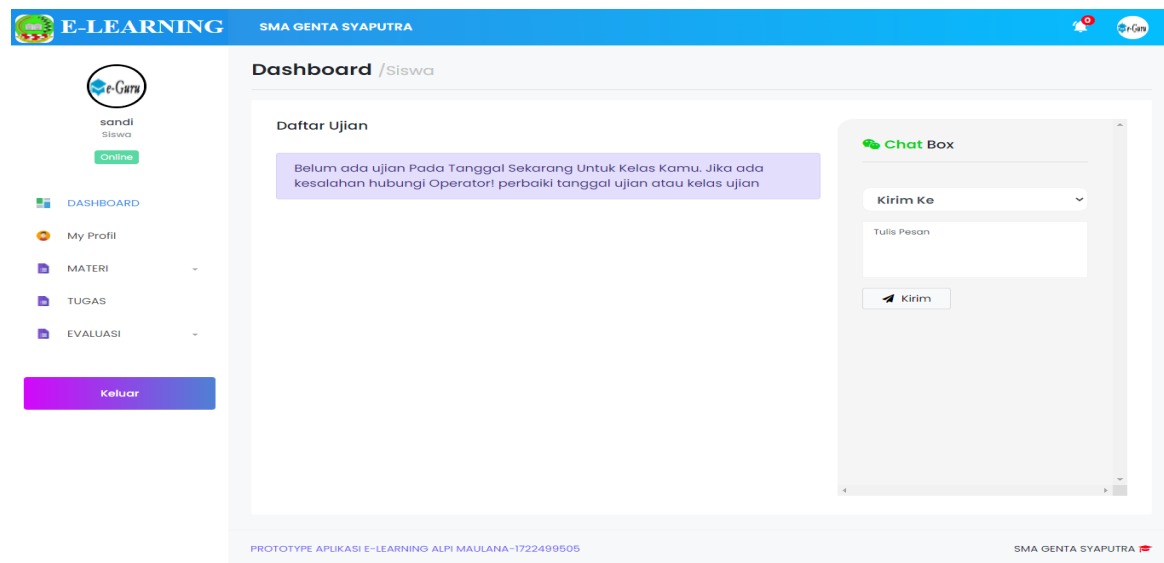


Figure 4, Exam Question Page View

#### 4. Add Exam Question Page View

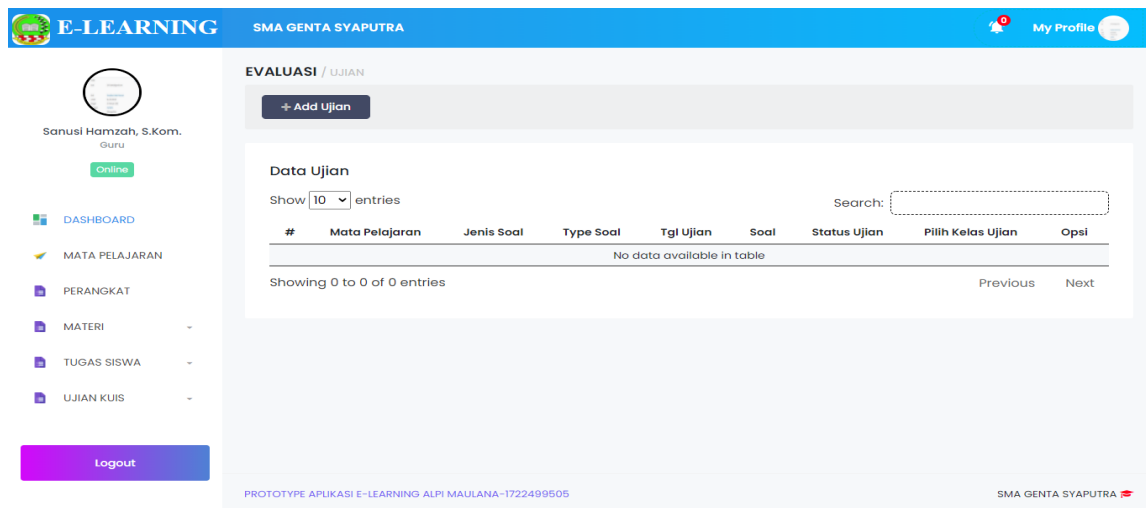


Figure 4, Add Exam Question Page View

#### 5. Main Page View

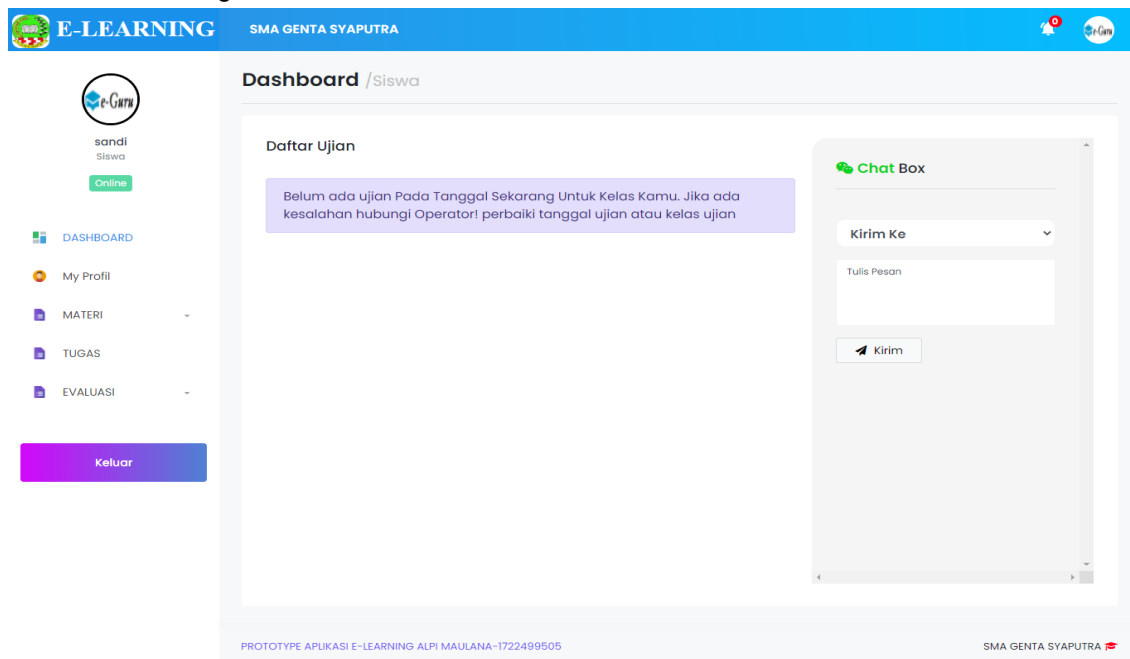


Figure 5, Main Page View

### 5. Conclusion

E-learning learning technology can be developed into an online learning system, and is able to improve student learning in the pandemic era (covid 19), The results achieved are very good and help students in the student learning system without face to face [20], E-learning media that can produce a more effective and efficient learning system, The online learning system can assist teachers in delivering assignments, subject matter and school final exams without the need for face-to-face so students can study more effectively.



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