Development of Mobile Learning Based on Digital Entrepreneurs Using Raspberry Pi on TVET

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Abstract— **Mobile learning is a method of instruction that uses portable electronics like laptops, smartphones, mobile phones, and PCs so that students may access lesson materials, instructions, and apps whenever and wherever they are without being constrained by time or place. This is an innovation regarding a systematic and structured application-based learning system as an interactive medium for students, especially at TVET. This article aims to develop mobile learning using a mini server Raspberry Pi 3 Model B+ based on digital entrepreneurs (digipreneur) that runs on the Moodle LMS as a source of learning content so that learning can be carried out interactively and flexibly, without having to be connected to the internet, or classrooms that are not effective even in areas with no internet access. This activity goes through 2 stages of system design known as client-server. In designing the server, the Raspberry Pi mini server model B+ configuration is carried out as a source of digital learning resources by using several supporting applications such as MySQL server, SSH, PHPMyAdmin, and Apache in designing the client using the Moodle LMS application, which contains digipreneur-based digital learning materials and resources, all stored in the database server. Three primary users are built into the Mobile Learning Database System: Administrators, Lecturers, and Students. This application is expected to be innovative and the right solution in terms of learning and become an alternative problem-solving tool in education.**

Keywords—**Mobile learning; Raspberry pi; TVET; digital entrepreneurs.**

I. INTRODUCTION

The wave of Industrial Revolution 4.0 spread the internet and information and communication technology (ICT) to society in various aspects. This revolution shows the role of ICT in developing the economy, which can increase the Gross Domestic Product (GDP), create employment opportunities, restructure the organization, and reduce poverty. In addition, ICT is also an intermediate medium to increase participation in the economic sector, such as entrepreneurship [1]. ICT, or information and communication technology, has altered instructional strategies and procedures. Cyberspace offers a variety of informational or educational resources due to the rapid growth of information and communication technologies, including but not limited to. [2]. ICT literacy focuses on higher-order thinking skills to consider information, media, and technology in the surrounding environment. There are several links between the three forms of literacy, including information communication literacy, media, and technology. Mastering these skills allows one to acquire the skills and competencies needed to live successfully in the 21st century. Students can master this ICT literacy by utilizing tools that are inherent in students' daily lives. Information technology in the learning process allows distance and location to stop being a reason for someone to create a planned and sustainable learning development that is responsive to current and ongoing needs [3].

The Hootsuite summarizes the development of access to Internet technology (We Are Social) institutions for Indonesia in 2021. Indonesia has a total population of 274.9 million people. 345.3 million people in Indonesia have mobile phones, or 125.6% of the country's population. 202.6 million people in Indonesia, or 73.7% of the country's population, utilize the internet. One hundred seventy million people in Indonesia actively use social media, or 61.8% of the country's total population. This demonstrates how widely social media, the internet, and digital technologies are used in Indonesia. [4]. So that it raises the spirit of activists in the world of education and technology to implement technology as interactive learning. So that students can compete, have broad insight, and create high-quality education [5]. The following

is an image of the trend data of internet and social media users in Indonesia in 2021.
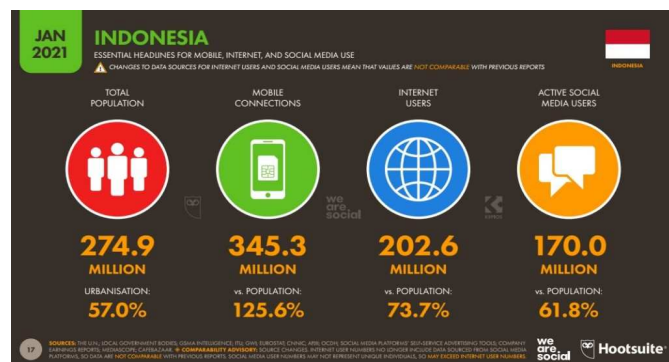

Fig. 1 Data on Internet and Social Media User Trends in Indonesia 2021 [4]

So many mobile devices are used to support human activities, one of which is in the field of education. For now, at least educational institutions must be able to improve the existing system by improving the teaching-learning process. This fact becomes an opportunity for educational institutions to try to organize learning by utilizing mobile media, better known as Mobile Learning [6]. Furthermore [7] also explained that mobile learning is a method of teaching and learning that uses mobile devices including mobile phones, smartphones, laptops, and tablet PCs so that students may access resources, instructions, and apps relevant to lessons wherever they are and at any time.

It is associated with a large number of mobile device users. The problem of fair access to educational information, the issue of content quality, and other issues can all be resolved using mobile learning as an alternative. Then, mobile learning consumers' information sources should be made stronger, and the cost of obtaining educational content should be lowered [8]. Utilizing information and communication technology (ICT) and allowing students to comprehend learning in the 21st century is one of its applications in education [6]. The added benefit of mobile learning is that it may be successfully utilized for learning, helpful for the readiness of instructional materials that can be accessible at any time, and for the visualization of intriguing content [7].

A. Mobile Learning Overview

A reliable definition of m-learning is among the first things that pretty much every study in this area attempts to establish. Since the early 2000s, a number of definitions have been put out because the area is still relatively young and has had some technical advancements. For sample groups, studies published by [9] and [10] demonstrate a high frequency of research involving college, primary, and K-12 students. Curiously (or perhaps not, as we will discuss later), in both meta-analyses, very few studies discussed how academics and instructors used mobile learning. Another study [11] observed that informal learning environments predominated once these settings were exposed, followed by formal learning environments and a mix of the two. This result is consistent with findings by earlier writers, notably those of [9], who discovered that most studies on mobile learning focused on student motivation rather than particular learning domains, views, and attitudes M-Learning.

Teacher awareness and attitudes are rarely seen in current learning to learn again. These results are consistent with those also recently reported by [11] during analysis. Finally, regarding the outcomes, [10] said that 86% of his m-learning trials yielded beneficial outcomes. Similar findings can be found in [11] as well. "Most of the 144 m-learning studies indicate positive results. (...) Neutral results follow next, with the fewest negative results," it reads.

Mobile learning is also a very good facility for supporting learning because learning is done consciously and intentionally. Therefore, learning must have a better goal [7]. Learning can help students to gain various experiences. The experience can add to the personal behavior of students [12]. Mobile learning applications answer the constraints and weaknesses of the current learning process. For instance, how teachers and students interact does not always clearly transmit the content of the learning materials. There is a lack of information about assignments, students are afraid to ask questions in the learning process, and learning is less interesting and monotonous. So, the role of the mobile learning application is to support activities in the teaching and learning process [6]. Mobile learning apps are the ideal solution to learning in today's digital era because they use both the rapid development of mobile technology applications and the growing number of mobile users [12].

The concept of mobile learning itself, using smartphone devices [13], makes it easier for students to access subject matter without any time and place restrictions because learning can be accessed anywhere and anytime. Using information technology in learning is necessary to thrive in the contemporary educational environment.[14]. Many students rate managing information technology as the best way to improve the quality of learning. System improvements in information technology allow students to increase or transform their knowledge.

Applying community learning, mobile learning, and technology management will not work effectively if no model suits students' learning readiness [15]. Community learning is useful to assist students in the use of mobile learning. With this approach, it is believed that the learning process would occur organically due to student activities that include teamwork and collaboration [16]. Additionally, community learning incorporates the seven essential elements of effective learning: constructivism, questioning, community learning, modeling, and actual evaluation. Applying community learning aligns with students' readiness in the learning process.

B. Digital Entrepreneur in TVET

Vocational skills education has several terms in different countries. According to the outcomes of the second conference, which was focused on "Technology and Vocational Education and Training: Vision for the 21st Century," held on April 26-29, 1999, the term "Technology and Vocational Education and Training (TVET)" Includes: Vocational education, including formal, informal and informal education and training. The result was a mutual agreement by a delegation attended by representatives of UNESCO, the International Labor Organization (ILO), and Unevoc. Therefore, education and training are closely linked to VET, which aims to bring workers to the world of

employment needs and demands, in this case, interrelated and coordinated business, industry, and training [17].

Digital transformation is believed to be necessary to advance Indonesia's educational community and accelerate its adaptation to the Industrial Revolution 4.0 in the VET environment. Get the workforce ready to meet global requirements. Nowadays, it is acceptable to hybridize the educational process. The learning process is student-centric and uses unlimited-reach technology that transcends distance, space, and time. Students can obtain direct information on a variety of scales thanks to the knowledge and abilities they learn through technology. Advances in Innovation and Industry. The technologies that drove the transition to version 4.0 included biotechnology, 3D printing, quantum computing, and energy storage [18].

Development in science and technology, especially in information and communication technology (also known as ICT), is accelerating and encompassing all spheres of endeavor, including entrepreneurship. We are familiar with the term digital entrepreneur (digipreneur) or digital entrepreneurship [2]. Digitization will also affect the development of new entrepreneurs. The possibility of digitizing your business or changing store from offline to online, inc Governments in many nations are prioritizing entrepreneurship as a result of the good benefits of digitalization on business, which include fostering innovation, generating job possibilities, and raising productivity [19].

Digital transformation concerning entrepreneurship radically alters how businesses function and organize production, which involves the participation of those with small, medium, and small-scale manufacturing and non-manufacturing industries, which is a result and function of Technology Vocational Education and Training (TVET) [20]. A kind of entrepreneurship known as "digital entrepreneurship" uses digitalization techniques to carry out its operations. Therefore, digital entrepreneurship includes certain digital goods and services as well as digital business operations. Since entrepreneurship has been identified as one of the primary forces influencing economic growth, it is considered a viable strategy for assisting developing nations in overcoming the severe problems faced by poverty [21]. Due to this, a subcategory of entrepreneurship known as "digital entrepreneurship" includes some activities that would typically be performed physically within a traditional firm that has been digitalized. Given the increasing growth of digital activities among all organizations, digital entrepreneurship includes entrepreneurial activities connected to some extent with digital goods or services or other types of digital activity. The likelihood that digital entrepreneurship will spread suggests the need for a greater comprehension of this phenomenon.

Information and communication technology advancements have given rise to the phenomenon known as the "digipreneur" [22]. Through e-commerce, the digital economy allows entrepreneurs to establish new company sectors. Digital entrepreneurship also attracts the efforts of millennial businessmen, especially in college [23]. However, the potential of millennial businesspeople as digital entrepreneurs certainly needs to be developed by various stakeholders. The political parties that play a major role are government, academia, and industry. These three parties are the most facilitating organizations in innovation development [24]. Digipreneurs are needed more and more to make their existence and what they produce more real. The Digipreneur of the future will be a much-needed career option for the young generation who are passionate about business [2]. Therefore, TVET has a challenge and a duty to integrate it into 21st-century learning to generate graduates with the capabilities the business requires [17].

However, several variables associated with student competency mastery also support the strength or weakness of students' entrepreneurial goals in vocational education. A focus for improving its proficiency is undoubtedly the digitalization age brought on by the advancement of 21st-century technology [25]. In this era, comprehensive mastery of digital technology will provide views and develop ways of entrepreneurship more effectively and efficiently [26]. The development of digital technology also presents various online buying and selling places that can increase buying and selling power more efficiently and provide very profitable results [27]. In line with this, digital marketing competence is also strongly suspected of stimulating the growth of students' entrepreneurial intentions. In addition, digital marketing will also affect the extent to which self-efficacy and entrepreneurial personality are formed, especially in growing entrepreneurial intentions. Competence in digital technology and digital marketing must also be balanced with good work experience students so that they will also be together in growing entrepreneurial intentions of these students [28]. The internship program allows students to experience directly how digital technology affects entrepreneurship. The internship experience will also give students access to some business skills that they may later improve, which will also impact their personalities, self-efficacy, and the development of solid entrepreneurial ambitions [29]. However, the degree of entrepreneurial curiosity in a person also contributes to the roots that begin the formation of entrepreneurial ambitions [30]. This means that interest in entrepreneurship is the starting point for forming entrepreneurial intentions. A person's passion for entrepreneurship will motivate him to obtain the necessary skills, causing his level of entrepreneurial intent to increase significantly.

C. Raspberry Pi

Since the Raspberry Pi's first release in 2012, three versions that span many generations have been made available: the Raspberry Pi Zero, A, and B. It has a power input of 5 V DC, an integrated CPU, an on-chip graphics processing unit (GPU) and onboard memory, and a set of system-on-a-chip components of each of these three versions. Each version has connections in the form of multiple general-purpose input/output (GPIO) pins connecting to ancillary components and other electrical components, such as LEDs, power relays, and various sensors. A GPIO connector, along with Ethernet and wireless (Wi-Fi and Bluetooth) connectors, is included in most variants, substantially enhancing the Raspberry Pi's adaptability [31]. The Raspberry Pi does every function that a typical computer would. You may operate the user-friendly Linux Desktop environment or other well-known operating systems, such as Windows 10 IoT and Android, by simply connecting a mouse, keyboard, and screen. The Raspberry Pi

can also be used as a stand-alone device or PC, which is to say, without a keyboard, mouse, or monitor connected, which can be remotely controlled and set up to run scripts on its own using a number of programming languages.

Fig. 2 Single-board Raspberry Pi

The Raspberry Pi was created to allow anybody to use it to solve issues creatively. It is a very versatile and powerful computer that costs a fraction of what a standard PC does. A fantastic research tool with many applications is the Raspberry Pi. Two examples are long-range field measuring stations and complex closed-loop systems that can analyze data automatically, provide warning signals, and start and stop other operations (such as turning lights on and off or servos). In addition, eligibility for video documentation, laboratory testing, interactive and autonomous environmental monitoring, and video environmental monitoring. Researchers can benefit from the Raspberry Pi in several respects, namely automatic data collection, a more significant number of data set acquisitions, more remarkable thoroughness, consistency, and assisting in temporal and spatial sampling resolution. Its remote monitoring capability also limits interference that would alter the local environment or result in possible trial errors [32].

Due to its low cost, using several devices simultaneously is possible, encouraging researchers to experiment with new concepts and find original, innovative solutions. The Raspberry Pi can be readily transported due to its compact size and may be left running on its own in the field for extended periods because of its numerous power choices. The ability to readily upgrade and repurpose both software and hardware makes self-built Raspberry Pi systems very versatile. Contrast this with commercial gadgets, which may become outdated and no longer receive active maintenance, forcing customers to either continue using their current equipment or purchase new ones [31].

However, one of the other boards, such as those with more powerful computers or ones devoted to machine learning, may be preferred for more experienced users and certain instances. Sometimes, using a microcontroller rather than a single-board computer may be better. The Raspberry Pi is superior to microcontrollers in computing power, network connection, usability, and access to databases or data storage. Meanwhile, the microcontroller excels in performing single and repetitive tasks that do not require further user

administration [31]. Since the Raspberry Pi requires some trial-and-error learning, some potential users could be put off because it is not plug-and-play. However, there is not much of a learning curve, and users may rely on abundant internet help for setup, problem-solving, and solution-building. Working with the Raspberry Pi can ultimately lead to a variety of practical advantages as well as the development of innovative thinking, which is essential for scientific advancement. Table I details the Raspberry Pi Model B+ that will be utilized.

TABLE I
THE SPECIFICATION OF THE RASPBERRY PI 3 B+

Specification	Raspberry Pi 3 Model B+
Type	Single-board Computer
CPU type/speed	ARM Cortex-A53 / 1.4 GHz
RAM	1 GB SRAM
Integrated Wi-Fi	2.4 GHz and 5 GHz
Ethernet speed	300 Mbps
Bluetooth	4.2
PoE (Power of Ethernet)	Yes
Storage	MicroSD card (up to 1 TB)

Fig. 3 Raspberry Pi 3 Model B+

This article aims to develop mobile learning using a Raspberry Pi mini server as a source of learning content so that learning can be carried out flexibly without having to be connected to the internet, ineffective classrooms even in areas that do not have internet access. Where students may access lesson-related information, instructions, and apps whenever and wherever they are without being constrained by time or place. This program is anticipated to be a breakthrough and the best approach to learning, limit undesirable outcomes, and provide an alternative approach to resolving issues in the field of education, such as the issue of fair access to educational content, content quality, and others. Then, strengthen information sources for mobile learning users and advance the quality of Indonesian education for the future.

II. MATERIALS AND METHOD

Research and development are the methods used in this study [33]. This study is being applied in phases across all TVET courses at Padang State University. A client-server

approach is used in this activity. A client and server systems that communicate with each other over a computer network or the same computer make up the client-server software architecture idea. The server provides client data security, data management, and application administration. Instruments that exist on the client-server have a function for saving bandwidth and performance that uses the role of the server as storage of all data used by the client [34].

The client software will only get the desired information as soon as the client accesses it immediately. Currently, the protection of information through the server can be encrypted so that it allows clients to get secure data. The real function of the client-server is that one can create his own business through pre-built web pages. So that clients can quickly share their products or services with users worldwide. Users will get information quickly from the browser used through a web page that has been created by the client [35]. The following is a Figure of the network topology design that will be built into the system.
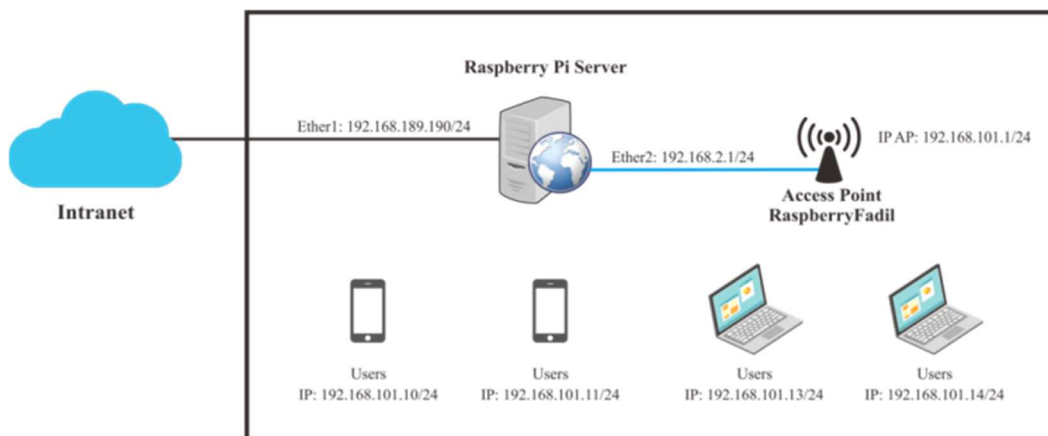

Fig. 4 Network Topology Design

From the topology above, it can be explained that the Raspberry Pi acts as a server by setting up the ethernet WLAN, and then setting up the mobile hotspot from the Raspberry server as an access point. It can be seen in the picture that after the access point is active, the server will emit a hotspot signal, which can then be captured by the Wi-Fi receiver on the client device in the form of a PC, laptop, smartphone, or similar device.

III. RESULTS AND DISCUSSION

In the development of a system, several things must be considered first. Therefore, a system analysis that will be established or created is required. This system analysis aims to identify problems and provide an overview of the system to be designed. Students' interest in reading books and lack of literacy make students only depend on class meetings to gain knowledge and knowledge. However, the face-to-face process cannot be fully optimized by students or by teachers. So, it is hoped that students can learn independently outside of these lesson hours by using mobile learning technology based on digital entrepreneurs so that the material learned at class meetings can be easily understood. User analysis on this system involves 3 actors: the administrator, lecturer, and student. This can be explained in Table II.

The Raspberry Pi single-board computer can be used as a fairly reliable mini-PC. Whether it is to access the internet to learn programming languages. Moreover, of course, it is now used as a web server device. Raspbian is the most popular operating system used on Raspberry Pi devices. This operating system is recommended through the official Raspberry Pi website. The installation method is not the same as the operating system installation method in general, such as on a PC or laptop, because the storage used on the Raspberry is in the form of an SD card.

TABLE II
USER ANALYSIS

User	Activity
Administrator	Manage system, input data (server), manage user ID, input user into the application, change user level or status, and create learning class category.
Lecturer	Input login data, manage teaching materials, view class data, create assignments, and give grades.
Student	Input login data, get study classes, download assignments, upload assignments, carry out learning in the system, get grades.

The selection of the application software used is the result of the analysis from the previous subsection and adapts to the operating system software used in the system design, besides that the application software used as a whole is application software that can be used for free without requiring additional fees to pay for a license. The purpose of installing this software is to create mobile learning based on digital entrepreneurs (digipreneur) on the Moodle LMS (Learning Management System) service, all of which will be integrated into the Raspberry Pi mini server system. The schematic diagram below shows the system installation plan used for this system design.
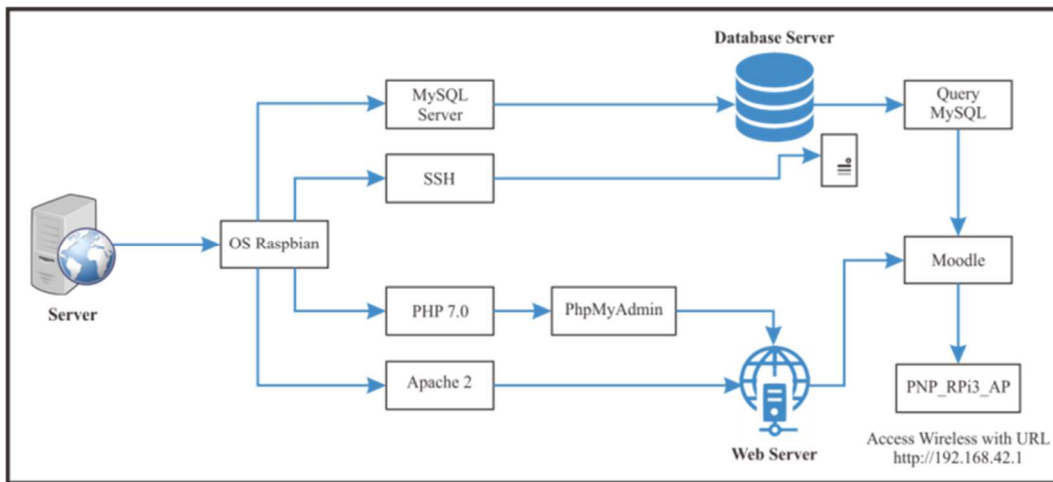
Fig. 5 Server Application Design

Based on the server application design scheme, the Raspberry Pi mini server is the main server which is then installed using the Raspbian operating system. Like most computers, the Raspberry Pi device is meaningless without operating system software. The operating system oversees managing and coordinating all computer components and functions. Users of Raspberry Pi devices are already aware that the official operating system recommended by the Raspberry Pi Foundation for everyday use of Raspberry Pi devices is Raspbian OS. Raspbian is a derivative of the 32-bit Debian Linux distro, which is specifically optimized for Raspberry Pi devices that still have up to 4GB of RAM. In May 2020, the Raspberry Pi Foundation issued a Raspberry Pi 4 8GB RAM variant and also officially changed the operating system name for Raspberry Pi devices from "Raspbian" to "Raspberry Pi OS" [36]. The Raspberry Pi Foundation now supports both the 32-bit and 64-bit versions of the Raspberry Pi OS.

Furthermore, in the Raspbian operating system, several supporting applications will be installed to create a digital entrepreneur-based mobile learning system. The first is MySQL, a database management system (DBMS) using basic SQL (Structured Query Language) commands that are quite well known. The website requires a database server or hosting to accommodate various kinds of information [37]. The website needs Various kinds of data such as usernames, passwords, fonts, URLs, and the like. MySQL is a database management system that is commonly used to manage this data.

The second install is SSH (Secure Shell Connection), SSH is a method to secure device administrator login with more secure protection from an unsecured network, and even remotely. SSH provides very strong password and public key authentication and encrypted data communication between two computers over the internet. Apart from being a provider of strong encryption, SSH is often used remotely by network administrators [38]. Thus, administrators can access other computers over the network, run commands (commands), or can also move files from one computer to another. By using SSH, every connection and communication between the client and the server will be encrypted. The SSH client is an application that is used to connect the operating system on the device to the server. The SSH client application that is quite popular is PuTTY, which supports the Windows operating system. SSH will secure the connection between the client and server using port 22. After authenticating both, messages/data can be exchanged securely. SSH's ability to secure the network is because it is equipped with three types of encryptions at once: symmetric encryption, asymmetric encryption, and hashing. The following is an image of the IP and server configuration and ethernet WLAN configuration in the PuTTY application as shown in Figs. 6 and 7.

Fig. 6 IP and Server Configuration

Fig. 7 Ethernet WLAN Configuration

The third step is to set up PHP, is a programming language in the form of a server-side scripting language that is open-source. PHP is a programming language used to execute applications in real-time. Of course, depending on how the data is processed, the instructions will provide varied outcomes. PHP is a server-side programming language, therefore scripts written in it will be executed on the server.

PHP is often used in conjunction with MySQL to build dynamic websites. MySQL is a database management system that will access and process data [37]. Next, we install the PHPMyAdmin application. PHPMyAdmin is a web-based application that functions to manage MySQL databases or can also be referred to as a database tool. This web-based software will make it easier for us to manipulate the MySQL database without having to type commands on the command line. This application has an easy-to-understand interface with complete features according to users' needs. PHPMyAdmin functions to create, edit, delete databases, tables, and create or delete relationships between tables, sort data, and others as needed. When using it, we will be more convenient in making the database to the web server.

The fourth is to install Apache software, Apache is an open-source web server software. The function of the Apache web server is to improve the user experience when visitors visit the website. The way this web server works will later process files into various programming languages such as Java, PHP, Python, and so on. It can be concluded that Apache is a software that will accept a request to access a web page, after that the web server will check the security at the time of the HTTP request and then send the user to the website to be addressed [32].

After all the supporting software is installed, the next step is to create learning media. In this activity, the author chose the Moodle Learning Management System (LMS) which will be the center of interaction for all users in carrying out learning. All supporting software have their respective roles in making learning media. Moodle LMS certainly requires a database server to store information and needs that will be built into the system, and also requires a web server to serve as a domain to run Moodle LMS. Based on Fig. 5, the database server is obtained from the MySQL server so as to generate Query MySQL to build the Moodle LMS system. While the web server is obtained from the items entered into PHPMyAdmin and Apache software to create the IP domain of the system to be built. Of course, this aims to be able to maximize Moodle as a medium for creating digital entrepreneur-based mobile learning.

Moodle is a platform designed for controlling online learning. In this case, Moodle is designed to be used by teachers, students, and admins. The available features allow the three elements to be integrated into one system for an integrated online learning process. Moodle is quite easy to use, and without a big project, this Learning Management System can be used [12]. Here are the steps:

- Planning system capacity: Moodle provides Cloud Hosting if you need unlimited capacity with limited hardware.
- Installing the Database Server: Moodle supports MySQL, MariaDB, or PostgreSQL.
- Installing a Web Server: it is recommended to use Apache 2 because it is very compatible with Moodle.
- Installing PHP: use the most recommended PHP for your hardware.
- Download Moodle files: Download and Copy Moodle files from download.moodle.org.
- Create a Data Directory and Secure Database: this step is required to save the entire Moodle file. Make sure

this data is well secured and NOT accessible via the internet.
- Start the Moodle installation: Run the downloaded Installer to set up your new site.
- Make Backups: no matter how good your server is, it can still be at risk of crashes and data loss. Make sure you provide backup hardware or external storage to store your important data.
- Checking server security and performance: Moodle sites that are never taken care of will be slow, inconvenient to use, and worse, vulnerable to harm. You can use Benchmarks to manage the overall performance of your Moodle.

After installing Moodle LMS, the next step is creating a digital entrepreneur-based mobile learning media resource by adding the features and plugins needed to build the system. The features contained in Moodle are also very detailed and flexible. The documents and manuals provided for developers are also very comprehensive and easy to understand. After the basic system is built, enter the learning resources and materials into the Moodle database server. Next, add users and make user-levelization as needed. The following is a use case diagram of the system to be built:
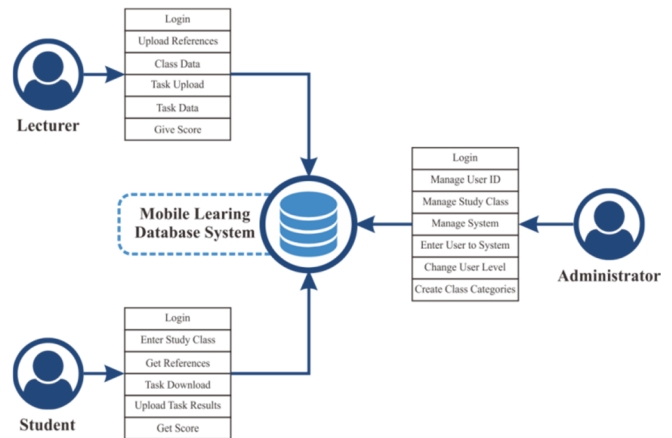

Fig. 8 Use Case Diagram

The design of use-case diagrams is used to determine what functions exist in a system and who is entitled to access rights, as shown in Fig. 8. There are 3 main users built into the Mobile Learning Database System: Administrator, Lecturer, and Student. Each user has a different task, as shown in Fig. 8. All users are interrelated with each other to be able to run the system so that the digiteur-based mobile learning system that is run on the Moodle LMS is completed.

The next step is to create an access point on the Raspberry Pi mini server so that users can open the resources offline and interactively. How the Raspberry Pi works as a mini server can send data via an Access Point in which it has been installed and configured interactive learning media called digital entrepreneur-based mobile learning that runs on the Moodle LMS that has been stored on an IP network. As shown in Fig. 4, the network IP is configured on IP 192.168.42.1.

Next, the user client only needs to connect the device to the WiFi emitted by the Raspberry Pi mini server. As shown in Fig. 4, the researcher created an SSID with the name RaspberyFadil. SSID (Service Set Identifier or service set identifier) is a technical term used to name a WiFi network.

As we mentioned above, SSID is a technical term used to name a WiFi network. This SSID is a place to fill in the name of the AP or access point. Or simply, SSID is the name of the WiFi. Each WiFi network has a different SSID which is used to display the ID sent over the WLAN. Here's how to find the SSID on various devices:

- Select the WiFi icon on the device.
- If it has not been activated, please enable WiFi first.
- Find the SSID you want to connect to.
- Then click Connect.
- Enter the password if the network is locked with WPA2 or another encryption.

After the user's device is connected to the Raspberry Pi mini server device, the user client can access digital entrepreneur-based mobile learning media in the Moodle LMS that has been previously set. Here are the steps:

- Connect WiFi to the client device by selecting the mobile learning SSID that has been set previously (eg SSID: RaspberryFadil).
- Enter the mobile learning WiFi SSID Password.
- The client device is connected to the Raspberry Pi mini server.
- Launch a web browser (eg Internet Explorer, Google Chrome, Mozilla Firefox, etc.) on the user client device (eg PC, Laptop, Smartphone, etc.).
- Type the IP address of Mobile Learning in the internet browser's address bar (eg 192.168.42.1).
- Press Enter
- The web page will be redirected to Moodle LMS which has been set up for digital entrepreneur-based mobile learning.
- Go to the Login menu on the system.
- The user has successfully logged in according to the user level that the administrator previously registered.
- The user has successfully logged in according to the user level that the administrator previously registered.
- Users can access digital entrepreneur-based mobile learning on Moodle LMS.
- Finish

The development of mobile learning based on digital entrepreneurs is expected to contribute to the development of engineering education and the broad scope of technology vocational education and training in higher education and society. So that graduates from Engineering Education and Vocational education can compete in the job market in the current digital era [39-43].

IV. CONCLUSION

The development of digital entrepreneur-based mobile learning through 2 stages of system design known as client-server. In designing the server, a mini server configuration of the Raspberry Pi model B+ is carried out as a resource for digital learning. In building a database server containing MySQL queries, several supporting applications are needed to build the Raspberry Pi mini server, such as MySQL server and SSH. Then, the PhpMyAdmin application and Apache are in charge of building the Web Server. Both of which aim to build a Moodle LMS. The second stage is client design. After the primary system is built, enter learning resources and materials into the Moodle server database. Next, add users and level up users as needed. Three main users are built into

the Mobile Learning Database System: Administrators, Lecturers, and Students. This application is expected to be an innovation and the right solution in terms of learning and become one of the alternative solutions to problems in the world of education, including the problem of equitable access to educational content, content quality, and others, to advance the quality of Indonesian education for the future.

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