IMPLEMENTATION OF WI-FI BASED INTERNET NETWORK CONNECTION AND INTRODUCTION TO TEACHERS AND STUDENTS OF STATE SENIOR HIGH SCHOOL 1 DOLOK SANGGUL

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Abstract

Wireless communication has become a basic need or a new lifestyle for people in obtaining information, especially in the SMA Negeri 1 Dolok Sanggul environment. In this community service, the PKM activity implementation team was given the opportunity to build a wireless network using a Mikrotik RB951. This was done to empower the densely populated SMA Negeri 1 Dolok Sanggul environment which has the potential to be used as a hotspot business. The method used was a direct practice method for students by implementing health protocols during the pandemic. In addition, a wireless-based network makes it easier for students to access the internet anywhere. The implementation of the network installation consists of several units of RJ-45 connectors on UTP cables, access point configuration, and Mikrotik hotspot server configuration. With the presence of a wireless network in the SMA Negeri 1 Dolok Sanggul environment, it will make it easier for students and teachers to access the internet. In addition, configuring a wireless network is not that difficult, as long as you follow the rules for creating a network.

Keywords: Access Point, HotSpot, MikroTik, Wireless

Abstract

Wireless/wireless communication has become a basic need or a new lifestyle for people in obtaining information, especially in the SMA Negeri 1 Dolok Sanggul environment. In this community service, the team implementing PKM activities was given the opportunity to build a wireless network using the RB951 Mikrotik. This was done to empower the densely populated SMA Negeri 1 Dolok Sanggul environment which has the potential to become a business hotspot. The method used is a direct practice method for students by implementing health protocols during the pandemic. Apart from that, wireless-based networks make it easier for students to access the internet anywhere. The implementation of network installation consists of several units installing RJ-45 connectors on UTP cables, access point configuration, and proxy server hotspot configuration. With the existence of a wireless network within SMA Negeri 1 Dolok Sanggul, it will be easier for students and teachers to access the internet. Apart from that, configuring a wireless network is not that difficult, as long as you follow the network creation rules

Key Words: Access Point, HotSpot, Mikrotik, Wireless

INTRODUCTION

The use of Mikrotik with its Hotspot feature is very suitable for use in densely populated areas. In terms of language, a Hotspot is an area or region where clients can connect to the internet network via wireless media (wireless/without cables) using a Personal Computer (PC) device, or using mobile devices (mobile) such as Notebooks, PDAs or Mobile Phones that have Wireless LAN facilities, within a certain range. Hotspot is one of the uses of Wireless LAN technology, by using this Wireless LAN device it allows a connection between information users even when mobile conditions, thus providing convenience for information users in carrying out their activities. Today, many routing systems are used, from free to paid, from easy to difficult in the configuration system. One of them that

we will discuss is the Mikrotik Router Board, which is a device and router operating system that is currently widely used by schools, offices or other agencies. The Mikrotik Router Board is a reliable network router, equipped with various features and tools, both for wired and wireless networks. One of the features provided by Mikrotik that will be discussed is the Hotspot Server.

The use of Mikrotik is also very useful during the pandemic, used for online learning for students and can be used as a business field such as creating prepaid vouchers to be able to access the internet freely. Likewise, the installation method is very effective and efficient and easy to understand for students of SMA Negeri 1 Dolok Sanggul, grade 12, science and social studies vocational. The activity implementation team tried to provide training and direction to students of SMA Negeri 1 Dolok Sanggul who were very enthusiastic about this community service activity. With this activity, it is hoped that students can operate Mikrotik devices more optimally and can also be developed for future provisions.

The objectives of this community service activity are:

a. Providing education to students majoring in natural sciences and social sciences at SMA Negeri 1 Dolok Sanggul about WLAN, hotspot and Mikrotik networks.

b. Providing direct training and practice to students majoring in Natural Sciences and Social Sciences at SMA Negeri 1 Dolok Sanggul regarding the configuration and creation of hotspots on Mikrotik.

METHOD

Activity Realization

Activity Type & Schedule, and Activity Location

Implementation Method The implementation of this activity was carried out for one day, starting with the socialization of the importance of LAN Computer Networks, preparation of facilities for LAN computer networks in collaboration with the Principal and continued with LAN computer network training for students of SMA Negeri 1 Dolok Sanggul, This activity is not only closed to students, but also teachers and the community at the school. In the Laboratory, 8 PCs are provided that have been installed with Windows XP.

RESULTS AND DISCUSSION

The results of this community service activity include the fulfillment of the targets that the PKM activity implementation team had planned, as follows:

1. Smooth running of activities from the beginning to the end of the PKM implementation

2. Participants who participated in the activity understood and comprehended the material presented. The PKM activity implementation team planned a PKM activity consisting of 3 activities, namely survey and preparation, PKM implementation, and evaluation and reporting. Judging from the three activities that we successfully completed one by one until the evaluation and reporting stage. Thus, it can be said that the target of success of the activity reached 100%. Because the activity was carried out during the pandemic or when PPKM was implemented in the area where the PKM activity took place, the implementation team targeted only 13 students of SMA Negeri 1 Dolok Sanggul to avoid crowds that could cause the spread of the Covid-19 virus. In this activity, he had the opportunity to give a short speech and teach about the practice of creating a hotspot on the Mikrotik RB951. The purpose of this second phase of the activity is the delivery of material, as well as direct training on the material that students have received during the previous material delivery. This activity aims to test whether students understand what we explained previously. The result of this Community

Service is in the form of hotspot configuration results on Mikrotik. The following is a screenshot of the login display on the hotspot with the user admin and password 1.

Hotspot Configuration Work Steps on Mikrotik RB-951.

1. Insert the internet connection cable into LAN port 1 on the Mikrotik.
2. Insert the cable into LAN port 2 on the Mikrotik and also into the LAN port of the computer.
3. Open the Winbox application.
4. After the application opens, if the IP and MAC address appear, click the MAC address.
5. Then click the connect button
6. After the default configuration display appears as below, then click the remove configuration button.
7. Wait until the deletion process is complete.
8. Reopen the Winbox application. After it appears, make sure the IP address is 0.0.0.0 as shown in the image below, then click on the IP and click the connect button.
9. After connecting and the Winbox menu appears, click the IP menu and select dhcp-client.
10. After the dhcp-client menu appears, click the + (plus) sign, then select the ether1 interface, click apply and click ok.
11. Wait until the status is bound.
12. Then click the IP menu, then select address.
13. Then add the IP by clicking the + (plus) button, enter the IP address and select the interface with wlan1, then click apply and ok.
14. Then go to the wireless menu, select the wlan1 adapter and activate the wireless feature by clicking the checklist.
15. Then double click on the WLAN adapter and a menu will appear.
16. If it appears, click the wireless menu then set the mode with ap-bridge and change the SSID as desired, then click apply ok.
18. After the hotspot menu appears, click the servers menu then click hotspot setup, in hotspot setup select the interface using wlan1 then click next until you reach the create local hotspot user stage.
19. At the create local hotspot user stage, fill in the name of the local as desired along with the password, for example admin with password 1, then click next.
20. Then, go to the user profiles menu, double-click the default text, then set the shared users as needed, for example, 5, as shown in the image below. Click apply and OK.
21. Completed. In this third stage, an evaluation and report are prepared. The evaluation is conducted to check whether students understand what was previously conveyed during the PKM activity. Students are asked to share their opinions regarding the activities they have participated in, so that the PKM implementation team can easily check whether the material presented or delivered by the team is successful or not. Meanwhile, the preparation of the report is carried out to fulfill the final requirements for the completion of this PKM activity.

From the implementation of the Community Service Program (PKM), the students, the PKM implementation team, the accompanying lecturers, and the accompanying teachers who participated in this PKM activity were able to play an active role in this PKM activity. The final results of this community service activity are:

1. Students understand how to operate Mikrotik devices.
2. Students understand how hotspots work.
3. Students understand how to configure a hotspot on Mikrotik.

CONCLUSION

After carrying out practical activities carried out at SMA Negeri 1 Dolok Sanggul using Mikrotik RB-951. It can be concluded that the purpose of this

activity is to design a wireless network using Mikrotik RB-951 which can increase the insight of students of SMA Negeri 1 Dolok Sanggul, especially regarding the creation of hotspot networks on Mikrotik which will really help them later in facing the Computer Practice Exam and can be used as an opportunity for business.

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