



Design of Internet/Iptv Television System Web-Based On Local Community Network

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Abstract

Internet Protocol Television / IPTV is a system used to transmit multimedia data over an Internet Protocol (IP) based network. This technology is changing the way humans communicate with television to be more interactive. IPTV is a technology that is being developed in various countries, including Indonesia, which will soon implement it. The existing broadcast system on Kebumen TV still uses analog transmitters using UHF frequencies, so broadcasts cannot reach large areas and are still limited by broadcast time schedules. The development of a TV transmitter system made is a solution to solve existing problems. The TV transmitter system created will utilize the Internet Protocol (IP) network so that Kebumen TV viewers who are outside the broadcast range can enjoy Kebumen TV broadcasts. Internet Protocol Television (IPTV) is a method of channeling television images and sound through the Internet Protocol (IP). The feature of IPTV is that it can broadcast live or pre-recorded digital video and can transmit programs from various sources. From the research results of television transmitters using the Internet Protocol (IP) network have several advantages compared to analog tv transmitters, among others nois produced far less, is cheaper, and allows for broadcasting more functions and broadcast content.

Keywords: *Television, Internet Protocol (IP), web, Local Community Network (LCN).*

1. Introduction

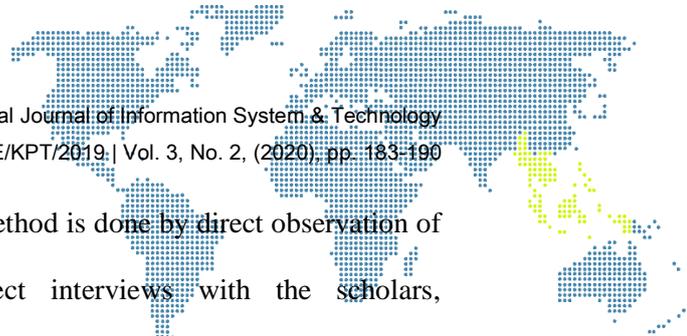
Television broadcast is one of the most popular communication media among the public, because television broadcasts contain various information, entertainment, and knowledge. Therefore, television has a very important role in people's lives. At present, the average television broadcast is still accessed by using a television set, while the television broadcast sending system is still using a transmitter system using UHF and VHF waves. Along with the development of technology that leads to the digital system and the development of data communication network systems based on the Internet Protocol (IP), the development of television broadcasts which initially used analog systems, began to switch to digital systems.

Kebumen TV is a TV station owned by the Government of Kebumen Regency. Kebumen TV operates through 47 UHF channels or can be accessed by the public with analog TV on Video frequency: 711.25 MHz and Audio Frequency: 716.75 MHz. In broadcasting Kebumen TV broadcasts, they still use analog transmitters as TV broadcast media, so that there are still many people who cannot access Kebumen TV because it is not within the broadcast range. Based on the background of the problem outlined above, the problem can be formulated as follows: how to design digital TV transmitters using web-based Internet Protocol (IP) on Kebumen TV.

2. Research Methodology

2.1. Data Collection Techniques

In compiling the author uses several research methods. The research methods used are as follows:



- a) **Direct Observation (Observation)**, This method is done by direct observation of the Kebumen TV studio.
- b) **Interview**, the researcher conducts direct interviews with the scholars, employees, and some people in Kebumen.
- c) **Literature Study**, To complete the required data, the researcher conducts a literature study, by observing research books related to this writing, and assisting the writer in gathering the required materials.

From the results of the study, the current transmitter system, which is video processing, is done in the studio and then sent to the main transmitter and then transmitted with an analog transmitter to Kebumen TV viewers, which of course is still limited by the transmit range.

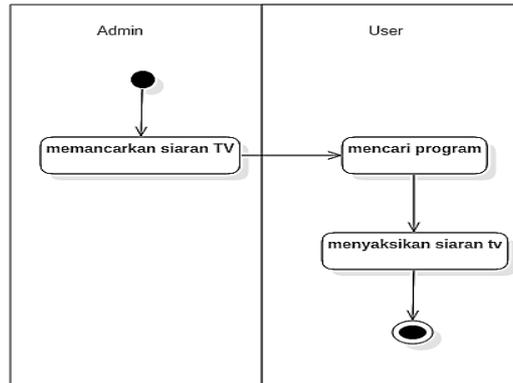


Figure 1. Activity Diagram System that is running

Description of the current system

- a) The production process is carried out by the admin to then broadcast TV broadcasts via analog transmitters at certain frequencies.
- b) Users who will watch Kebumen TV broadcasting search programs on analog TV, after the frequency is found then the User can already enjoy shows from Kebumen TV.

2.2. Data Analysis Techniques

Data analysis techniques used by the author are as follows:

- a) System Requirement Analysis
Display Structure Design:

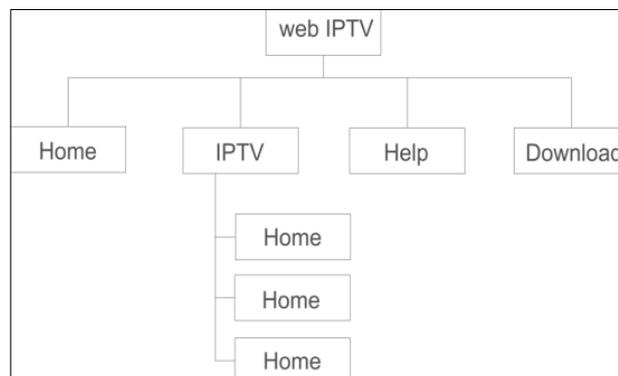


Figure 2. Display Structure Design

- b) Non-Functional Needs

After analyzing the system requirements to smoothly run the IPTV system, it is needed is hardware.



To run a website that functions as a server the following specifications are recommended:

- (a) Processor uses Core i5 / i7
- (b) Minimum 4Gb RAM.
- (c) A minimum of 1T hard drive.
- (d) VGA must support 3D and have HD (High Definition) features with a minimum 1GB memory speed.
- (e) Monitor a minimum of 21 inches and additional monitors for review.

3. Result and Discussion

3.1. Functional Design

a) Use Case Diagram

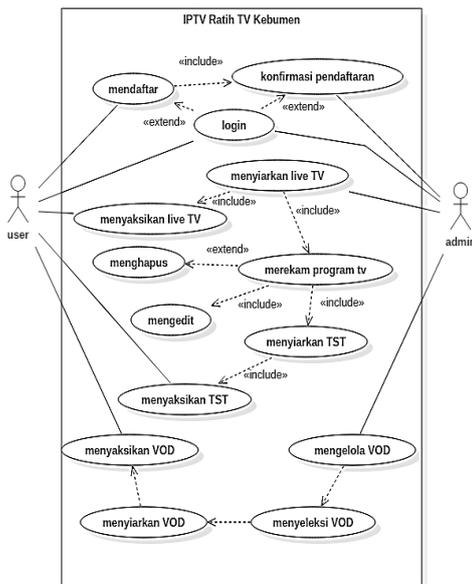


Figure 3. Use Case Diagrams

b) Class Diagram

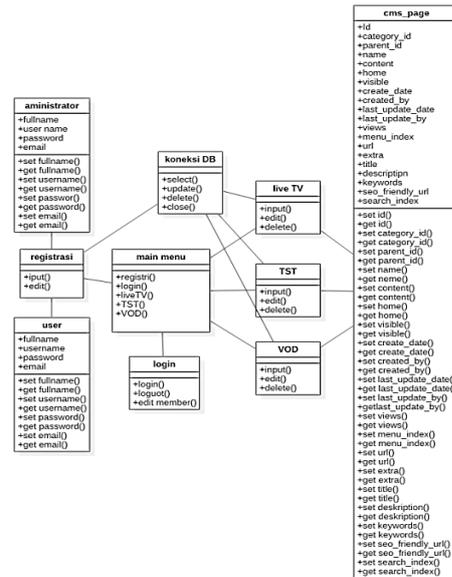


Figure 4. Class Diagram

c) Activity Diagram

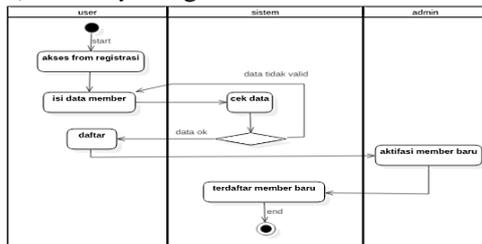


Figure 5. Activity Diagram Registrasi

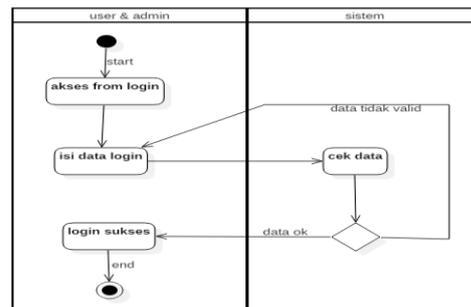


Figure 6. Activity Diagram Login

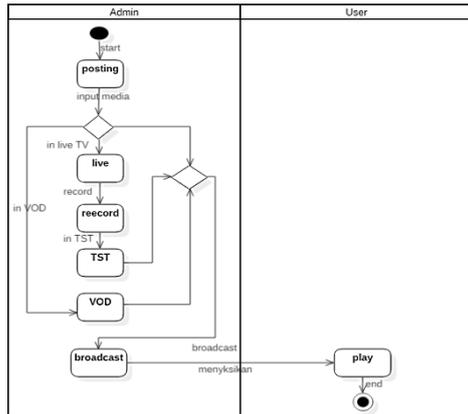
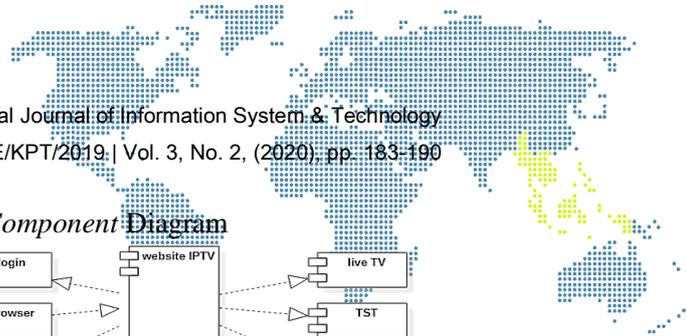


Figure 7. Activity Diagram Posting

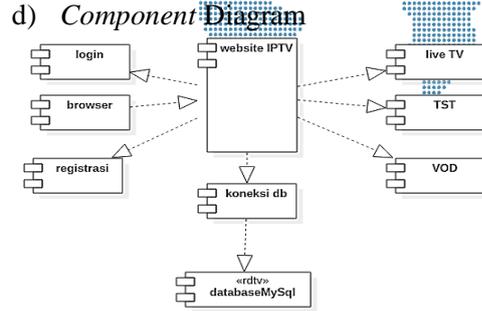


Figure 8. Cmpnent Diagram

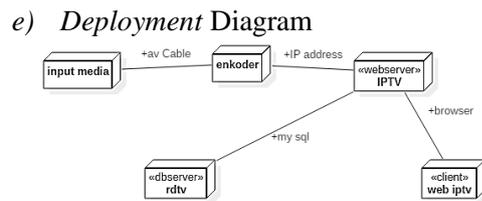


Figure 9. Deployment Diagram

3.2. Database Design

The author uses a database for system design that uses MySQL with the database name rdtv.sql which contains the following tables:

Table 1. Administrator Table Specifications

No	Field	Type	Size	Keterangan
1	<i>Id</i>	Integer	10	<i>Primary</i>
2	<i>Username</i>	Varchar	50	
3	<i>Fullname</i>	Varchar	75	
4	<i>Password</i>	Varchar	50	
5	<i>Email</i>	Varchar	75	
6	<i>Active</i>	tinyint	1	
7	<i>Code</i>	Varchar	75	

Table 2. Specifications Table User

No	Field	Type	Size	Keterangan
1	<i>Id</i>	Integer	10	<i>Primary</i>
2	<i>Username</i>	Varchar	50	
3	<i>Fullname</i>	Varchar	75	
4	<i>Password</i>	Varchar	50	
5	<i>Email</i>	Varchar	75	
6	<i>Active</i>	tinyint	1	
7	<i>Code</i>	Varchar	75	

Table 3. Specifications Table cms_admin

No	Field	Type	Size	Keterangan
1	<i>Id</i>	Unsigned	10	<i>Primary</i>
2	<i>Word</i>	varchar	50	

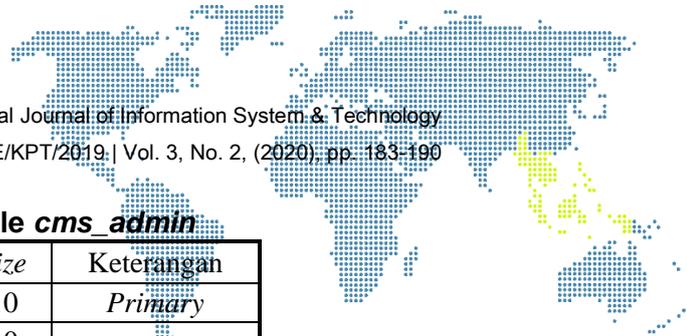


Table 4. Specifications Table cms_admin

No	Field	Type	Size	Keterangan
1	Page_id	Unsigned	10	Primary
2	Word_id	Unsigned	10	

Table 5. Specifications Table cms_admin

No	Field	Type	Size	Keterangan
1	Id	Unsigned	10	Primary
2	Category_id	Integer	11	
3	Parent_id	Integer	11	
4	Name	Varchar	225	
5	Content	Text		
6	Home	Tinyint	1	
7	Visible	Tinyint	1	
8	Create_date	Timestamp		
9	Create_by	Varchar	255	
10	Last_update_date	Timestamp		
11	Last_update-by	Varchar	255	
12	Views	Integer	11	
13	Menu_index	Integer	11	
14	url	Varchar	255	
15	Extra_data	Varchar	255	
16	Title	Varchar	100	
17	Description	Varchar	255	
18	Keywords	Varchar	255	
19	Seo_friendly_url	Varchar	100	
20	Search_index	Tinyint	1	

3.3. Screen Dialog Design

a) Input Design

1. Login Display



Figure 10. Display Login

2. Registration view



Figure 11. Registration

3. Display Activation



Figure 12. Activation

4. Display Update CMS

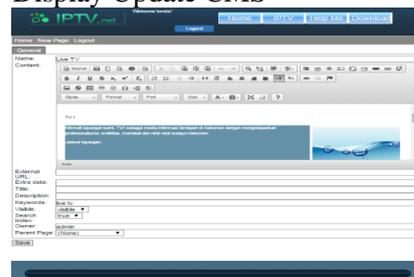


Figure 13. CMS Update



b) Output Design

1. Home Display



Figure 14. Display Home

2. Display Download menu



Figure 15. Display of the Download menu

3. Display the Help menu



Figure 16. Display the Help menu

4. Live TV Display



Figure 17. Display of the Live TV menu

5. TV Time Shift display



Figure 18. Display of the TST menu

6. VOD display

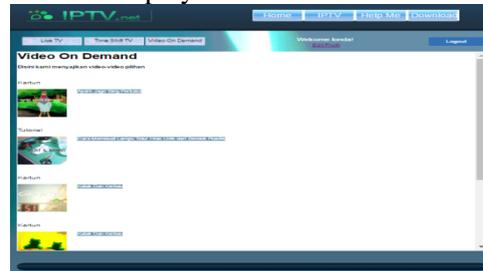


Figure 19. Display of the VOD menu

3.4. Hardware and Software Specifications

a) Hardware

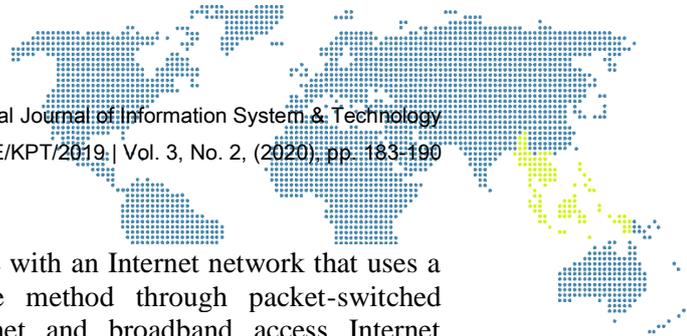
The hardware used is a set of computers, complete with supporting components. The computer specifications used by the author to design IPTV websites and process data are:

1. Computer
2. Processor: Intel® celeron® CPU 1007U @1.50GHz
3. HardDisk: 500 Gb.
4. Memory : 4Gb.
5. VGA : Intel ® HD Grafik

b) Software

Software used in website design is

1. Operasi system Windows 7 Ultimate
2. XAMPP
3. Umedia, Mozilla Firefox and Adobe Photoshop 7.0



4. Conclusion

Internet protocol television is a television service with an Internet network that uses a network architecture and Internet protocol suite method through packet-switched Infrastructure Networks, for example, the Internet and broadband access Internet networks, instead of using radio frequencies, satellite signals, and cable television.

The advantage of using IPTV is the integration of television and IP transmission systems while using IP infrastructure without additional investment in the area and transmission tower / hub, frequency permit, engineer, transmission equipment and so on. Next the IP network allows to broadcast more functions and content (broadcast).

Website design of IPTV TV Kebumen was designed by the author by using a combination of website and Umedia application, Xampp, using a local network, IPTV system created using Private IP Address to transfer video between client to server, while from server to member using Public IP address.

The system is made only in the form of a prototype, and does not yet have many facilities such as IPTV that has been used on the market so that it is expected to develop the system. To switch from analog broadcasting to digital systems, supporting equipment and qualified human resources are needed, so it is hoped that this prototype IPTV can be used as a reference for improving broadcast quality on Kebumen TV.

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