

Recommendation System Model for Political Communication through Social Media using Content Based Filtering Method

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Abstract–Political communication that occurs on social media sometimes makes readers noisy or chaotic. Political actors often speak often only for the sake of imagery. They seek political support through their social media accounts. Supporters of political actors often find it difficult to decide who they will support their political figures. This recommendation system aims to help estimate the choice of popular political actors through content created by political actors' accounts, activities that are often carried out, good responses to supporters. The method used in this recommendation system is the Content Based Filtering method and the K-Nearest Neighbor algorithm. This system will be tested on political actors, DPRD members, parties and citizens.

Index provisions – political communication, recommendation system, Content Based Filtering, K-Nearest Neighbor, content.

INTRODUCTION

Political communication at this time it is not only a story about rhetoric, but also discusses political symbols, politicians' body language, images of political support or vice versa about protests, boycotts or demonstrations that are outlined in the form of banners, posters, billboards. Political communication ultimately has implications for the activities or actions of a group of people who convey messages but are politically charged [19].

Political communication can be done through various media. Political communication that occurs on social media

sometimes creates hoax news, so that political supporters are disturbed. They cannot provide their political support because of the rowdy and chaotic debates and their respective images. So it is deemed necessary to provide recommendations to support political communication activities.

Providing recommendations aims to provide solutions to political users so that they can see, weigh and decide which political figures they like and who are currently popular. Through the content created by political actors, it is hoped that they can be considered in making choices.

According to Putra, Mahmudy, and Setiawan (2015), the content-based method carries out a learning process to recommend items that are similar to the previous item that the user likes or chooses. Item similarity is calculated based on the features present in the items being compared.

LITERATURE REVIEW

I. Political Communication

Political communication is communication through information technology networks, as an effective means to build dialogue between various social groups [7]. In addition, Communication can also be interpreted as a process of delivering opinions, combining thoughts, attitudes, and behavior of institutions or forces, in order to influence citizens in making decisions [4].

Thus it can be concluded that political communication can be interpreted as a way of influencing power, policies, values, ideology with the aim of building dialogue between

political actors and citizens, from various social groups and certain communities in certain media.

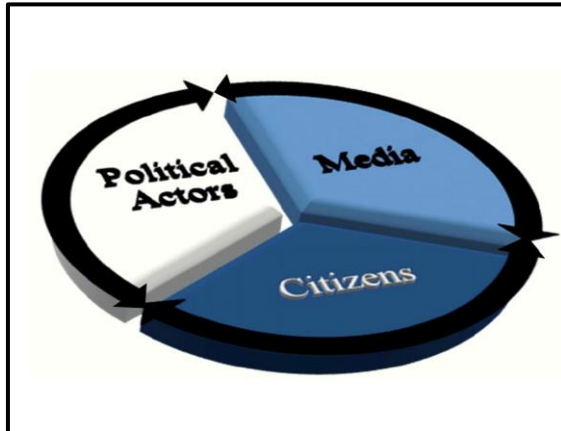


Figure-2 Political Communication model

II. Social media

Social media is a media that allows users to interact/socially interact in an internet network with the aim of sharing information and establishing cooperation [9].

Platformson social media is an important part of software development with a set of logic that will run consistently. The development of this platform model is becoming more important because of the latest technological advances in the 4.0 era [10].

The social media application chosen for political communication is Twitter. Twitter is a social media platform that is usually used for political communication purposes. Twitter's role is very important in political communication, because everyone can join and can participate in giving opinions, reports or political issues [6].

III. Recommendation system

Recommendation Systems (RS) are software tools and techniques that provide suggestions or options for users, and can provide suggestions in the form of text, images or videos [18].

Related research

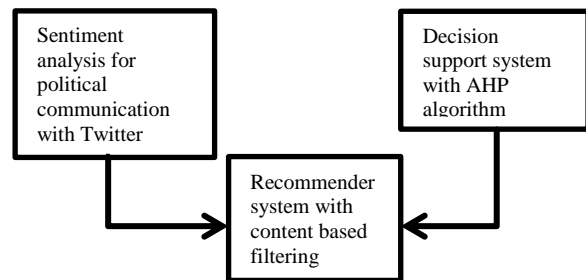
Research related to the recommendation system about hoax news articles on social media with the K-Nearest Neighbor method does not use the data in the user profile as a reference to produce recommendations [5]. The recommendation system in this study only uses text and does not use audio-visual.

The research that will be built will provide recommendations to users of political communication in

the form of profiles of political figures, pictures and videos of the activities of political actors.

METHOD

The research method used begins with the basic method is qualitative data collection/collection, where researchers study and collect issues, cases or events regarding the use of social media in DPRD politics and quantitative data with data collection, literature study and problem analysis. The method used in modeling this recommendation system is the Content Based Filtering method and the K-Nearest Neighborhood algorithm [13]. This system will be tested on political actors, DPRD members, parties and citizens. The result of this research is a recommendation system model in the form of text, images and some video content.



Model of political communication recommendation system

This recommendation system model will take Twitter analysis data related to political communication, then classify it with sentiment analysis to obtain positive and negative tweet data. The results of the sentiment analysis will select political figures who often speak and respond on the Twitter social media application with the help of a decision support system and the AHP (Analytical Hierarchy Process) algorithm. Furthermore, the recommendation system will apply a content-based filtering system to display some of the content of an item with the aim of providing an estimate of the choice of political figures that citizens may like/interested in [3].

The algorithm used in this recommendation system is the K-Nearest Neighbor, to get the accuracy of the choice and is expected to help to estimate the choice of popular political actors through content created by political actor accounts [1]. This algorithm will generate competitive data and has a significant advantage.

1. Use case diagrams

Use case diagrams depict political actors in the login menu, recommendation system, selecting menus and displaying menus.

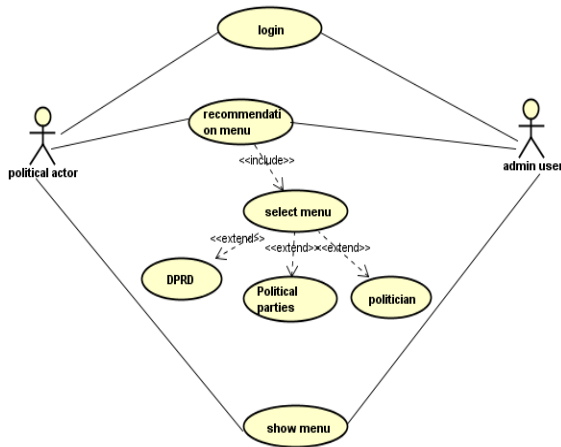


Figure-3 Use case diagram of political communication recommendation model

2. Activity diagram

Activity diagrams describe the activities of political actors in the recommendation system model

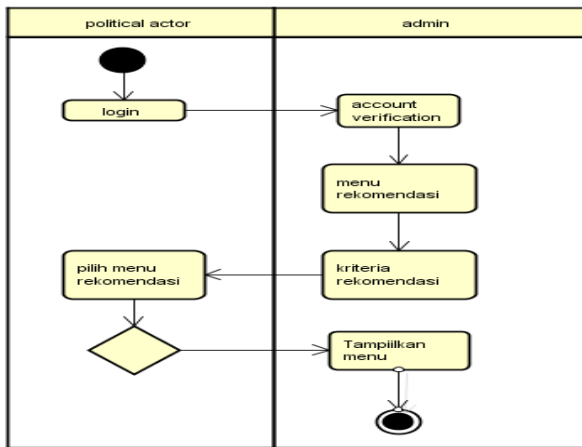


Figure-4 Activity diagram of political communication recommendation model

3. Flowchart diagrams

The flowchart draws the flow of activities for the recommendation system for selecting political actors based on data categories, with the following stages.

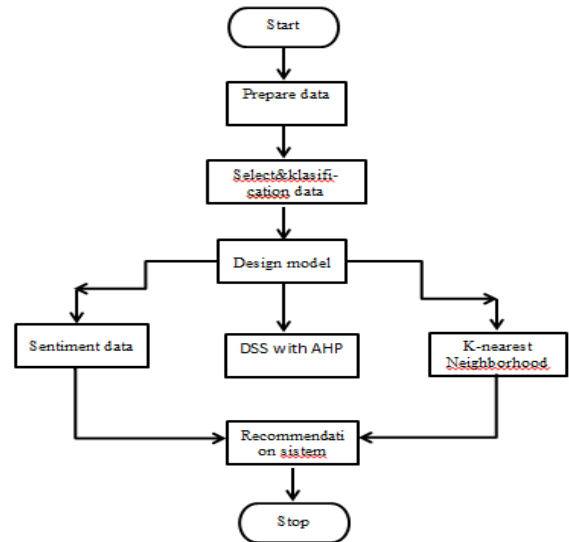


Figure-4 Flowchart of recommended models

4. KNN algorithm flowchart

The K-Nearest Neighbor algorithm explains the selection of political actor data based on the number of proximity values that will be selected by the user to determine the estimated political figures to be recommended.

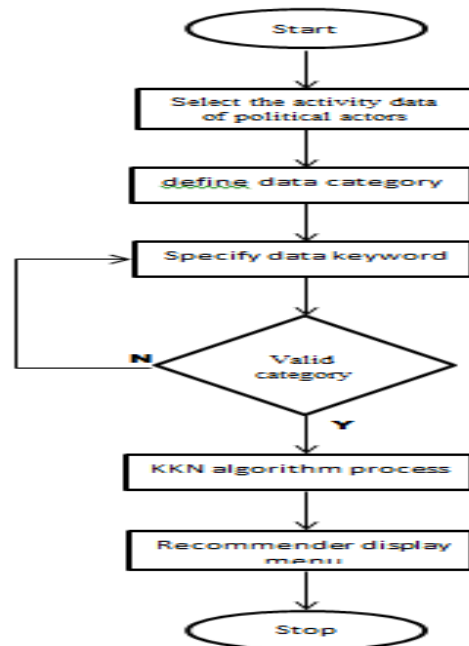


Figure-5 K-Nearest Neighbor (KNN) Algorithm

5. KNN Algorithm Calculation and KKN Analysis

The calculation of the KKN algorithm uses the Root Mean Square Error (RMSE) formula, namely:

$$RMSE = \frac{(2+9+4)}{2} * 100\% = 15\%$$

150

Then RME = 15%

The KNN calculation is carried out in 5 iterations, each category, so that each iteration becomes 15 times. The selection of the most popular political figures is done randomly in each category so that the proximity value using the KNN algorithm is considered ideal if it is worth 2 to 4. The proximity value will have an error value if it is 0 or 1. categories, so the total iteration is 15 times. After the user selects a character, the results of the KNN calculation are displayed and display the results; Estimated value of the best & most popular actors via social media content.

TABLE I

No	Category name	Number of errors
1	Board member profile	2
2	Political party activities	9
3	Politician profile	4

RESULTS AND IMPLEMENTATION

The results and implementation of this recommendation system will display the recommendation system menu and input the data requested by the system.

- a. Dashboard Menu
 - Actor
 - Activities of political actors
- b. Regional representative council menu
- c. Political party menu

A. Regional People's Representative Council (RPRC) Dashboard Menu



Figure-6 Recommended model dashboard

B. RPRC profile activity menu



Figure-7 Regional People's Representative Council (RPRC) Profile

C. Political party profile menu



Figure-8 Profile of political actors

D. Politician menu



Figure-8 Politician profile

CONCLUSION

This political communication recommendation system will help the public as communication users on social media to provide estimates and decide who are popular and favored political actors through the content created by these actors. The results of the recommendations displayed are in the form of text, images and videos of activities.

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