Perception of People's Potential and Expectations Towards the Sriwedari Cultural Heritage WebGIS (Surakarta, Indonesia)

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Abstract. The creation of a WebGIS based digital platform that visualizes and provides information about the Sriwedari Cultural Heritage Area in Surakarta City requires the acquisition of new understanding from the general public, students, students, and academics to gain public perception of this WebGIS so that in the future, it can be better for the wider community. All levels can feel it. The method used in this research is descriptive analysis with exploratory qualitative research, and the authors use the nonprobability snowball sampling technique.The purpose of this research is to find out the perceptions and expectations of the community regarding the WebGIS of the archipelago's cultural heritage, the results of which contribute to the preservation of cultural heritage and become a place for learning about culture in Indonesia. The output results from this research show that the community supports the existence of this WebGIS and community expectations, such as adding gateway points and facilities that need to be added.

Keywords: WebGIS · Cultural Heritage · Sriwedari

1   Introduction

This research is a continuation of previous research entitled the creation of a Geographical Information System for Sriwedari Cultural Heritage Buildings in Surakarta City with WebGIS media, the results of this study provide details of the building area with information related to Sriwedari cultural heritage objects (Sari et al., 2022). Cultural heritage is an art closely related to the characteristics of the community's culture; elements of an area's beauty can be in harmony with the development of urban planning landmarks in the area. City branding or city imaging is a form of activity that image a city and create a unique value for the city (Umrotun et al., 2020). The city of Surakarta is very close to the arts of Central Java; this can be seen in the many art locations in the corners of the city; one of the city brandings in the city of Surakarta is the location of the Sriwedari Cultural Heritage Complex (Yulianto, 2007). Sriwedari Park is a park in the city center that has a

close connection with the Surakarta Kasunanan Palace. This park was initiated by Sultan Pakubuwana X and designed by Patih Dalem Raden Sasradiningrat. The conversion of urban land functions cannot be avoided (Prihatin, 2015). Like Sriwedari Park, which was previously only reserved for the royal family, in its development, Sriwedari Park was opened to the general public. In this park, there are several buildings from the heyday of the palace that still survive today, one of which is Segaran (Ami et al., 2016).

Sriwedari Park is a park that accommodates cultural arts activities as well as the preservation of the history of cultural heritage buildings in it. Surakarta City Regional Regulation Number 4 of 2021 Concerning the Spatial Plan for the City of Surakarta for 2021–2041, Sriwedari Park is included in the Cultural Conservation Area and Green Open Space. Within the Sriwedari Park area are several cultural heritage buildings, including the Radya Pustaka Museum, the Wayang Orang Building, the Sriwedari Stadium, and Segara. According to (Ami et al., 2016), the Sriwedari area has experienced many spatially and spatial changes. Kostof's opinion stated that the development of public space in several cities from time to time was influenced by political, economic, social, environmental, and technological forces (IndahSari, 2015).

Socioeconomic problems in urban areas are one of the triggers for other problems that still haunt Indonesian people (Nyompa et al., 2021). Modernization and city development policies have increasingly eliminated the spirit of Sriwedari Park as a King's Park, which has historical and cultural values for the people of Surakarta City. There is a need for a Geographic Information System integrated with the internet/web, which provides information and promotional media (Setiyaji et al., 2016). Because the role between the community and the government is vital in protecting this historical site so that it is not neglected (Fatimah, 2014). The archipelago's cultural heritage is a nation's wealth that needs to be maintained as a national identity (Nurcahyo, 2011). Community efforts to participate in coloring the preservation of cultural heritage sites are urgently required to preserve and protect national culture, one of which is the presence of this web (Afnani et al., 2021). Application in WebGis with details at that location so that people know the facility's function (Suhartono, 2007).

The detailing advantage of being able to convey maps in various forms such as OpenStreetMap, Google Satellite, Stamen Terrain, ESRI World Imagery, and Aerial Photographic Imagery in one organized layout in the form of a visual map that is easy for the public to use (Negara et al., 2021). WebGis is an online-based platform that can be used as an alternative information system to maps (Ramlan et al., 2021). Making WebGIS can be done by building interface pages using HTML, CSS, and JavaScript files on the client side and a combination of the scripting language PHP and MySQL database on the Participatory GIS Server (Priyono et al., 2018). The information system also includes details on the function of each place and the background of the formation of each building in Sriwedari. This is based on a sense of the importance of knowledge from Taman Sriwedari Surakarta because from this knowledge, a sense will arise that it has historical value.

Research conducted by Volare Amanda Wirastari & Rimadewi Suprihardjo (2012b) increased public awareness in participating in the preservation of a cultural heritage area is very important for the success of efforts to utilize the area, community participation in efforts to preserve cultural heritage is one of the priorities that must be achieved in every

utilization activity objects of cultural heritage with a view to preservation. The results of this research will significantly determine whether the public understands and knows about the Archipelago Cultural Heritage website, which provides information related to historical objects and their location plans so that they remain sustainable.

The difference from existing research is that the research focuses on the content of news content with description results only, as quoted from existing research entitled "Digitization of Pekanbaru City Cultural Heritage using the web" (Amran et al., 2022). Therefore realizing the provision of a Geographic Information System on a website or WebGIS makes it easy to find location points and information on cultural heritage (Sari et al., 2021). Geographic Information System (GIS), which is a form of information system that displays information in graphical form (Puspitasari & Kurniawan, 2019), can be used for analysis and observation (Adam et al., 2019), and displays data related to the position of the earth's surface (has two essential parts, namely location information spatial and descriptive information non-spatial/attribute data (Puspitasari et al., 2019).

WebGIS is a product that integrates GIS with internet technology (Miao & Yuan, 2013); GIS itself has limited application capabilities on the network, while WebGIS makes it possible to retrieve and analyze spatial data (Puspitasari & Kurniawan, 2019) via the web. WebGIS is a cross-platform system; without caring about what operating system the user uses, users can access and use WebGIS as long as they have access to the internet (Li, 2020). GIS web applications integrated with system databases (non-spatial data) that are uploaded are designed to achieve better performance, provide flexibility (Bendib et al., 2016), and produce interactive map applications (Yin, Zou, Bao, & Cheng, 2019). Traffic signs are parts of road equipment containing symbols, letters, numbers, sentences, or combinations, which function as warnings, prohibitions, orders, or instructions for road users (Supriatna & Sutono, 2018).

The Radya Pustaka Museum has a collection of ancient Javanese manuscripts and historical objects such as statues, ceramics, keris, shadow puppets, masks, and Javanese musical instruments. The Radya Pustaka Museum in 1953 had an organizational structure consisting of the head of the foundation, the head of the museum, and daily employees (Bratasiswara, 2000). Even though it is official and managed by the foundation, there are still several cases of loss of historical objects such as in the case of February 2009, 42 ancient manuscripts of the Radya Pustaka museum were lost, and 20 ancient books were sold to UI, with a selling price of Rp. 195,000 at that time (Septiyaning, 2017).

The purpose of this study was to find out the general public's perception of the existence of the Sriwedari cultural heritage WebGIS in Surakarta. As well as this research contributes to improving conservation efforts and fostering a sense of care, protecting cultural heritage. Analyzing the results of the purposive sampling questionnaire with 100 respondents becomes evaluation material and determines the public willingness to accept this WebGIS. The author hopes that with the existence of web research as a form of digitization, that community participation will increase in efforts to preserve cultural heritage and can also be used as a media promotion in the tourism sector. In addition, this website provides information about the Radya Pustaka Museum as well as provides an alternative in the development of learning places to get to know the culture in Indonesia even though this museum has high historical value and is a vessel for preserving the noble values of the cultural heritage of Surakarta City (Kusuma et al., 2020).

1.1 Overview of Study Area

Sriwedari cultural heritage Administratively, it is in a complex with the Sriwedari Cultural Park on Jalan Brigjen Slamet Riyadi, Laweyan District, Surakarta City, and not far from Surakarta square with approximately 4 km from the Sriwedari park, which is an attraction for someone who wants to obtain information about Javanese culture, the research area of the Sriwedari cultural heritage area is 14 hectares (Fig. 1). Historically the location of the Sriwedari cultural heritage area was originally Radya Pustaka was a library where important books or manuscripts were stored belonging to the Surakarta Kasunanan Palace. Local people come to Radya Pustaka to study Javanese culture by reading books or ancient manuscripts belonging to the palace. However, in its development, the museum also stores historical relics from the palace. The main goal is to preserve Javanese art and culture and educate a nation with knowledge and a national spirit (Bratasiswara, 2000).

Radya Pustaka was founded in 1890 and named Paheman Radya Pustaka as an institution equipped with a library. The board of directors is selected from teachers and workers with science and culture expertise. The Radya Pustaka Museum has a collection of ancient Javanese manuscripts and historical objects such as statues, ceramics, keris, shadow puppets, masks, and Javanese musical instruments. The Radya Pustaka Museum in 1953 had an organizational structure consisting of the head of the foundation, the head of the museum, and daily employees (Bratasiswara, 2000). KRA Sosrodiningrat IV and cultural artists pioneered the establishment of this museum in 1890, whose aim was to

Fig. 1. Overview of the study area

Fig. 2. Location of the Sriwedari cultural heritage plan

keep the ancient manuscripts left by the Kasunanan Palace so that their form and writing were preserved (Padmopuspito, 1960).

Gradually it was built and used for several functions or converted as a playground, a park to relieve stress for the general public, and a place for booksellers, car sellers, and sports. Sriwedari fresh pool, Sriwedari stadium, Sriwedari book market, frame artisans, and Sriwedari car exchange. The reason for the researchers choosing the location or area of the Sriwedari cultural heritage area is because this research is a test and continuation of previous research, with the title Making an Information System for the Sriwedari Cultural Heritage Building, Surakarta City Based on WebGIS, to find out people's perceptions of having a WebGIS website, and as material for evaluating future innovations. Figure 2 shows the location of Sriwedari cultural heritage plan. Community participation in efforts to preserve cultural heritage is one of the priorities that must be achieved in every activity of utilizing cultural heritage objects with a preservation perspective. The conservation efforts carried out must have an impact on increasing public awareness of the importance of the existence of cultural heritage buildings so that the community will later participate more; the government will only protect and supervise so that it does not go out of the corridor of applicable law regarding preservation (Wirastari & Suprihardjo, Preservation of the Area Cultural Conservation Based on Community Participation (Case Study: Bubutan Cultural Heritage Area, Surabaya), 2012a).
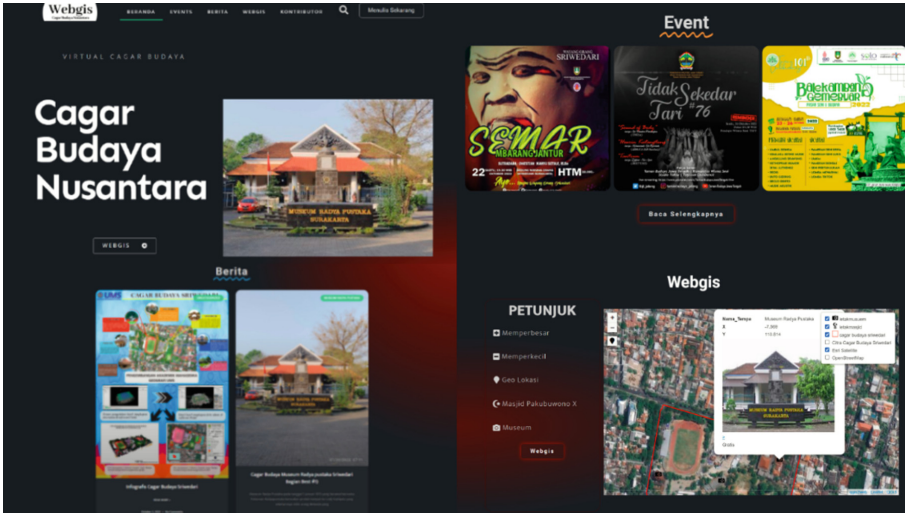
Fig. 3. Home interface webgis cultural heritage

2   Method

2.1   Scope of the Analysis

The city of Surakarta, better known as the City of Solo, is familiar with the slogan "The Spirit of Java," which means the soul of Java, such as the location of the Sriwedari cultural heritage as a cultural heritage area which has an area of 14 hectares is visualized as a GIS with Web media, an information pop up appears in it according to the object of study (Fig. 3). The community sees and uses this information so that the community gets what they are looking for. Are any deficiencies that need to be added to the WebGIS homepage interface of the archipelago's cultural heritage interface? So it is necessary to have perceptions and expectations as material for evaluating website improvement, starting from filling in news content and websites.

2.2   Data Collection Methods

The first stage used exploratory qualitative research, collecting data through the survey method in the form of a questionnaire by filling out open-ended forms, field observations (Salsabila & Kusuma, 2019), and using data presentation tools in the form of pie diagrams, stacked bars in analyzing descriptively to find out each value by making relationships or comparisons of other variables (Sujarweni, 2015). The questionnaire contains questions about the intensity of searching for information, the type of rubric, the duration of reading online media, the attractiveness of the WebGIS, the features of the information provided, and expectations. The questionnaire used in this study was closed, a questionnaire whose answers had been provided (Table 1). The respondents only had to choose and answer directly. Online questionnaires were distributed freely (Snowball non-random sampling) obtained by continuing from other respondents so that

Fig. 4. Research paradigm

the criteria had no age limit, but most used students, university students, and academics (Nurdiani, 2014). Respondents were obtained through social media and relatives who had visited the Sriwedari cultural heritage. The questionnaire began to be distributed on November 13 and closed on November 17, 2022. The results obtained 106 respondents, with 69 male votes and 37 female votes. In this study, the authors used the nonprobability snowball sampling technique. This sampling technique was carried out on these respondents who were asked by other respondents because this technique is based on obtaining satisfactory data to achieve accurate results and build ideas based on the sources formed (Nurdiani, 2014). Also, Fig. 4 shows the research paradigm.

Table 1. Development of questionnaire instrument

| Variable	Indicator
Perception of consumption reading media	What is the intensity of surfing the internet and looking for reading the information in online media in a day
	What is the average article you read the most
	Where do you generally read online media
Perception of the existence of WebGIS and the features provided	Do you agree with the Geographic Information System based on the WebGIS archipelago heritage website
	In your opinion, with the innovations presented, were you helped by the information provided
	In your opinion, with the map presented, will it help you to find information related to cultural heritage
	Do you think that having news as a forum for publishing articles for the community with socio-cultural rubrics will help spread more information
	In your opinion, does the existence of an event rubric containing art events help you to find events
	In your opinion, does a website-based Geographic Information System help you know the detailed layout of the Sriwedari cultural heritage location
	In your opinion, is the homepage interface of the website attractive
	In your opinion, does the interface make it easier for you to find information
	In your opinion, is it necessary to add a new rubric to improve information related to cultural heritage
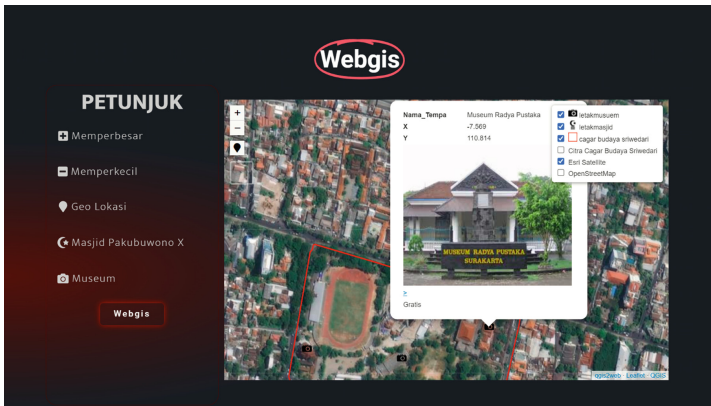
Fig. 5. Interface webgis nusantara cultural heritage

3 Results and Discussion

3.1 GIS Web Interface Display

The WebGIS interface display is equipped with instructions on how to use the features in the WebGIS, placed on the left to make it easier to use. Its usability and function are like the (+) sign, which zooms in on the map and vice versa on the (–) icon. The geolocation icon makes it easier to find the user is set location, and the three camera and moon icons are objects of the Pakubuwono X mosque, the Radya Library Museum, the Archipelago Keris, and the Wayang Orang building. The third icon appears in a popup filled with the name of the object's longitude, latitude, and image (Fig. 5).

In the Potential Perceptions and Community Expectations of the Sriwedari Cultural Heritage WebGIS research, the researchers are the general public, students, academics, totaling 106 employees. Questionnaires were distributed using google forms to various social media. A total of 106 questionnaires were distributed, and all questionnaires could be processed. The results of distributing the questionnaires can be seen in the Table 2.

3.2 Characteristics of Respondents

The characteristics of community participation aim to find out the diversity of respondents. It is hoped that it can provide a reasonably clear picture of the condition of the respondents as well as its relation to the problems and objectives of researchers, of course as an effort to preserve cultural heritage areas with community participation in them, to realize a concept of sustainable (Dewi & Suprihardjo, 2013)cultural heritage preservation. Based on the overall results obtained in Table 2, it can be seen that the age of 20–25 has a very high intensity of searching for cultural heritage news information. This can be seen in the results of the respondent demographic table obtained on the age criteria, which shows a Fig of 82% of respondents. Many students saw the search for cultural heritage information, and the more dominant academics showed a Fig of 69% of respondents in Table 2.

Table 2. Respondent demographics

Criterion	Variable	Frequency	Percentage (%)
Gender	**Male**	**69**	**65**
	Female	37	35
Age	Less Than 20 Years	6	6
	20 to 25 Years	**87**	**82**
	25 to 30 Years	12	11
	>30 Years	1	1
Occupation	**Students/College Student**	**73**	**69**
	Private Employees	14	13
	Entrepreneur	15	14
	Not Working Yet	4	4

3.3 Intensity and Access to Public Information in Various Online Media

Quoting from relevant research results from Widarsih (2014) states that the intensity of using the internet as a learning resource is 10–40 h/per month. Based on the questionnaire results, with what rubric questions are often read, the histogram shows that the culture rubric gets 34%. Asking with a questionnaire as often as surfing the internet, the intensity of reading and searching for information in online media obtained results in one day, seen in the pie chart Table 2, showing a value of 34.6% in a day consuming 1 to 3 h. The intensity of searching for information and reading news portals is interconnected, as well as in surfing the internet, one of the factors that are increasingly frequent and what are the things that readers like in terms of writing or rubrics of choice.

The community often seeks the dominant rubric with 106 respondents, namely the type of rubric news with a percentage of 49%, with men filling in the news rubric a lot, the second level there is a technology rubric with a percentage of 47% (Fig. 6 and Fig. 7). Two rubrics are interpreted almost the same, namely history and culture, where people's perception of history already includes culture, so it can be assumed that both have the same characteristics or core variables.

3.4 Community Perceptions of Archipelago Cultural Heritage GIS Website

The delivery of information requires communication or socialization between users and makers. This will be a new idea or idea so that it becomes the result of analysis needs which are evaluated performance and systems for the improvement of the information. Based on the research results, questions show perceptions ranging from the general public, students, students, and academics. The question of how WebGIS exists and whether it agrees with the existence of dominant cultural heritage information answered yes with a percentage result of 96.3%. Providing WebGIS innovation by providing historical information and the story behind it so that the public can get information is dominant. The public answered yes with a percentage of 96.2%. It was aimed at providing
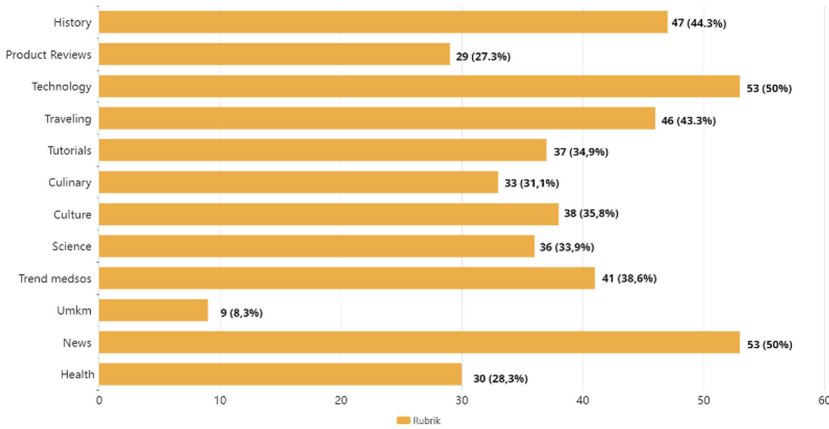
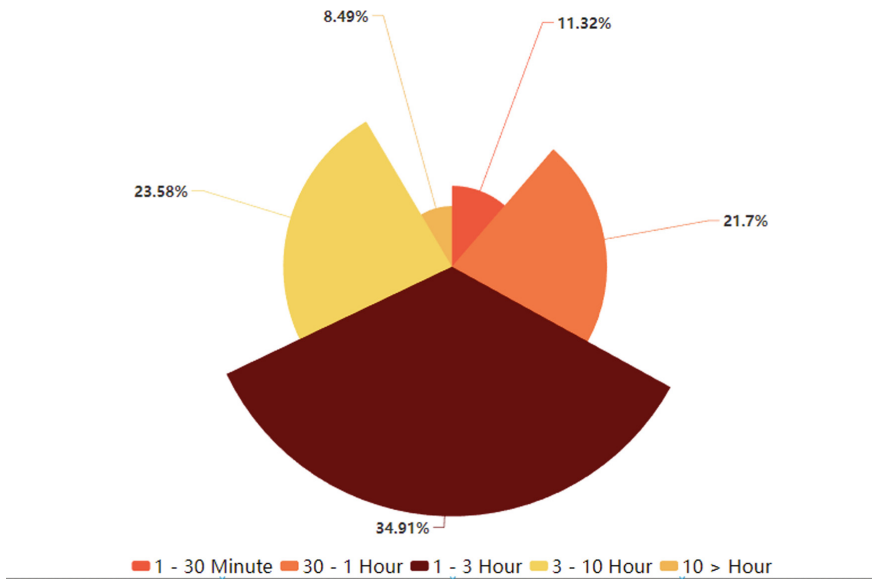**Fig. 6.** Table of predominantly searched rubric bars

Fig. 7. Intensity chart looking for information in a day

GIS to the web to make it easier for people to find out what location and information by clicking on the photo icon that can bring up pop ups including longitude, latitude, with ticket prices, seen a percentage of 96.3% so that the dominant community answers yes to the questionnaire. The ease of finding information is facilitated by supporting features and looks as minimal as possible in the interface; from the results of the respondent's answer above, readers strongly agree that it is facilitated starting from the content of information or blog content discussing cultural heritage objects, it is also underestimated in seeing the location and pop-up information of the area, ranging from the area, the

name of the museum, and ticket prices, See Fig. 5. Increasingly, there needs to be one tool used, namely Google Analytics, whose function is to find out visitor data in detail, ranging from visitors per day, month, and year, also equipped with the origin of the visitor's country, type of browser, gadget, computer, and real-time visitors, can be seen in Fig. 8 and Fig. 9. Collaborating with the two can find out how visitors behave and need to find information.

Providing a space for article publication with a socio-cultural rubric by sending via email to editors (researchers) so that this output is the best contribution to science; it is following the dominant society answering yes with a percentage of 95.4% where it is said to agree with the existence of this feature. Support cultural preservation by adding an event rubric where the wider community can find information on cultural events
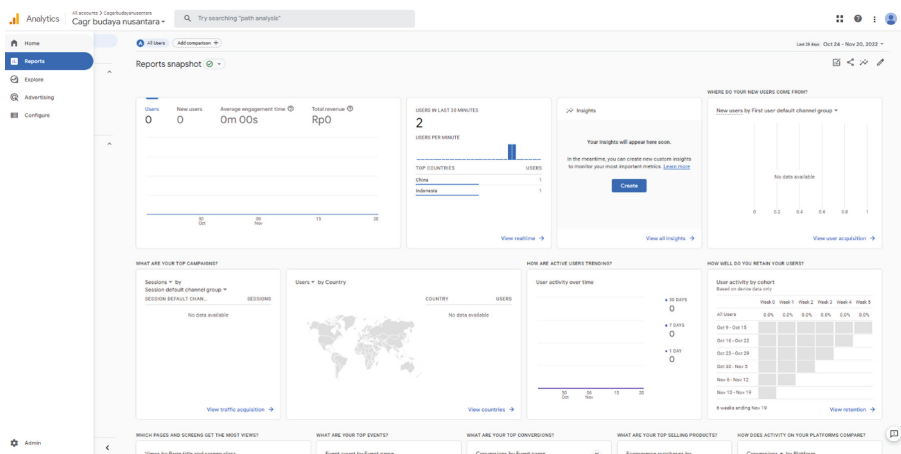

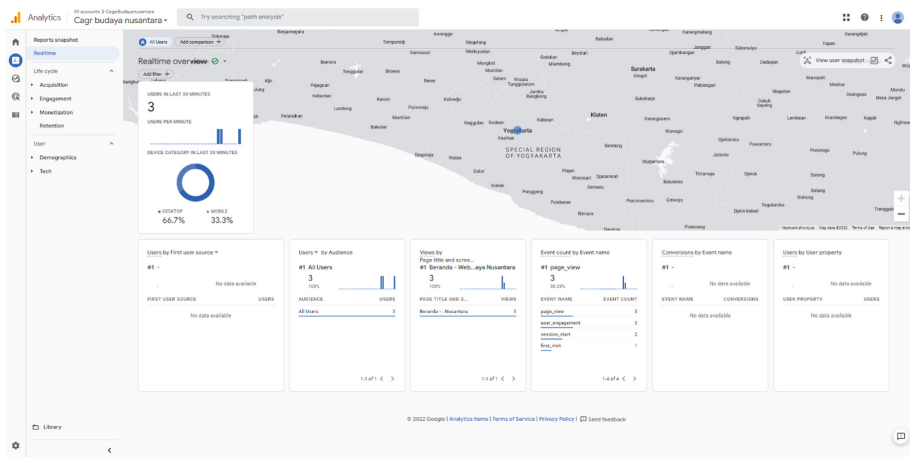**Fig. 8.** Google analytics dashboard relatime reports and snapshots

Fig. 9. Google analytics dashboard real-time reports and snapshots

that focus on the region of Central Java through question number 5 "In your opinion, does the existence of an event rubric containing art events help you to find events?", the community received a good answer of 89.6% yes which can make it easier when looking for information. The existence of the event rubric is to improve the website as well as promote social media of the archipelago-WebGIS cultural heritage. The use of Instagram because it has the most users among teenagers with motives or patterns of using Instagram for cognitive and affective needs of personal, social, and entertainment integration, whose purpose is to share information (Prihatiningsih, 2017). The addition of content in social media Instagram, providing information related to cultural heritage objects, as well as infographics, so that engagement or interaction grows in the community, especially among teenagers because most users the information about cultural heritage is conveyed can be seen in Fig. 10.

In knowing the whole or details of the building, the addition of aerial photographs and processed into imagery displayed in the WebGIS helps the public find out the detailed layout of the Sriwedari cultural heritage location to get a good response with a percentage result of 92.6% with the answer yes dominated. The core part is the convenience of interface display in finding information on the archipelago cultural heritage WebGIS is noticed until the single page is also a font, obtained dominant yes answers with a percentage of 85.2%, also the ease of finding information in with several rubrics of news, events, and WebGIS, the public answers yes with a percentage of 93.5%, the fact that the interface by appearing minimalist makes it easier for readers to find information (Zakiyah & Islam, 2022). The information WebGIS is interrelated with the interface display, because the convenience of lingering to read the information is very concerning; choosing the Sen and Mukta font types because they look comfortable when read and do not get tired easily. The detail of the image by checking the table layer, which
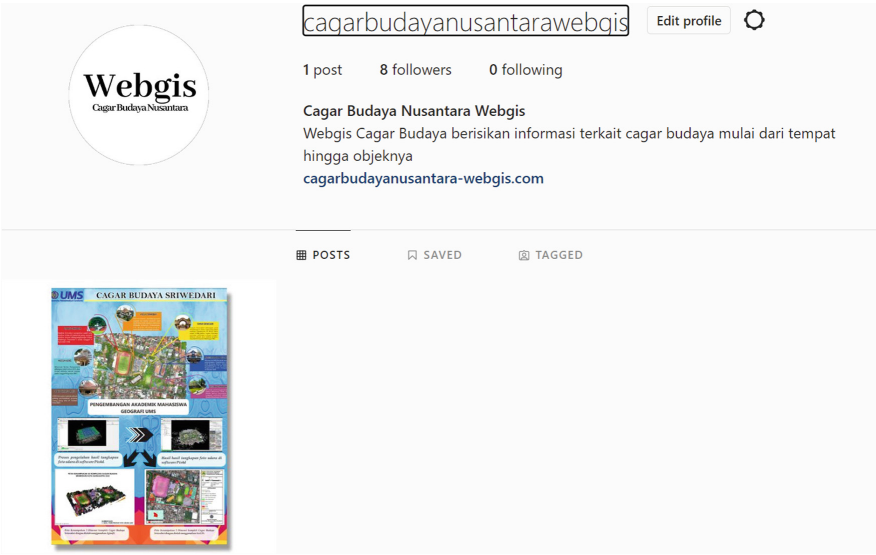

Fig. 10. Instagram profile view of nusantara cultural heritage webgis
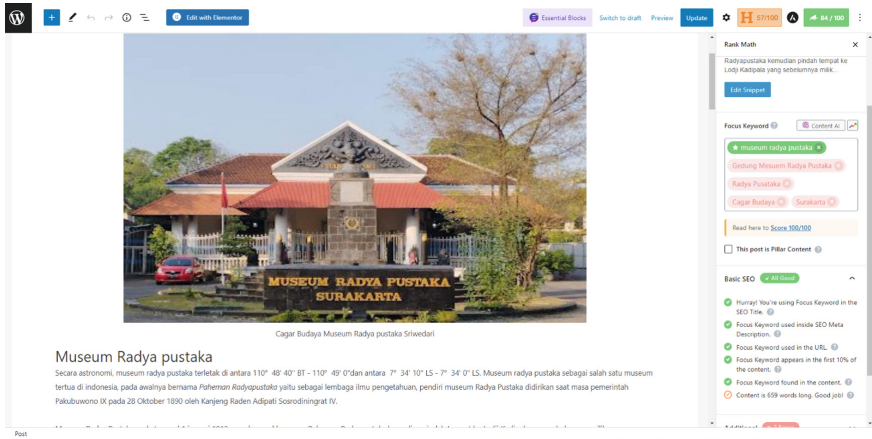
Fig. 11. Display on wordpress post page by implementing seo techniques

automatically appears, the need for image detail is so that the public can see the top view so that they know the complete cultural heritage area.

The content of the news and content rubric by applying Search Engine Optimization (SEO) techniques where Google can index the articles or writings that are loaded by strengthening the search engine algorithm and getting the order in PageRank when searching with the word kuci cultural heritage on google, can be seen in Fig. 11.

3.5 Community Expectations of the Nusantara Cultural Heritage GIS Website

From some of the results of the questionnaire, researchers added constructive suggestions where the community, students, and academics gave their aspirations to find out what is needed and what is lacking in WebGIS when looking for information on the archipelago's cultural heritage based on WebGIS more easily, some expectations were obtained such as "Also give information on the location of the entrance or exit. The selection of marker color may be replaceable; black is too fused with the base map, so it is not visible. It can also be given the points of facilities in Sriwedari" The addition of digitization is a material for the community's desire to know in depth what is obtained when visiting the Sriwedari cultural heritage area.

Table 3. Questionnaire of Consumer Expectations for Cultural Heritage of Sriwedari webgis

No	Question	Answer Yes	Answer Not	Percentage (%)
1	Do you agree with the Geographic Information System based on the WebGIS archipelago heritage website?	104	4	96,3%
2	In your opinion, with the innovations presented, were you helped by the information provided?	102	4	96,2%
3	In your opinion, with the map presented, will it help you to find information related to cultural heritage?	103	4	96,3%
4	Do you think that having news as a forum for publishing articles for the community with socio-cultural rubrics will help spread more information?	103	5	95,4%
5	In your opinion, does the existence of an event rubric containing art events help you to find events?	95	11	89,6%
6	In your opinion, does a website-based Geographic Information System help you know the detailed layout of the Sriwedari cultural heritage location?	100	8	92,6%
7	In your opinion, is the homepage interface of the website attractive?	92	16	85,2%
8	In your opinion, does the interface make it easier for you to find information?	101	7	93,5%
9	In your opinion, is it necessary to add a new rubric to improve information related to cultural heritage?	103	4	96,3

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