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A Bibliometric Literature Review Analysis of Public Sentiment Towards the Implementation of ETLE Cameras at Intersection Four

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Abstract

The implementation of the Electronic Traffic Law Enforcement (ETLE) system at the Kadipaten intersection in Majalengka is a strategic step to improve traffic order through electronic camera-based surveillance. This study aims to evaluate public sentiment toward ETLE technology using a bibliometric approach and keyword visualization analysis. The Bibliometric method was used to collect and analyze 1,000 publications from Google Scholar, with the assistance of the Publish or Perish and VOSviewer software. The results indicate that the majority of studies highlight the important role of cameras in improving traffic efficiency and road safety. Keywords such as video camera, traffic camera, speed camera, and radar frequently appear, reflecting the high level of attention given to sensor technology and traffic monitoring. Keyword network visualization also reveals a strong connection between driver behavior, road design, and the effectiveness of ETLE cameras. This study provides recommendations to improve public acceptance through education, outreach, and the development of inclusive and transparent policies..

Keywords: Road, Transportation, Traffic Highway, Camera ETLE

1. Introduction

Rapid economic development and accelerating urbanization have exacerbated the increase in vehicle ownership and traffic volume, leading to slowing vehicle speeds, increasing exhaust emissions, and worsening urban air quality. [1]. Most of the movement of passengers and goods. In daily activities, humans are very dependent on highways. [2]. In modern times, one of the aspects that is put forward is road infrastructure that functions for the movement of goods and services, and people from one location to another to meet the needs of the community. [3]. Transportation facilities and infrastructure are one of the important elements in supporting community activities in urban areas. [4]. Transportation has been responsible for the development of civilization since ancient times by meeting the needs of human travel and the transportation needs of goods. Today, roads and transportation have become an integral part of every human being. [5].

Transportation by road is the only mode that can provide full service to everyone [6]. Transportation is one of the important things in supporting community activities outside the home [7]. Road infrastructure development is infrastructure to facilitate land transportation flows [8]. Transportation problems cannot be separated from congestion, delays, and pollution generated from vehicles, both air and sound, which we often encounter every day in several big cities in Indonesia [9]. Reach your destination in less time [10]. The main goal of the road is to achieve safe, balanced, and sustainable road performance [11]. One of the benchmarks for the success of a region is its economic growth. [12]. In addition to ensuring a higher level of road safety, other road objectives also include maximizing economic effectiveness in road infrastructure development and reasonable accessibility times for the purpose of maintaining sustainable social, environmental, and economic growth [13]. If the road used for traffic is in good condition, it can support the improvement of the community's economy and community welfare [14]. Violations of traffic rules by the community are increasingly concerning from year to year, which will ultimately

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result in traffic accidents with many deaths and injuries [15]. Therefore, the pressure to implement and realize this national development faces various challenges. For example, adaptation to renewable technologies still needs to be improved, and regulatory compliance is still poor [16].

Analysis of public sentiment is one of the relevant approaches to understanding public perception of the application of ETLE cameras. The high rate of damage to road infrastructure in developing countries, large budget constraints, and high traffic growth have led to the emergence of a need to improve the performance of highway maintenance systems. [17]. If it is not anticipated with transportation facilities and infrastructure accompanied by good transportation regulations, it will have a bad impact on transportation. [18]. Congestion and long queues generally occur at road intersections, both signaled and non-signaled intersections. [19]. Over time, the volume of vehicles in various countries has increased, especially in Indonesia, which has experienced a significant increase in the volume of vehicles. [20]. The volume of traffic is obtained by counting vehicles passing through a point on the road at a certain time interval stated in passenger cars (SMP) [21]. If the growth in the number of vehicles is not balanced with existing means of transportation, then this congestion problem will affect the productivity of road users who pass through it. [22]. Some solutions to overcome congestion include widening roads, adding traffic lanes, engineering the circulation of one-way traffic flows, restricting the use of road medians, building non-plot lanes such as underpasses and flyovers, developing traffic management through intelligent transportation systems, and other systems. [23]. Accidents involving land modes of transportation have reached alarming levels in recent years. [24]. In such conditions, congestion greatly affects traffic behavior. The behavior of transportation and road infrastructure users, especially motorized vehicle users, dramatically affects the volume, speed, and density of traffic on city highways. [25]. Improving the quality of transportation services by producing urban universal transportation that is comfortable, safe, orderly, cheap, affordable, and scheduled will increase the use of universal transportation. [26]. AI can optimize traffic flow and reduce congestion by analyzing real-time data from traffic sensors, cameras, and historical patterns. This information helps in predicting traffic patterns, optimizing signal timing, and suggesting alternative routes to improve overall transportation efficiency. [27].

Intelligent Transportation Systems have been developed by exploring historical and human experiences to improve their performance [28]. The land transportation system requires road infrastructure as a connecting route to support the economy and regional, social, and cultural development [29]. Crossroads are often a point of conflict in urban traffic flows, especially when vehicle volumes are high during peak hours [30]. In addition, the behavior of drivers crossing crosswalks or joining traffic from other roads can be a source of conflict with other road users [31]. The greater the volume of traffic at an intersection, the larger the roundabout needed to reduce traffic density [32]. Traffic regulation at intersections is an essential component of an intelligent transportation system, which is defined as the integration of communication and information technologies in vehicles and road infrastructure to improve traffic flow and safety [33]. Traffic monitoring tasks such as traffic congestion, flow rate analysis, and so on rely heavily on core tasks such as vehicle detection, counting, and tracking [34]. Traffic signs specifically for pedestrians, usually written messages or illuminated signs [35]. Highways are the main transportation infrastructure that connects one place to another. The national main road to the village road is the vital infrastructure that connects a place. The main goal of the road is to achieve safe, balanced, and sustainable road performance [11]. Traffic accidents can be caused by the negligence of road users, errors in vehicle management, and roadworthiness and the environment [36]. Year after year, which will eventually result in traffic accidents with not a few deaths or injuries [15]. Therefore, the pressure to implement and realize this national development faces various challenges. For example, adaptation to renewable technologies still needs to be improved, and regulatory compliance is still poor [16]. The implementation of electronic ticketing (Electronic Traffic Law Enforcement/ETLE) has various advantages when compared to conventional ticketing systems [37].

Analysis of public sentiment is one of the relevant approaches to understanding public perception of the application of ETLE cameras. The lack of public compliance with traffic regulations can be seen from the low discipline when driving, which ultimately forms a culture of violation among road users. [38]. The link between human behavior and traffic accidents has gained a strong foothold in road safety research. [39]. Specifically, more than 70% of accidents are caused by human behavior. [40]. Artificial intelligence or AI technology can offer a variety of solutions that can help solve traffic problems, such as machine learning and deep learning can be used to analyze traffic data in real-time, predict traffic flow, and optimize traffic signal settings. [41]. By optimizing information technology, the entire fines process can be transformed into an innovation that supports the police in managing enforcement and simplifying the process of paying fines for traffic violations. [42]. Based on this background, this study aims to analyze public sentiment towards the application of ETLE cameras in Simpang Empat. The results of this analysis are expected to contribute to the authorities in designing socialization, education, and development strategies for the ETLE system that are more effective and accepted by the wider community.

2. Research Methods

A literature review on ETLE cameras was conducted by studying and searching for alternatives to the problems of implementing ETLE cameras using the Bibliometric Literature Review method. The article data used in this study were obtained from research published in journals indexed by Google Scholar. [43]. The terms bibliometric and bibliography are used interchangeably in the literature. Previously, the term bibliography was more popular, but it has gradually been replaced by the expression bibliometrics. [44]. Bibliometric analysis is a popular and rigorous method for exploring and analyzing large amounts of scientific data. [45]. Bibliometrics can provide important insights into research directions by providing summarized information for multiple end users. [46]. Bibliometric methodology is also suitable for identifying journal performance, co-authorship, co-citation trends, and classic research streams from specific fields. [47]. This literature search process refers to five main stages in the literature review process, namely: defining the scope of the study, formulating the topic concept, searching for literature sources, analyzing and synthesizing findings from the literature obtained, and compiling a research agenda. The research methods employed in this study include literature reviews and library searches using databases. [48]. Further elaboration is provided to filter the literature determined to be relevant based on topic, year of publication, and research quality. The stages will be explained in the following paragraphs, with a focus on the literature review related to the application of ETLE cameras.

2.1. Database Used

The use of various databases is a crucial aspect of conducting comprehensive bibliometric analysis. In this study, Google Scholar was chosen as the primary source for identifying relevant documents, with a publication time frame between 2020 and 2025. This period was selected to ensure that only literature reflecting the latest developments in the topic under study was included. Based on findings in previous literature, Google Scholar is considered superior due to its ability to access a wide range of academic publications, including journal articles, conference proceedings, books, theses, and other scientific documents across disciplines. Compared to databases such as PubMed or Scopus, Google Scholar provides more open access and broader content coverage. Therefore, selecting the appropriate database is considered essential to ensure that the analysis results are relevant, representative, and accurate. Google Scholar is used as the primary tool for reference searches due to its superiority in accessing regional literature, including local publications that are often unavailable in paid databases. This platform offers free access, a user-friendly interface, and fast and efficient search capabilities from various credible scientific sources. Its search feature supports keyword flexibility and allows filtering by title, author name, or publication year. In this study, a time filter was used to screen publications published between 2020 and 2025, so that only the most relevant recent literature was analyzed. Another advantage of Google Scholar is features such as "Cited by" and "Related Articles," which facilitate researchers in tracing the connections between studies and assessing the influence of a scientific work. This method was chosen to ensure that the literature review has a broad scope yet remains easily accessible, and reflects the latest developments and research results in the field being studied.

2.2. Literature search scheme

In this study, *VOSviewer* was used to map the relationship between keywords such as *Road*, *Transportation*, *Traffic Highway*, and *Camera ETLE*. *VOSviewer* explores co-authoring, similar events, bibliographic merging, and co-citations [49]. This visualization makes it easier to identify research trends, topic clusters, and gaps in the literature, thus providing deeper insight into the field of study. [50]. The articles are then saved in CSV format so that they can be visualized and analyzed using bibliometric maps with the help of the *VOSviewer* software. [51]. *VOSviewer* builds a network map based on author-to-author relationships, citations, or keyword co-occurrences. [52]. This structured approach ensures a systematic and thorough search process with the help of advanced analytical tools to sort and visualize the collected data. [53]. In network analysis, density is calculated as the ratio between the actual number of connections and the number of possible connections in a network. [54]. This review technique helps synthesize larger datasets compared to traditional reviews that rely on critical synthesis, narrative synthesis, or meta-analysis. [55].

2.3. Compiling the initial statistical data

The *Research Information System* (RIS) format is used to store documents that have been filtered based on certain criteria, as well as data collected from *Google Scholar*. Data collection in this study was carried out with the help of reference management software, namely *Publish or Perish*. This application is used to browse and review relevant research topics. [56]. *Publish or Perish* (*PoP*) **software** serves to efficiently collect and present bibliographic data, including the number of citations, author names, and publication sources. [57]. *Publish or Perish* can also show which publishers have contributed the most to the author's keywords. [58]. The selection of journals

cluster have explored the use of visual surveillance technology, such as ETL and CCTV, as a means to increase the effectiveness of traffic management, especially on major roads and intersections. The existence of keywords such as "driver", "way", and "addition" indicates that driver behavior factors, as well as road support elements, are also an important part of the modern traffic technology approach.

The green color in the visualization shows a group of keywords such as "video camera", "speed camera", "traffic accident", "radar", "lidar", and "object". This cluster describes a focus on the application of sensor and camera devices in identifying accidents and traffic violations. The strong interconnectedness between terms such as "traffic light", "video camera", and "example" shows that visual data is used in the analysis of traffic incidents and supports intelligent transportation system-based decision-making. In addition, the appearance of words such as "claim" and "order" indicates the potential for the use of such data in the field of law or insurance claims, especially for the verification and proof process of events in the field.

The blue and purple clusters reflect the policy and scientific dimensions of the themes analyzed. Terms such as "federal highway administration", "state", "view", and "traffic congestion" indicate that some research addresses aspects of government regulation as well as issues related to traffic congestion. On the other hand, purple groups words such as "research", "paper", "part", and "image", which indicate a focus on scientific approaches and research methodologies related to the use of camera technology in transportation systems. The relationship between these clusters confirms that the study of traffic is not only technical but also involves the interaction between public policy, academic research, and the application of technology, resulting in a comprehensive understanding of the challenges and solutions in modern transportation management.

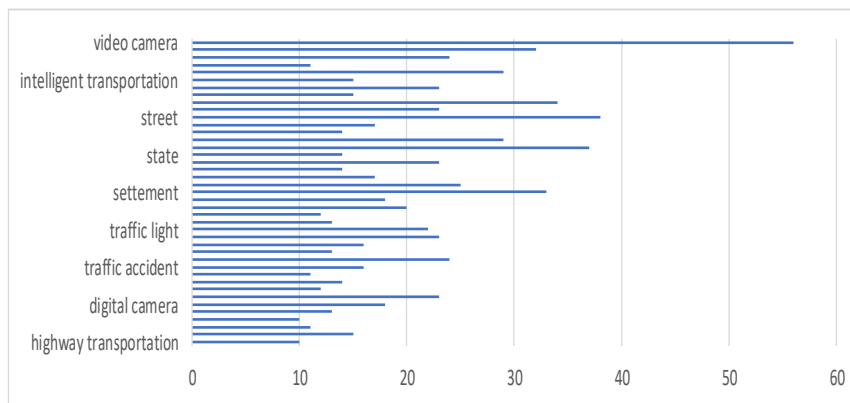


Figure 3: Keyword graphic based on the occurrence

Based on the visualization of the frequency of keyword occurrence data, the term "traffic camera" was recorded as the most dominant, with the number of occurrences approaching 60. This shows that the topic related to traffic surveillance cameras is a major concern in the various publications analyzed. In the next position, there are the keywords "surveillance camera" and "type", which shows that in addition to cameras in general, variants or types of camera technology are also widely studied in traffic monitoring and road data collection.

Some other keywords that also stand out are "street", "lidar", and "particle", each of which has a relatively high frequency. These words indicate that there is a focus on spatial analysis, light-based sensors (LiDAR), as well as the possible application of particle-based measurement or image processing technologies. In addition, the emergence of words such as "speed", "speed camera", and "traffic light" illustrates that many studies also highlight aspects of speed regulation as well as integration between camera systems and traffic control infrastructure. Meanwhile, terms such as "view", "road surface", and "addition" appear with lower frequency, but still make an important contribution to the overall context of the study. The relatively few words "highway transportation" and "CCTV camera" suggest that although these topics are discussed, the researchers' attention is more focused on sensor-based camera systems and a wider network than on traditional monitoring. Overall, this distribution shows a strong research trend towards the application of smart cameras and sensors to support traffic management and road safety.

Table 1: Keywords by the highest studies

| Keywords | Studies |
|--------------|---------|
| Video Camera | 56 |
| Street | 38 |
| Image | 37 |

| | |
|------------|----|
| Radar | 34 |
| Settlement | 33 |

From the results of the bibliometric analysis, it can be seen that the keyword *Video Camera* occupies the top position with a total of **56 studies** that discuss this topic. This shows that video camera technology is becoming the dominant focus in various studies related to traffic monitoring and management. The use of video cameras is believed to be able to provide accurate visual data to detect violations, accidents, and measure vehicle density in various road conditions. The keywords *Street* and *Image* appeared in 38 and 37 studies, respectively, which showed a great deal of attention to the street environment as an object of study and the use of imagery as an analysis tool. This shows that not only hardware, such as cameras, is in the spotlight, but also the context of the data collection location and visual processing processes are also an important part of the study of transportation and intelligent technology. The use of *image processing* is often associated with the analysis of traffic conditions or the detection of objects on the road.

Furthermore, *Radar* and *Settlement* appeared in 34 and 33 studies, indicating that the use of radar sensors is also significant in supporting transportation monitoring systems. Radar is often used to complement camera systems in detecting vehicle speed and object position in real-time. On the other hand, the emergence of the word *Settlement* indicates that there is a concern for spatial or geographical aspects of the transportation system, such as settlements connected to the main road network, which affect traffic planning and control.

3.2 Publication development across different years

Based on the distribution of publication years shown on the graph, it can be seen that the journals analyzed in this study have a wide time span, starting from 1985 to 2025. Although there are several publications from the early years, such as 1985 to 1995, the number is very minimal when compared to the period after 2000. This shows that attention to the topics discussed in this study has increased significantly in the last two decades. The increase in the number of publications began to be evident from the early 2000s and continued to experience a sharp spike after 2010. The period between 2015 and 2023 appears to be the most productive in terms of the number of published studies, as shown by the consistently high density of graphs. This reflects the increased interest and urgency in examining issues related to transportation technology, surveillance cameras, and intelligent traffic systems in the last decade.

The emergence of data up to 2025 shows that the information analyzed includes the most recent publications, even those released in the current year. This indicates that the data used is up-to-date and relevant, providing a comprehensive overview of research trends from the past to the most recent developments. This long period also reinforces the validity of bibliometric analysis, as it reflects the evolution of knowledge and technology in historical and contemporary research fields.

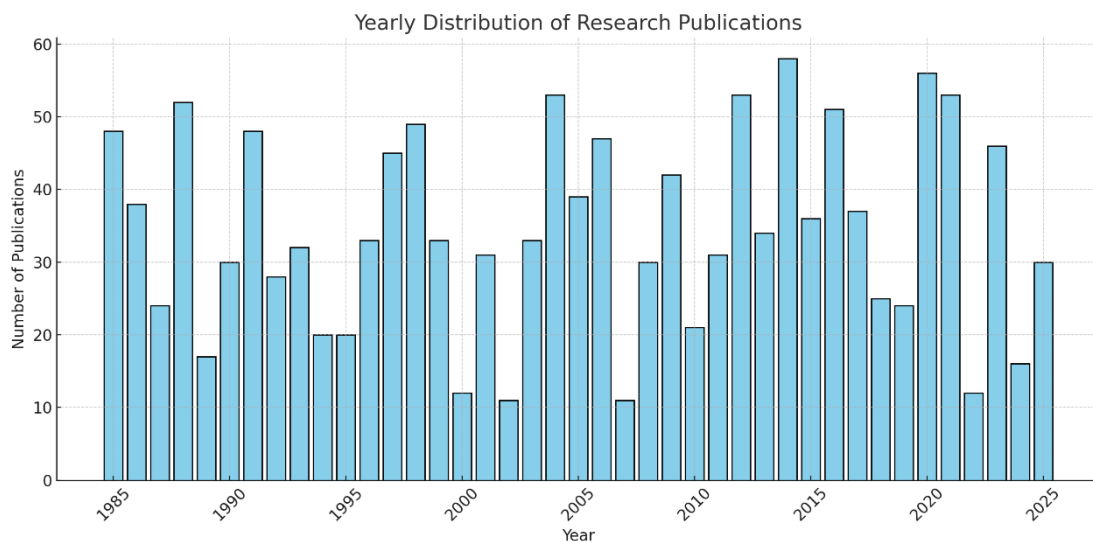


Figure 4. The yearly trend in publications from 2000 to 2025 indicates notable growth in roundabout-related studies, reaching its highest point in 1985 and 2025

3.3 Types of research by publisher and classification

The results of the classification by publisher show that *ieeexplore.ieee.org* dominates the list with 106 publications. This indicates that IEEE is one of the main sources that are widely referenced in the literature related to transportation technology research and intelligent systems. This advantage is not surprising, given that IEEE has a global reputation for publishing high-quality research results in the fields of engineering, information systems, and digital infrastructure.

Table 2: Total studies categorized by publisher

| No | Publisher | Studies |
|----|----------------------------|---------|
| 1 | <i>ieeexplore.ieee.org</i> | 106 |
| 2 | <i>books.google.com</i> | 105 |
| 3 | Springer | 73 |
| 4 | elsevier | 73 |
| 5 | <i>Rosap.ntl.bts.gov</i> | 50 |

Several other major publishers, such as *Elsevier*, *Springer*, *HeinOnline*, and *rosap.ntl.bts.gov*, each recorded two appearances. Although the number is not as large as the IEEE, the presence of these names indicates that the references used are sourced from reputable journals and major reputable publishing institutions in the fields of applied science, transportation policy, and legal and public studies. In addition to major publishers, there are also several sources that each contribute one publication, such as *spiedigitallibrary.org*, *static.tti.tamu.edu*, *Wiley Online Library*, *Citeseer*, and *journals.sagepub.com*. This diversity indicates that the research conducted refers to a wide range of scientific platforms, reflecting the breadth of the literature used as well as the multidisciplinary approach to data collection. This supports the strength of source validity in the study that is compiled.

3.4 Type of Research

Based on the distribution graph of the types of reference documents used in the study, it can be seen that journal articles dominate with the highest percentage of 65%. This figure shows that the majority of the sources used as references come from scientific publications that have gone through a peer-reviewed process, which strengthens the validity and quality of the data in this study. The existence of journal articles as a primary source also reflects that the topics discussed have high relevance in the academic community and continue to be an active object of research.

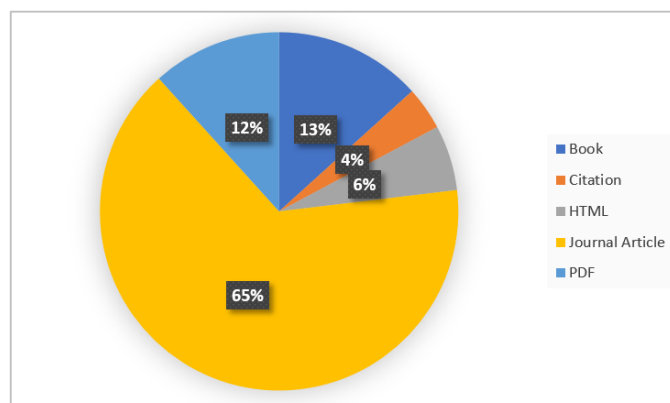


Figure 5: Graphical study type

In addition to journal articles, there are also contributions from books and PDF documents, accounting for 13% and 12% of the total references, respectively. These sources are usually used to gain a deeper theoretical understanding as well as comprehensive conceptual explanations. Academic books are often used as a reference

to strengthen theoretical frameworks, while PDF documents, which are generally research reports or technical documents, are used to support analysis with empirical data.

Meanwhile, reference sources in the form of HTML, direct citations, and other formats occupy a smaller proportion, namely 6%, 4%, and the rest. Although not dominant, the existence of these formats remains important because it allows quick access to relevant article summaries or fragments of literature. Overall, the diversity of document types indicates a comprehensive approach to the collection of literature, while indicating an effort to present a balanced study between empirical data and theoretical foundations.

3.5 Density

In Density, the brightest yellow indicates a very high density of terms and is interrelated. One of the brightest cluster centers around the word "image", with strong links to "paper" and "research". This shows that many of the research and publications in the domain mapped to this visualization focus heavily on the analysis or use of the "image" as the main object of study or data. The presence of "particle" and "settlement digital cameras" nearby further reinforces the focus on digital image processing, possibly in the context of surveillance or visual analysis of various elements.

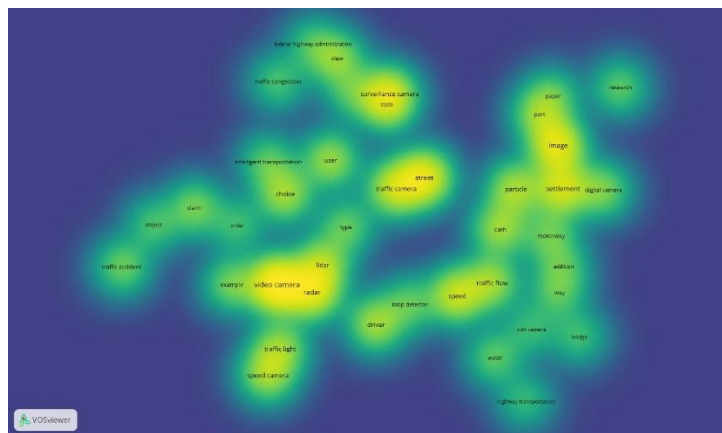


Figure 6: Keyword Density

Another bright yellow cluster is visible in the central area, dominated by the terms "traffic camera" and "street". This indicates that traffic cameras are the main subject or a widely used tool in the context being analyzed. The word "street" is naturally associated with the location of this camera placement, implying practical application in monitoring street conditions. Somewhat separate but still in the intense yellow area, "lidar", "video camera", and "radar" are visible, indicating that various sensing technologies, particularly those based on visual (video camera) and waves (lidar, radar), are important focuses. This underscores efforts to comprehensively collect traffic and environmental data using a wide range of sensors.

Bottom left, another bright yellow area highlights the "speed camera" and "traffic light". The existence of this cluster shows that aspects of traffic regulation and speed law enforcement have significant weight in the dataset. The term "driver" located near these clusters implies that drivers' behavior and their interactions with these regulated traffic systems are also a major concern. Overall, the heatmap depicts a research and application landscape dominated by visual surveillance, advanced sensors, and traffic-related data analysis, with an emphasis on imagery, cameras, and regulatory aspects such as traffic lights and speed limits. The brightest colours in the image show the most contribution to the study. [59]. In this case, we use the color key to maximize the trend of the theme, providing a clearer understanding of the development of the research topic. [60].

4. Conclusion

The results of this study show that the application of ETLE cameras at intersections has received wide attention in the scientific literature, with a main focus on traffic system efficiency and violation prevention. Bibliometric data reveals that technologies such as *video cameras*, *radar*, and *lidar sensors* play a central role in supporting modern traffic management. Visualizations through VOSviewer show strong connections between topics, from technical aspects to public responses to the policy. Most publications come from reputable platforms such as IEEE and Springer, confirming that this topic is gaining global attention. Based on these findings, it can be concluded that

although the implementation of ETLE is generally supported academically, social challenges and public perception remain important aspects that must be managed. Therefore, community involvement and a communicative approach from the authorities are needed to realize a more orderly, safe, and sustainable transportation system.

Reference

- [1] X. Deng, L. Wang, J. Gui, P. Jiang, X. Cheng, F. Zeng and S. Wan, "A review of 6G autonomous intelligent transportation systems: Mechanisms, applications and challenges," *Journal of System Architecture*, 142, p. 102929, 2023.
- [2] A. Megarestya, A. I. Rifai and M. Isradi, "The Horizontal Curved Geometric Design with Autocad® Civil 3D on Jalan Muara Wahau, East Kalimantan," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 237-250, 2023.
- [3] L. R. Rosaria, A. I. Rifai and J. Prasetijo, "THE GEOMETRIC DESIGN OF HORIZONTAL ALIGNMENT: A CASE OF POST-HARVEST INFRASTRUCTURE CORN DRYING CENTER, TUBAN, EAST JAV," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 224-236, 2022.
- [4] A. I. Rifai, H. Thalib, D. Prayogo and M. Isradi, "Customer Satisfaction and Road Performance in Long Segment Maintenance Contract: Application of an Urban Road Network," *UIJRT United International Journal of Research & Technology*, 3(09), pp. 10-19, 2022.
- [5] I. Pangesti, A. I. Rifai and J. Prasetijo, "The Horizontal Curved Geometric Planning Using the Autocad® Civil 3D Method on Tanah Merah Road, Banjarbaru City, South Kalimantan," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 265-287, 2022.
- [6] R. B. Nugroho, A. I. Rifai and A. F. Akhir, "The Geometric Design of Horizontal Alignment: A Case of Bojonggede-Kemang Area Route, West Java Indonesia," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 331-343, 2022.
- [7] A. I. Rifai, M. G. D. Putra, M. Isradi, A. Mufhidin and J. Prasetijo, "Evaluation of Selection of Public Transport Mode Corridor Blok M–Bundaran Hotel Indonesian in the New Normal Era with Stated Preference," *IJEBD International Journal of Entrepreneurship And Business Preference eISSN 2597-4785 pISSN 2597-4750*, 5(4), pp. 729-805, 2022.
- [8] D. A. Sahara, A. I. Rifai and M. A. Irianto, "Vertical Alignment Design of Special Operational Road: A Case TPA Bangkonol, Banten," *Citizen: Jurnal Ilmiah Multidisiplin Indonesia*, 2, pp. 924-933, 2022.
- [9] A. I. Rifai and J. Prasetijo, "Performance Analysis of Sentul Circuit Roundabout and Alternatif Road Sentul Bogor.," *IJTI (International Journal Of Transportation And Infrastructure)*, 2022.
- [10] Y. Immanuel, A. I. Rifai and J. Prasetijo, "THE ROAD PERFORMANCE ANALYSIS OF THE TUAH MADANI ROUNDABOUT, BATAM-INDONESIA," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 27-36, 2022.
- [11] M. R. Farid, A. I. Rifai and M. Taufik, "The Alignment Horizontal Design of Alternative Road: A Case of Jalan Subang – Cikamurang, West Java," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 344-356, 2022.
- [12] M. A. Wahyudi, A. I. Rifai and J. Prasetijo, "Analysis of the Effectiveness of Traffic Flow Diversion on Road Performance: A Case of Jalan Gajah Mada Development Project, Batam.," *Indonesian Journal of Multidisciplinary Science*, 1(1), 92-102., pp. 92-102., 2022.
- [13] E. O. Joice, A. I. Rifai and M. Taufik, "The Link Road Design of Jalan Plupuh Tanon And Jalan Gabugan Section 1, Sragen Indonesia," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 211-223, 2022.
- [14] S. Salsabila, A. I. Rifai and M. Taufik, "THE GEOMETRIC DESIGN OF HORIZONTAL CURVES USING THE AUTOCAD CIVIL 3D® METHOD: A CASE STUDY OF TRANS FLORES ROADS," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 251-264, 2022.
- [15] H. Dwiatmoko, M. Isradi, J. Prasetijo, M. M. Rohani, S. R. Abdila and A. I. Rifai, "Accident Prevention and Traffic Safety for Sekolah Alam Bekasi-(KidSafe)," *Accident Prevention and Traffic Safety for Sekolah Alam Bekasi-(KidSafe)*, 2(1), pp. 56-63, 2023.
- [16] S. H. Maulana, A. I. Rifai and M. Isradi, "The Horizontal Curved Geometric Redesign on Jalan Kayu Api Kuala Penaso, Riau Using the Autocad Civil 3d® Method," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 318-330, 2022.

- [17] A. I. Rifai, S. P. Hadiwardoyo, A. G. Correira, P. A. Pereira and P. Cortez, "THE DATA MINING APPLIED FOR THE PREDICTION OF HIGHWAY," *International Journal of Technology*, pp. 751-761, 2015.
- [18] A. I. Rifai, Y. A. Sugiarti, M. Isradi and A. Mufhidin, "Analysis of Road Performance and the impact of Development in Pasar Minggu, Jakarta (Case Study of," *International Journal of Civil Engineering*, 6(1), pp. 68-74, 2021.
- [19] M. Isradi, N. D. Nareswari, A. I. Rifai and J. Prasetijo, "Performance Analysis of Road Section and Unsignalized Intersections in Order to Prevent Traffic Jams on Jl H. Djole–Jl. Pasar Lama," *International Journal of Civil Engineering*, 6(1), pp. 56-67, 2021.
- [20] A. I. Rifai, T. Wibowo, M. Isradi and A. Mufhidin, "On-Street Parking and Its Impact on Road Performance: Case Comersil Area in Jakarta City," *World Journal of Civil Engineering*, 1 (1), pp. 10-18, 2020.
- [21] A. I. Rifai, Y. A. Sugiarti, M. Isradi and A. Mufhidin, "Analysis of Road Performance and the impact of Development in Pasar Minggu, Jakarta (Case Study of," *International Journal of Civil Engineering*, 6 (1), pp. 68-74, 2021.
- [22] M. F. Assalam, A. I. Rifai and M. Taufik, "THE EFFECTIVENESS ANALYSIS OF FRONTAGE ROAD ON JALAN MARGONDA RAYA, DEPOK," *Indonesian Journal of Multidisciplinary Science*, pp. 383-396, 2022.
- [23] Y. Rachmadina, A. I. Rifai and S. Handayani, "Traffic Management Effectivity of Bulak Kapal Underpass Development, Bekasi Indonesia," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 369-382, 2022.
- [24] M. Isradi, H. Dwiatmoko, J. Prasetijo, A. I. Rifai, Z. F. Zainal, G. Zhang and H. Y. Firdaus, "Identification of hazardous road sites: a comparison of blackspot methodology of Narogong Road Bekasi and Johor Federal Roads," *Sinergi Indonesia*, 28(2), pp. 347-354, 2024.
- [25] A. Oktobrianto, A. I. Rifai and A. F. Akhir, "THE TRAFFIC CHARACTERISTIC ANALYSIS OF JALAN CIATER RAYA SOUTH TANGERANG, INDONESIA," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 437-450, 2022.
- [26] A. Andriyani, W. B. Dermawan, M. Isradi and A. I. Rifai, "Operational Performance Analysis of Rapid Transit Bus (BRT) Corridor 11 in Pulogebang Bus Station," *World Journal of Civil Engineering*, 2(2), pp. 71-80, 2021.
- [27] J. P. Bharadiya, "Artificial Intelligence in Transportation Systems A Critical Review," *American Journal of Computing and Engineering*, 6(1), pp. 35-45, 2023.
- [28] J. N. Njoku, C. I. Nwakanma, G. C. Amaizu and D.-S. Kim, "Prospects and challenges of Metaverse application in data-driven intelligent transportation systems," *IET Intelligent Transport Systems*, 17(1), pp. 1-21, 2022.
- [29] N. Ulchurriyyah, A. I. Rifai and M. Taufik, "THE GEOMETRIC REDESIGN OF HORIZONTAL CURVED USING AutoCAD CIVIL 3D®: A CASE JALAN GARUDA –JALAN MOH. HATTA, TASIKMALAYA WEST JAVA," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 288-303, 2022.
- [30] M. Syaifullah, Y. Kadir and F. L. Desei, "Kinerja Simpang Empat Tak Bersinyal Menggunakan Metode PKJI 2023 dan Software VISSIM," *Konstruksia*, 15(2), pp. 147-163, 2024.
- [31] L. P. Joseph, A. I. Rifai and M. Taufik, "THE UNSIGNALLED INTERSECTION PERFORMANCE ANALYSIS OF ARTERIAL ACCESS ROAD AT KARAWANG BARAT 1TOLL GATE, WEST JAVA," *Indonesian Journal of Multidisciplinary Science*, 1(1), pp. 451-459, 2022.
- [32] H. A. Setiaputri, M. Isradi, A. I. Rifai, A. Mufhidin and J. Prasetijo, "Analysis Of Urban Road Damage With Pavement Condition Index (PCI) And Surface Distress Index (SDI) Methods," *ADRI International Journal of Science, Engineering and Technology*, 6(1), pp. 10-19, 2021.
- [33] W. Wincent, A. I. Rifai and M. Isradi, "The Road Performance Analysis in Jalan Ahmad Yani Batam Using IHCM 1997," *Indonesian Journal of Multidisciplinary Science*, pp. 103-116, 2022.
- [34] I. Bisio, C. Garibotto, H. Haleem, F. Lavagetto and A. Sciarrone, "A Systematic Review of Drone Based Road Traffic Monitoring System," *Ieee Access*, 10, pp. 101537-101555, 2020.
- [35] A. Kumalawati, T. M. W. Sir and D. Woda, "Kinerja Simpang Bersinyal Pada Simpang Empat di Kota Ende," *Jurnal Teknik Sipil*, Vol. 11, No. 1, pp. 41-48, 2022.
- [36] A. I. Rifai and E. S. Aulia, "Analysis of Factors Causing Traffic Accidents on Sultan Agung Bekasi," *Neutron* 18(2), pp. 1-9, 2019.

- [37] A. Tiessa, S. Lesmana and R. Indayatun, "Analisis Efektivitas Penerapan Electronic Traffic Law Enforcement (ETLE) Dalam Sistem Penegakan Hukum di Kabupaten Tangerang," *SOCIED*, 8(1), pp. 5-14, 2025.
- [38] L. Magriasti, "Efektivitas Tilang Elektronik (ETLE) dalam Penegakan Hukum Kota Padang," *Jurnal ISO: Jurnal Ilmu Sosial, Politik dan Humaniora*. 5(1), pp. 14-14, 2025.
- [39] D. F. A. Pratama and P. Gultom, "Pelaksanaan Electronic Traffic Law Enforcement (ETLE) Polda Metro Jaya," *LEX LAGUENS: Jurnal Kajian Hukum dan Keadilan*, 3(1), pp. 72-85, 2025.
- [40] D. McCarty and H. W. Kim, "Risky behaviors and road safety: An exploration of age and gender influences on road accident rates," *PLoS one*, 19(1), p. e0296663, 2024.
- [41] M. H. Fikri, M. M. Ulum and N. L. D. M. Sari, "Literature review Implementasi kecerdasan buatan untuk Prediksi dan Pengelolaan Kemacetan Lalu Lintas di Perkotaan," *Prosiding Seminar Nasional Informatika. Vol. 2.*, pp. 449-456, 2024.
- [42] W. Narendroputro and E. Z. Rusfian, "The Innovation Capacity of the Electronic Traffic Law Enforcement (ETLE) of the Indonesian National Police Viewed by the Observatory of Public Sector Innovation (OPSI) Framework," *Jurnal Public Policy*, 9(4), pp. 262-269, 2023.
- [43] D. N. Al Husaeni, A. B. D. Nandiyanto and R. Maryanti, "Bibliometric analysis of special needs education keyword using VOSviewer indexed by google scholar," *Indonesian Journal of Community and Special Needs Education*, 3(1), pp. 1-10, 2023.
- [44] A. Montazeri, S. Mohammadi, P. M. Hesari, M. Ghaemi, H. Riazi and Z. Sheikhi-Mobarakeh, "Preliminary guideline for reporting bibliometric reviews of the biomedical literature (BIBLIO): a minimum requirements," *Systematic Reviews*, 12(1), p. 239, 2023.
- [45] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *Journal of business research*, 133, pp. 285-296, 2021.
- [46] J. P. Romanelli, M. C. P. Gonçalves, L. F. de Abreu Pestana, J. A. H. Soares, R. S. Boschi and D. F. Andrade, "Four challenges when conducting bibliometric reviews and how to deal with them," *Environmental Science and Pollution Research*, pp. 1-11, 2021.
- [47] A. Khan, J. W. Goodell, M. K. Hassan and A. Paltrinieri, "A bibliometric review of finance bibliometric papers Ashraf Khan, John W Goodell, M Kabir Hassan, Andrea Paltrinieri," *Finance Research Letters*, 47, p. 102520, 2022.
- [48] A. Rifai, R. F. Dalimunthe, P. Lumbanraja and Y. Absah, Literature Review: Analysis of Creative Performance of Employees in Government in Indonesia., 625-631.: Achieving Sustainable Business Through AI, Technology Education and Computer Science., 2024.
- [49] H. Arruda, E. R. Silva, M. Lessa, D. Proença Jr and R. Bartholo, "JMLA, 110(3)," *VOSviewer and bibliometrix. Journal of the Medical Library Association*, p. 392, 2022.
- [50] Y. Sinambela and A. Rifai, "American Journal of Open Research, 3(4)," *Bibliometric Analysis of Road Damage Due to High Rainfall Intensity in Mountainous Areas Using VOSviewer. OPSearch.*, pp. 940-952., 2024.
- [51] B. Hammouti, I. Aichouch, Y. Kachbou, K. Azzaoui and R. Touzani, "Bibliometric analysis of global research trends on UMI using Scopus database and VOSviewer from 1987 - 2024," *J. Mater. Environ. Sci*, 16(4), pp. 548-561, 2025.
- [52] V. A. Ricardo, A. I. Rifai, A. S. Savitri and J. Prasetijo, A Bibliometric Analysis of Drinking Water Distribution In Coastal Areas Using Vosviewer., 2(9), 1980-1988.: Asian Journal of Social and Humanities., 2024.
- [53] Rahayu, S. Nindi, Liddini, Hasanah and Maarif.S, "Mosharafa: Jurnal Pendidikan Matematika, 11(2)," *Berpikir Kreatif Matematis: Sebuah Pemetaan Literatur dengan Analisis Bibliometri Menggunakan Vos Viewer*, pp. 179-190., 2022.
- [54] V. Vendhy, A. Rifai and A. Savitri, "Jurnal Syntax Transformation, 5(5).," *A Bibliometric Analysis of Drinking Water Management on an Island using Vosviewer.*, pp. 792-800, 2024.
- [55] D. Guleria and G. Kaur, "Bibliometric analysis of ecopreneurship using VOSviewer and RStudio Bibliometrix, 1989 - 2019," *Library Hi Tech*, 39(4), pp. 1001-1024, 2021.
- [56] V. D. Ekaputra, V. Gaffar and M. Arief, "Pemasaran bandara: sistematik literatur review kajian bibliometrik berdasarkan database google scholar dan crossref tahun 2019 - 2022," *JJPI (Jurnal Penelitian Pendidikan Indonesia)*, 10(2), pp. 647-657, 2024.

- [57] A. M. Lubis, A. I. Rifai and A. Savitri, Bibliometric Analysis of Drainage System Performance Against Urban Flooding Using Vosviewer., 3(5), 990-996.: OPSearch: American Journal of Open Research,, 2024.
- [58] D. Gultom, A. Rifai, M. Pamadi and M. Isradi, "Journal of Social Science (JoSS), 3(6)," *Bibliometric Analysis Of High-Rise Building Planning With Cpm And Pert Methods Using Vosviewer*, pp. 1437-1446, 2024.
- [59] P. Sinaga, A. Rifai and M. Pamadi, "OPSearch: American Journal of Open Research, 3(5)," *Bibliometric analysis of productivity instruments in construction management project management using Vosviewer*, pp. 980-989, 2024.
- [60] A. Rifai, D. Endriansah, J. Prasetijo and M. Isradi, "In Proceedings of the 2nd International Conference on Railway and Transportation 2023 (ICORT 2023) (Vol. 231, p. 386). Springer Nature.," *The Corrosion Effect of Gusset Plates on the Steel Joint Structure of Bridges: A literature review based on VOS viewer*, pp. 1-13, 2024.