



Examining Urban Furniture on University Campuses with the Campus Street Furniture Information System and Creating a Management Model *

Üniversite Yerleşkelerindeki Kent Mobilyalarının, Yerleşke Donatı Bilgi Sistemi ile İrdenmesi ve Bir Yönetim Modeli Oluşturulması

ABSTRACT

With computer technology and software developing day by day, significant progress has been made in Geographic/Urban Information systems applications all over the world. GIS technology provides the user with geographical, visual and statistical analyzes provided by maps. In this respect, GIS, which is different from other information systems, is mostly preferred by the public and private sectors in defining the situations that arise in the service field and in creating strategic plans by making future predictions, thanks to all the opportunities it provides. In this research, a pilot study was created with the " Campus Street Furniture Information System " (YEDBİS), which can be a part of the information system model and provide fast and reliable access to data. For this purpose, the Mosque, Educational Buildings, Administrative Buildings, Congress Center, Guest House, Parking Lot, Greenhouse Area, Sports Area (Open, Indoor), Social Activity Area (Student Life Center Building) and Lodging within the borders of Recep Tayyip Erdoğan University, Zihni Derin campus. The locations, material structures, physical properties, functions, and damage status of the urban furniture in the surrounding area were determined, identification cards of the equipment were created and stored spatially in the GIS environment. These data will be beneficial in analyzing them for various purposes, making inquiries and obtaining new data. Additionally, as a result of all these evaluations, a management model was proposed for the campus area.

Keywords: Urban Furniture, Campus, Management Model, Campus Street Furniture Information System



ÖZET

Günden güne gelişme gösteren bilgisayar teknolojisi ve yazılımları ile, Coğrafi/Kent Bilgi sistemleri uygulamalarında tüm dünya çapında önemli ölçüde ilerlemeler kaydedilmiştir. CBS teknolojisi, haritaların sağladığı coğrafi, görsel, istatistiksel analizler olarak kullanıcıya sunar. Bu yönüyle, diğer bilgi sistemlerinden farklı olan CBS, sağladığı tüm bu olanaklar sayesinde, hizmet alanında ortaya çıkan durumların tanımlanmasında ve geleceğe yönelik tahminlerde bulunarak stratejik planların oluşturulmasında kamu ve özel sektör tarafından çoğunlukla tercih edilmektedir. Bu araştırma, bilgi sistemi modelinin parçası olabilecek, verilere hızlı ve güvenilir şekilde ulaşmayı sağlayacak, "Yerleşke Donatı Bilgi Sistemi" (YEDBİS) ile bir pilot çalışma oluşturulmuştur. Bu amaçla Recep Tayyip Erdoğan Üniversitesi, Zihni Derin yerleşkesinin sınırları içerisinde bulunan Cami, Eğitim Binaları, İdari Yapılar, Kongre Merkezi, Misafirhane, Otopark, Sera alanı, Spor Alanı (Açık, Kapalı), Sosyal Etkinlik Alanı (Öğrenci Yaşam Merkezi Binası) ve Lojman çevresinde yer alan kent mobilyalarının konumları, malzeme yapıları, fiziksel özellikleri, işlevleri ve hasar durumları belirlenmiş, donatılara ait kimlik kartları oluşturularak, CBS ortamında konumsal olarak depolanmıştır. Bu verilerin çeşitli amaçlarla analiz edilmesi, sorgulamaların yapılması ve yeni verilerin elde edilmesi yönünde yararları olacaktır. Ayrıca bütün bu değerlendirmeler sonucunda kampüs alanı için bir yönetim modeli önerilmiştir.

Anahtar Kelimeler: Kent Mobilyaları, Kampus, Yönetim Modeli, Kampüs Donatı Bilgi Sistemleri

INTRODUCTION

Universities are educational institutions established to meet the needs of societies. It is one of the most important structures that ensure the development of the society and therefore the country. Since university campuses contain more than one structural unit, they are similar to cities and provide opportunities for testing, adopting and developing new applications (Karcı Demirkol, 2019). University campuses are areas where various social and cultural activities take place, interdisciplinary information flow is ensured, and their structural environments are defined accordingly. In addition, it has the function of social and economic development and spreading knowledge, value and culture to its environment (Süel Yazıcı, 2007; Şatıroğlu et al., 2023). Nowadays, the livability of urban areas and the creation of sustainable areas are increasing with the

Kübra Güngör¹ 
Elif Şatıroğlu² 

How to Cite This Article

Güngör, K. & Şatıroğlu, E. (2023). "Examining Urban Furniture on University Campuses with the Campus Street Furniture Information System and Creating a Management Model", International Social Mentality and Researcher Thinkers Journal, (Issn:2630-631X) 9(75): 4394-4404. DOI: <http://dx.doi.org/10.29228/sm.rjy.72485>

Arrival: 15 June 2023
Published: 30 September 2023

Social Mentality And Researcher Thinkers is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

¹ Master of Science, Recep Tayyip Erdogan University, Institute of Graduate Studies, Rize, Türkiye

² Assistant Professor, Recep Tayyip Erdogan University, Faculty of Engineering and Architecture, Department of Landscape Architecture Rize, Türkiye

increase in quality of life and comfort (Habermas, 2004; Dinçer et al., 2020). University campuses are points of innovation and idea development that raise public awareness about advancing the idea of sustainability and integration in daily life (Abd-Razak et al., 2011).

Today, university information systems are increasingly used for many different purposes with the help of modern information technologies. Especially recently, the Campus Information System has become an indispensable tool for universities. It is a whole that enables spatial and non-spatial data belonging to the university and its sub-units (academic and administrative) to be collected, processed in a computer environment, stored, analyzed, and presented as a series of reports to users and researchers when necessary (Yomralıoğlu, 2000). As can be seen from this explanation, the main structure of any information system is similar to each other, regardless of its purpose. However, although they are similar in basic structure, university information systems produced for different purposes (student, health, inventory, infrastructure, library, etc.) often use disconnected and different databases in the management of different units. If all information systems are gathered under a single system, all kinds of information about the university can be obtained in a reliable and much easier way. Geographic information system can provide the most appropriate form of this integrated structure (Kurdoğlu et al., 2012).

Creating a data library for urban furniture by making use of Geographic Information Systems is a first step. Researcher, manager, employee, student, etc. If data is needed on urban furniture, ensuring that accurate information is accessed quickly is also important in terms of saving time (Güngör, 2023). In this context, the main purpose of the study is to create a Campus Information System for all kinds of equipment within the Zihni Derin campus area of Recep Tayyip Erdoğan University, which is not common in our country, and to store the spatial characteristics of the urban furniture within the campus area in the GIS environment. There are also accessory cards that contain information that can help with research. In this direction, the targets are; To provide opportunities for analyzing data for different purposes, making inquiries and obtaining new data, and creating a database that can be shared on the WEB environment.

Classification of urban furniture can be made according to various features. In this study, Akyol (2006) classified urban furniture according to its functions in use, and Yıldızcı (2001) discussed urban furniture according to how it reflects the character of the environment it is in. In the light of these evaluations; Urban furniture included in the scope of the study includes 12 items in the campus, including lighting elements, seating elements, limiting elements, water elements, covering elements, floor coverings, information and communication signs, garbage bins, plant safes, disabled elevators, security booths, and artistic objects. These are the urban furniture examined in the group. The location, material structure and damage status of each urban furniture identified in the ID cards were evaluated. It is believed that the YEDBİS application, which will be the first study on Campus Information Systems at RTEU, will be a source of mapping and analysis processes to be carried out in projects using geographical information systems in new research to be carried out within the university.

Material Use and Process in Urban Furniture

The physical and movement characteristics of humans are the most important criteria for the design of all kinds of urban furniture (Zülfikar, 1998). At the end of a design process in which user expectations are appropriately transferred to the product, human ergonomics is analyzed correctly, material selection and application decisions are made correctly, urban furniture that will satisfy the designer, the implementer and most importantly the user will emerge (Yıldırım, 2004). To design and produce qualified and functional urban equipment, it is necessary to ensure that the urban equipment is used in accordance with the design purpose, to control the quality levels, and to carry out maintenance and repair works (Altınçekiç, 2003, Yıldırım, 2004). In this context, data such as urban furniture will need to be questioned in planning studies to be carried out at universities. While providing a series of files, which is a classical method, opportunities were created by using computer technology (Kurdoğlu, Çelik, 2016).

The geographical location of the city, its cultural level, architectural structure, traditions and lifestyle are the features that shape the city (as cited by Önem, Kılınçarslan, 2005; cited by Bekar, et al., 2017). Because people control the environment they live in as much as they can. For this, they need to live and perceive that environment. There are some factors that determine these perceptions. These; It emerges as the areal size of the city and the frequency of use of places. (cited in Güremen, 2011; cited in Bekar, et al., 2017).

Urban equipment elements should be considered by taking into account the cultural, social and ideological structure of the society beyond just meeting different needs. Three structural levels are mentioned to understand the culture of the user audience. Traditional, cultural values, dreams and choices at the internal level; intermediate level of behavior, language, and activities; On the outer level, there are objects and

materials. For this reason, urban equipment elements are also considered as cultural objects that reflect the culture of the user population (as cited in Siu, 2005; as cited in Bayraktar, et al., 2008).

The image that will emerge when designing urban furniture should be able to integrate with the space in which it is located, at the same time, it should be able to adapt to the present day and be meaningful in terms of time-space relationship. For this reason, when designing urban furniture, they should be able to establish a connection with the city or part of the city they are located in (Ertaş, 2017). Before starting the design, concept activities are carried out in order to see, understand and adopt the message that is intended to be conveyed during the activity phase of the design (as cited in Peterson, 1974; Bilir, 2013; cited in Ertaş, 2017).

Material preferences in urban furniture; It can be said as suitability for function, suitability for environmental conditions and suitability for formation. Criteria for determining the human relationship with any object constitute functional criteria (as cited by Zülfikar, 1998; cited by Öztürk Kurtaslan, 2020). The design of urban spaces contributes to the users' sense of socio-cultural belonging with the equipment it contains. Urban furniture, which has many features that make life easier in terms of functionality, also determines the culture of the city. For this reason, the fact that the design, production and location of urban furniture, which is an important part of urban design, cannot be isolated from the planning-design process should not be ignored. When bringing together street furniture, care must be taken in the selection of elements. Elements should not be considered singular, but as parts that make up a whole, and they should be positioned in this way in public spaces (as cited in Yücel, 2006; cited in Öztürk, et al., 2020).

Campus Street Furniture Information System

Today, universities are among the institutions where information is used most effectively. For this reason, it becomes important to use the data in the most efficient way for planning, education and training and also for carrying out research studies at universities. Evaluating, renewing and processing data is important for the development of universities. Therefore, these institutions need to create their own systems based on information technology (as cited in Karaş, et al., 2005; cited in Taş, 2021).

Campuses are generally settlements consisting of many buildings and densely populated. It is difficult to manage and carry out studies at universities with limited resources. GIS helps administrators make the right decisions in the shortest time as a result of various analyzes by using verbal data and spatial data together (as cited in Yılmaz, 2019; cited in Taş, 2021).

Campus Street Furniture Information System (YEDBIS)

In urban areas, human beings have tended to spend a productive and comfortable time while living in the complexity and intensity of life. This is directly related to the urban furniture found in these areas. Because urban furniture has a feature that facilitates individual and social life, enables communication between individuals, and defines and completes the space (Bayrakçı, 1991; Soydan & Belinay, 2016). When evaluated through campuses, which are one of the urban spaces, the open spaces in these spaces (parks, squares, building entrances, gathering places, etc.) become very important for users in terms of interaction, recreation and use for different purposes (Gülen, 2021).

METHODS

Study Area

Recep Tayyip Erdoğan University; It is a university with units in Rize center and İyidere, Derepaşarı, Güneysu, Çayeli, Pazar, Ardeşen and Fındıklı districts. Currently at Recep Tayyip Erdoğan University; With 15 faculties, 1 institute, 3 colleges, 6 vocational schools and 16 application and research centers; 1262 academic staff members; It has 430 administrative staff and 15,710 students (Figure 1, Url, 1).



Figure 1: RTEU Zihni Derin Campus.

Reference :Url 1

The study area is located between $41^{\circ} 2'13.59''$ North latitude and $40^{\circ}29'37.34''$ East longitude, within the borders of Fener District of Rize Center. The total area of the campus is $98,026 \text{ m}^2$, the area where the buildings are located is $40,608.59 \text{ m}^2$, and the open area including sidewalks, green areas, gathering areas, and roads is $57,417 \text{ m}^2$ (Url 1). Within the scope of the research, maps and technical bases were obtained from the university's construction works. Field work was carried out, photographs of urban furniture were taken, coordinate measurements were made with a Garmin handheld GPS device and marked on the map created in the ArcGIS program. In this process, AutoCAD, Photoshop and Microsoft Excel programs were used to edit the regional printouts of the coordinates.



Figure 2: Zoning study carried out in the research area.

Reference :Url 2

The study limits of the research (Figure 2, Url 2) are; Administrative Buildings and its surroundings, the old tea house used as the Guesthouse and the Black Sea Strategic Application and Research Center, the Faculty of Theology and its surroundings, Ahmet Erdoğan Mosque and its surroundings, Greenhouse Area and its surroundings, the Faculty of Sports Sciences and its surroundings, including the Indoor Sports area, Faculty of Architecture and Engineering. surroundings, Student Life Center and Congress Center surroundings, Faculty of Fisheries and its surroundings, Lodging buildings and surroundings, Faculty of Arts and Sciences and its surroundings, Faculty of Economics and Administrative Sciences and its surroundings, the building where the library is located and its surroundings, Parking areas and its surroundings are included.

Method

The study area is the Recep Tayyip Erdoğan University Zihni Derin campus, covering an area of approximately $98,000 \text{ m}^2$. Urban equipment elements in all building environments and social areas (seating elements, lighting elements, trash bins, information communication signs, artistic objects, water elements, pergolas, plant crates, security huts, border elements, disabled elevators and floor coverings) were included in the study. created its basic materials.

First of all, the master's thesis and ongoing Scientific Research Project by Güngör (2023) titled "Creating a Management Model by Examining the Sustainability of Urban Furniture on University Campuses with a GIS-

Based Campus Equipment Information System (Rize Recep Tayyip Erdoğan University Zihni Derin Campus Example)" Positional data of 12 reinforcements from the base (with project code Fyl-2023-1472) were used. The attribute data and non-spatial information on the 1252 urban equipment elements identified with this base were transferred to the digital environment using GIS. Thus, a Campus Street Furniture Information System (YEDBİS) has been created in the GIS environment, and the location of urban reinforcement elements, materials, coordinates, types, physical properties (measurement, material, form), damage status and a descriptive visual of the reinforcement will be available. The analyzes on the accessory cards will be used when interrogating the information.

In the conclusion part, taking into account the analysis of the accessory cards, in line with the observations and analyzes made with the data on the locational, physical and functional qualities and damage situations of the urban furniture within the borders of the campus, alternative conservation-use targets for the solution of the problems related to the urban furniture in the area, implementation strategies of the criteria considered at the design stage.

A management plan was created by determining the actions, responsible and relevant institutions.

Analyzes on the equipment cards will be used when interrogating the information. The research method, techniques and ArcGIS software are common materials for the stages to be followed regarding the YEDBİS to be created within the scope of Recep Tayyip Erdoğan University Zihni Derin Campus; The studies carried out by Çelik (2015), Kurdoğlu (2018), Aksoy (2021) and Taş (2021) were used.

RESEARCH FINDINGS

Within the boundaries of the work, 675 lighting elements, 6 information communication signs, 219 seating elements, 3 artistic objects, 10 water elements, 18 pergolas, 93 trash bins, 137 plant crates, 9 security huts, 3 disabled elevators. There are a total of 1252 street furniture, including the elevator and 73 borders elements (Figure 3).



Figure 3: Recep Tayyip Erdoğan University, Zihni Derin Campus Examples of urban furniture.

Reference:Produced by The Author

For each equipment, 'Type (seating elements, lighting elements, trash bins, information communication signs, artistic objects, water elements, pergolas, plant crates, security huts, border elements, disabled elevators and floor coverings)', Coordinates (Identity cards were created containing X, Y), Physical Feature (material), 'Damage Condition (not damaged, slightly damaged, damaged,)', 'Code Number', 'Size' and ". Examples of identity cards created for lighting and information communication signs are shown in Figure 4,5.


Type	Code Number	Code Icon	Classification	Type	Photo
L1 E1	83	1	Lighting Elements	Short Lighting	
Gps Coordinates			Physical Feature		
X Coordinates	41.036.840°	Size Height	15x15x75 Cm		
		Damage Condition	Not Damaged		
Y Coordinates	40.495.470°	Material	Metal		

Figure 4: RTEÜ Zihni Derin campus equipment ID card samples.

Reference:Produced by The Author


Type	Code Number	Code Icon	Classification	Type	Photo
In Si	12		information communication signs	Information signs	
Gps Coordinates			Physical Feature		
X Coordinates	41.036.790°	Size Height	70x200 cm		
		Damage Condition	Not Damaged		
Y Coordinates	40.493.080°	Material	Static Painted aluminum		

Figure 5: RTEÜ Zihni Derin campus equipment ID card samples.

Reference:Produced by The Author

First of all, digital maps and data of Recep Tayyip Erdoğan University, Zihni Derin campus were created. The location of classified urban facilities has been revealed from digital and non-digital maps, field studies and precise GPS (Figure 6).

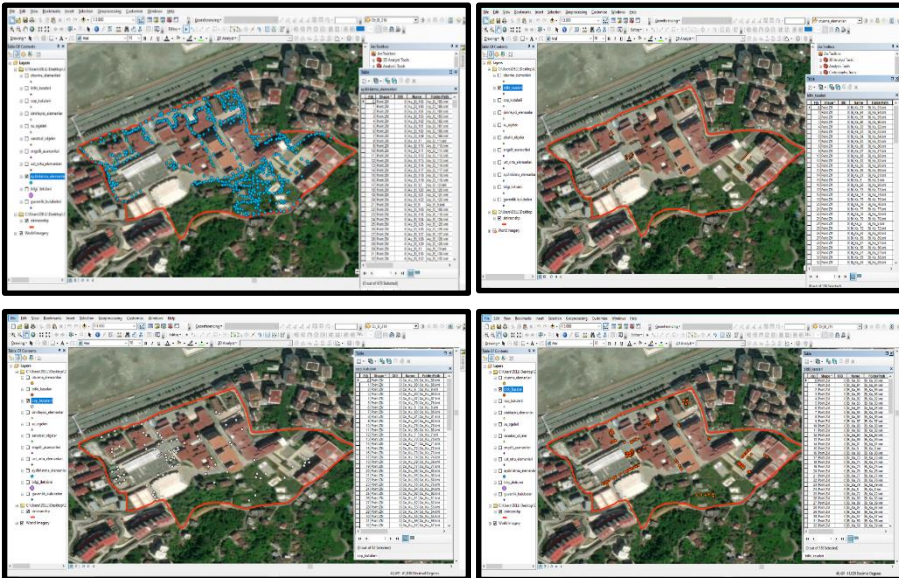


Figure 6: Examples of spatial data entries for lighting, plant box, garbage bin and seating elements in the ArcGIS program.
Reference:Produced by The Author

In the work area, there are 4 types of lighting elements, 4 types of plant crates, 5 types of trash bins, 3 types of security huts, 3 types of seating elements, 2 types of pergolas, 2 types of artistic objects, 2 types of border elements, 4 types of water elements and 2 types of disabled elevators (Table 1).

Table 1: Type, rate, material, damage status of street furniture.

Type	Rate(pcs)	Material	Damage condition
Lighting Elements	657		
Spot Lighting	170	Crom	Not Damaged
Outdoor Wall Lighting	194	Metal Led Lighting	Not Damaged
Short Lighting	112	Metal	Not Damaged
Street Lighting	199	Aluminum Profile	Not Damaged
Information Communication Signs	6	Painted Aluminum	Not Damaged
Plant Crates	137		
	93	Wood	Damaged
	10	Concrete	Not Damaged
	28	Plastic	Not Damaged
	6	Soil	Not Damaged
Trash Bines	93		
	5	Wood, Metal	Not Damaged
	6	Container	Not Damaged
	10	Plastice	Not Damaged
	71	Metal	Slightly Damaged
	1	Recycled	Not Damaged
Security Hut	9		
	2	Prefabricated	Damaged
	6	Concrete, Wood	Not Damaged
	1	Wood	Slightly Damaged
Floor Coverings	32.934m²		
	250m ²	Cube Stone	Slightly Damaged
	1.269m ²	Andesite	Not Damaged
	1.565m ²	Basalt Block Stone	Not Damaged
	22.652m ²	Shiny Stamped Concrete	Slightly Damaged
	2.588m ²	Cast Concrete	Slightly Damaged
	1.153m ²	Sandblasted Basalt Stone	Not Damaged
	3.457m ²	Travertine Paving	Slightly Damaged
Seating Elements	219		
	201	Wood	Slightly Damaged
	12	Concrete-Metal	Damaged
	6	Plastic-Wood	Not Damaged
Pergolas	18		
Pergola	6	Wood	Slightly Damaged
Kamelya	12	Wood	Slightly Damaged
Artistic Objects	3		
	2	Wood	Slightly Damaged
	1	Steel Mesh Concrete	Damaged

Border Elements	73		
	2	Concrete Mushroom	Damaged
	71	Vehicle Stopper	Not Damaged
Water Elements	10		
Pool	2	Basalt, Andesite	Damaged
Waterfall	1	Natural Stone	Not Damaged
Tap	5	Marble	Slightly Damaged
Fountain	1	Marble	Not Damaged
Disabled Elevators	3		
Seat Type	2	Aluminum	Damaged
Hydraulic	1	Aluminum	Damaged

Reference: Produced by The Author

No damage was detected in the lighting elements within the work area. The most lighting elements were in Ahmet Erdoğan Mosque and its surroundings with a rate of 29.68% and in the Administrative Buildings and its surroundings with a rate of 14.00%, the least lighting was in the Faculty of Sports Sciences and its surroundings (3 pieces), including the Indoor Sports area, and the Faculty of Science and its surroundings (4 pieces). It has been found that. Of the 6 information and communication signs in the campus area, 2 of them are in the Administrative Buildings and their surroundings. Although the plant crates were mostly made of wood with a rate of 67.88%, they were detected in a damaged condition. The highest number of plant crates were placed around the Student Life Center and Convention Center, with a rate of 26.27%. It was determined that the trash bins in the area were placed most frequently around the Student Life Center and the Congress Center, with a rate of 25.80%. Corrosion-related damages were observed in 81.72% of the trash bins selected from metal materials. The seat type and hydraulic disabled elevators in the work area are damaged and do not work. 4 of the 9 security huts within the campus area are located in and around the Administrative Buildings. It was observed that the prefabricated material reinforcements, one in and around the Faculty of Sports Sciences, including the indoor sports area, and one around the Faculty of Architecture and Engineering, were damaged. Seating elements are mostly located around the Student Life Center and Congress Center, with a rate of 35.61%. Metal material seating elements were found to be damaged. There are 3 artistic objects in the area. There are 2 in the congress center and its surroundings. The floor coverings in the area were mostly made of stamped concrete material with a rate of 68.7%. Sandblasted basalt stone covering is the least used flooring with a rate of 0.03%.

It was determined that 9.18% of the equipment within the campus area was damaged, 23.88% was slightly damaged, and 66.94% was not damaged. 80.86% of the damaged materials are wooden materials. It was observed that aluminum material was the most undamaged material with a rate of 23.75%.

CONCLUSION AND RECOMMENDATIONS

Within the scope of the study, a GIS-based Campus Facility Information System was created. With the Campus Street Furniture Information System, urban furniture within the study boundaries was recorded, thus providing the opportunity to query and analyze the equipment. The equipment data must be entered into the information system up to date in order to carry out the analyses, renovation and maintenance works in a healthy manner, obtained through the YEDBIS created.

Metal reinforcements were corroded and damaged depending on the climate of the region. The number of seating elements is insufficient in the guesthouse area (2) and in the Faculty of Science and its surroundings (1). In this sense, a balanced distribution of seating elements has not been achieved throughout the campus. In the climate of the region that receives frequent rainfall, the overhead cover elements that allow sitting and resting in the open area of the campus and create a space that allows socialization are insufficient. Wooden camellias and pergolas can be reinterpreted in an architectural style that adapts to the campus dynamics and regional culture. Artistic objects used in the campus areas of universities, which are centers of science and art, will significantly benefit the spatial identities of the universities. In this context, the artistic objects in the campus area should be increased to support the identity of the university and the city. Considering the number of campus users in general, the number of urban furniture such as seating elements, trash bins, information communication signs on the campus should be increased. Street furniture should not be evaluated individually, but as parts that form a whole. In order to ensure users' sense of belonging to the University, the furniture placed in the campus area should have traditional and cultural value.

Çelik, the main purpose of the 2015 research is to create an identity card and a database for the equipment elements within the borders of Karadeniz Technical University Kanuni Campus, which will allow quick and reliable access to the information that will be required when making decisions regarding future planning or

maintenance works to be carried out on university campuses. To create a Campus Information System (YEDBİS).

The main purpose of the study conducted by Özdal Oktay and Özyılmaz Küçükyavaş in 2015; The aim is to examine a sustainable campus design process, set out the goals and determine the priorities for sustainable campus design at Gebze Technical University. For this purpose, first of all, UNEP and ISCN-GULF reports, which serve as a guide in the design of university campuses, were examined and sustainable campus design targets were revealed. In the final stage, priority targets were determined for GTÜ campus using the AHP (Analytical Hierarchy Process) method in line with these targets and future results were discussed.

In this thesis, data regarding all kinds of equipment within the Zihni Derin campus area of Recep Tayyip Erdoğan University were stored in the GIS environment. In addition, accessory cards for urban furniture have been created, containing a lot of information that can assist in research. For the analysis, a spatially based GIS-based Campus Information System (YEDBİS) was created and urban equipment elements; ID cards were created, supported by a descriptive image of their location, materials, coordinates, types, dimensions, damage status and equipment. It is of the opinion that new products will be developed based on the data of this study in future projects or plans to be made within the campus. These data can be converted into an application and added as an add-on to the currently used application (REBİS), which covers the activities within the campus, and can be forwarded to the system of the relevant infrastructure unit in case the user requests requests for urban equipment while in the area. In this case, while meeting the needs is accelerated, it is also possible to remove unused or out-of-function equipment from the area.

As in all work areas, it is important to create a correct and applicable management plan in order for all planning, design and implementation works to be carried out in the field of landscaping to be permanent in the long term. Alternative conservation-use targets for the solution of problems related to urban furniture, implementation strategies of the criteria considered at the design stage, actions, responsible and relevant institutions are determined and as a result of the examinations for the management plan, area management planning, area definition, creation of goals-targets and actions, determination of stakeholders, implementation phase. and review of the entire process. At this stage, the landscape management planning stages were analyzed and when the flow chart of the method for developing the landscape management plan and recommendations of Kaya Özdemir 2016 was examined; (i) Evaluation of Institutional Foundations and Data Related to the Research Field, (ii) Identification of Current Problems, (iii) Determination of Targets for Problems, (iv) Identification of Stakeholders, (v) Identification of Stakeholders, (vi) Monitoring and Evaluation stages are seen. (Figure 7). Steps were taken in creating a management model by examining these stages. The boundaries of the study were determined by a campus and urban furniture was considered as the subject of the research. The created schema can be further developed by researching.

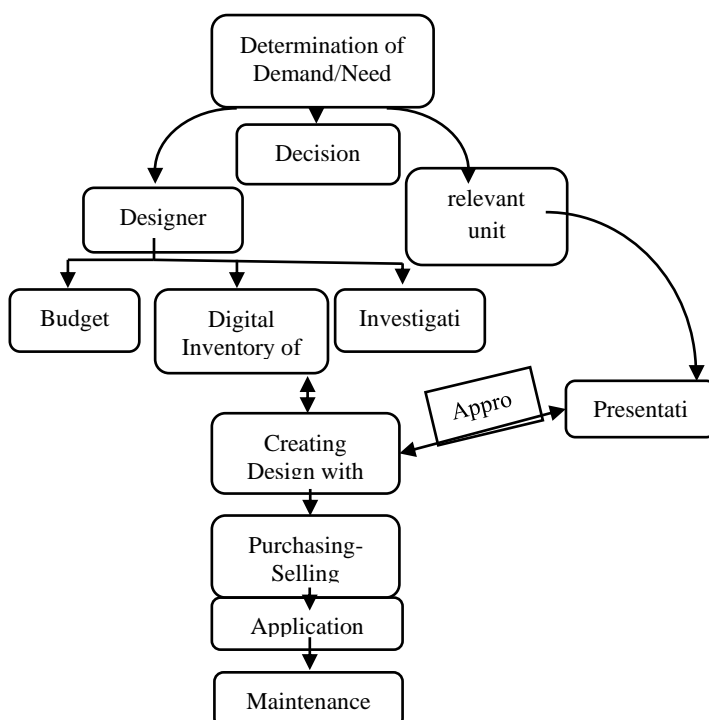


Figure 7: Management Model Proposal.

Reference:Produced by The Author

These data can be converted into an application and added as an add-on to the currently used application (REBİS), which covers the activities within the campus, and can be forwarded to the system of the relevant infrastructure unit in case the user requests requests for urban equipment while in the area. In this case, while meeting the needs is accelerated, it is also possible to remove unused or out-of-function equipment from the area.

Acknowledgements

This study was prepared using the master's thesis titled "Creating a Management Model by Examining the Sustainability of Urban Furniture on University Campuses with a GIS-Based Campus Equipment Information System (Rize Recep Tayyip Erdoğan University Zihni Derin Campus Example)", which was conducted in 2023. In addition, the Thesis Study is supported by the Scientific Research Projects (BAP) coordination unit of Recep Tayyip Erdoğan University Rectorate with the project code Fyl-2023-1472.

REFERENCES

- Abd-Razak, M. Z., Goh Abdullah, N. A., Mohd Nor, M. F. I., Usman, I. M. S., & Che-Ani, A. I. (2011). Toward a Sustainable Campus: Comparison of the Physical Development Planning of Research University Campuses in Malaysia. *Journal of Sustainable Development*, 4(4). <https://doi.org/10.5539/jsd.v4n4p210>
- Aksoy, Ö. B., (2021). Creating a CBS-Based Campus Equipment Information System (Yedbis): Kafkas University Şehitler Campus Example. Master's Thesis. Atatürk University, Institute of Science and Technology, Erzurum, Türkiye, 167 p.
- Akyol, E., 2006. Urban Furniture Design and Usage Process. Master's Thesis, Istanbul Technical University, Institute of Science and Technology, Istanbul, Turkey, 125 p.
- Altınçekiç, H., (2003). Urban Furniture and Quality Expectations in Landscape Design, II. International Urban Furniture Symposium, Harbiye, Istanbul, Türkiye, April 24-27.
- Bayrakçı, O. (1991). Identity Problem in Urban Furniture Design and Its Place in Urban Identity. *Public Spaces Design and Urban Furniture Symposium*, Mimar Sinan University Faculty of Architecture, 75-77, Istanbul.
- Bayraktar, N., Tekel, A., Yalçın Ercoşkun, Ö., 2008. Classification, Evaluation and Urban Identity Relationship of Urban Reinforcement Elements Located on Ankara Atatürk Boulevard. *Gazi University Faculty of Engineering and Architecture Journal*, 23(1), 105-118 p.
- Bekar, M., Acar, C., Şahin, E. K., (2017). Examining the Compatibility with the City in Urban Furniture Designs and Evaluating them in Line with User Requests. *International Journal of Scientific Research*. 2(2): 178-185. Doi Number:<http://dx.doi.org/10.21733/ibad.2112>.
- Çelik, K., T., (2015). Creating a GIS-Based Campus Facility Information System (YEDBİS): Example of Karadeniz Technical University Kanuni Campus. Karadeniz Technical University, Institute of Science and Technology, Master's Thesis. 159 p.
- Diñçer, D., Bekci, B., & Bekiryazici, F. (2020). Examining the sustainability of urban furnitures and their potential to be a landmark in the scale of Rize city center. *Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi*, 21(2).
- Ertaş, Ş., (2017). A Method Proposal for Urban Furniture Design in a Historical Environment: Konya Sille. *Mehmet Akif Ersoy University Institute of Science and Technology Journal*, 8(1), 78-95 p.
- Gülen, M., 2021. The Effect of Reinforcement Elements on Urban Area: Van Yüzüncü Yıl University Campus Example. *Journal of the Institute of Science and Technology*. 26/1, 34-44pp.
- Güngör, K., (2023). Creating a Management Model by Examining the Sustainability of Urban Furniture in University Campuses with the CBS-Based Campus Equipment Information System (Rize Recep Tayyip Erdoğan University Zihni Derin Campus Example) Master's Thesis. Recep Tayyip Erdoğan University Graduate Education Institute.
- Habermas, J. (2004). *Public Space*. M. Özbek (Ed. and Trans.), Public Domain (p. 95). Istanbul, Türkiye: Hil Publishing.
- Karcı Demirkol, A., 2019. Examination of the Environmentally Sustainable Campus Model in the Example of Ege University. Master's Thesis. Aegean University. Institute of Science and Technology. Bornova, Izmir, 161 p.

Kurdođlu, B. ., Demirel, ., Niřancı, R., zdemir, B., Bayramođlu, E., Erbař, Y., S., 2012. University Natural and Artificial Landscape Materials Information System in the Example of Karadeniz Technical University Campus A Research on Model Creation. Project Code No: 1171. Final Report, 48 p., Trabzon, Turkey.

Kurdođlu, B. ., Bayramođlu, E., Kurt Konakođlu, S.S., (2018). Sustainable Equipment Design Criteria for Pedestrian and Bicycle Paths on Campuses. *International Journal of Scientific Research*. 3(2), 493-502.

Kurdođlu, B., ., elik, K., T., 2016. A study on establishing the campus urban furniture information system (CUFIS). *Artvin oruh University Faculty of Forestry Journal* ISSN: 2146-1880, e-ISSN: 2146-698X, Volume: 17, Issue: 1, Page: 11-20.

zdal Oktay, S., zyılmaz Kkyađcı, P., (2015). niversite Kampslerinde Srdrlebilir Tasarım Srecinin İrdelenmesi. Gazi niversitesi, Ankara, Trkiye.

ztrk Kurtaslan, B., (2020). Examining the Relationship between Historical Place and Urban Furniture in the Example of Konya Bedesten Bazaar. *New Research in Social Sciences-III*. 149-166 p. ISBN: 978-625-7049-61-0

ztrk, S., Iřınkaralar, ., iek, E., Vural, ., Meydan, K., 2020. Evaluation of Urban Equipment Elements in Terms of City Identity: Safranbolu Example. *International Journal of Social Research / The Journal of International Social Research* Volume: 13 Issue: 69 March 2020 & Volume: 13 Issue: 69 March 2020.

Soydan, O., Benliay, A., (2016). Donatı Elemanlarının Fonksiyonel Ve Tasarım zelliklerinin Deđerlendirilmesi. *İnn niversitesi Sanat ve Tasarım Dergisi*, 6(14), 1-18 s.

Siu, K. W. M., 2005. "Pleasurable Products: Public Space Furniture With Userfitness", *Journal of Engineering Design*, 16(6): 545-555, 2005.

Sel Yazıcı, B., 2007. The Importance of Equipment Elements in the Formation of Campus Identity as a Social Environment: Field Study on Bařkent University Bađlıca Campus. Doctoral Thesis. Ankara University, Institute of Social Sciences. Ankara Trkiye. 225 p.

řatirođlu, E., Diner, D., & Korgavuř, B. (2023). Urban Furniture In The Context Of Sustainainable Materials. *Kent Akademisi*, 16(1), 566-576.

Tař, K., 2021. Dynamic Based Campus Information System Design: Erciyes University Central Campus Example. Master's Thesis. Erciyes University, Institute of Science and Technology, 89 p.

Yıldızcı, A.C. (2001). The concept of urban furniture and analysis of urban furniture in Istanbul. I. International urban furniture symposium, Istanbul, Proceedings book, 29-34.

Yıldırım, E., (2004). Evaluation of Urban Furniture in Istanbul "Sultanahmet Square Example", Master's Thesis, Istanbul Technical University, Institute of Science and Technology.

Yomralıođlu, T., 2000. Geographic Information Systems Basic Concepts and Applications Akademi Kitabevi, Trabzon

Zlfikar, C., (1998). Usage Relationships of Urban Furniture, Master's Thesis, Istanbul Technical University, Institute of Science and Technology.

URL 1: <https://www.erdogan.edu.tr/website/Contents.aspx?PageID=14LangID=1#gallery-1>

URL2: <https://earth.google.com/web/@41.03804536,40.49465178,26.67829288a,1266.73803913d,35y,0h,0t,0>