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Procedia - Social and Behavioral Sciences 197 (2015) 339 – 347

Procedia
Social and Behavioral Sciences

7th World Conference on Educational Sciences, (WCES-2015), 05-07 February 2015, Novotel Athens Convention Center, Athens, Greece

Students Exploration On Campus Legibility

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Abstract

University Campuses are significant functional areas of cities. Successfully designed campuses help to balance university's academic, research and service missions with its educational services and raise learning performances. Campuses' high level of design and planning service has close relation with its legibility. Kevin Lynch, one of the leading theorists who had research on place legibility used cognitive mapping as a tool and defined five fundamental elements, have great influence on place legibility. In this study, Black Sea Technical University is selected as the research area and its legibility level has determined. Aim of this study is to define the legibility level of the campus by students perceptions. In this context, Lynch's five fundamental legibility elements directed students to generate cognitive maps of the campus, and each student's perception level on campus area is determined. Respondent group include students from Architecture, and Urban and Regional Planning departments have contributed this study. End product is the analysis of the cognitive maps, produced by each student, based on legibility elements. The result of the analysis legibility map of the campus has created, and the legibility level of the campus area is determined. Following, the results are classified as the areas with high, medium and low cognition. Finally, possibility of raising university's educational and research activities through design are discussed.

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Peer-review under responsibility of Academic World Education and Research Center.

Keywords: University Campus; Legibility; Campus Planning and Design

1. Introduction

The environmental quality and liveability of the campus areas where college students with diverse cultural, ethnic and social backgrounds live and study are significant features as they contribute to students academic and social activities. Thus, designing and planning campuses that raise awareness among faculty, student body and employees

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doi:10.1016/j.sbspro.2015.07.147

is an important artefact. Universities carry the mission of serving as a model to the surroundings. Environmental quality and liveability factors affect individual's perception level of the places they live in. Knowing the facts how people perceive physical environment, makes it easier to understand their habits and helps to create more perceptible and memorable places. Initial perception and image mapping studies are done by architect Kevin Lynch in 1960.

Lynch observed environment and the habitual properties of the user and defined five elements that people mainly observe. Eventually, he outlines roads, nodes, edges, landmarks and district as the elements that people store in their minds, then created cognitive maps. Others, as Erickson and Moughtin, agreed that cognitive maps are powerful tools to understand the place through inhabitants' minds. By using various methods for generating cognitive maps, researchers studies perception and representations of places. For instance, Lynch explores the cities of Boston, New Jersey and Los Angles, asks residents (different age, gender...) to draw the city map, and generated cognitive maps of these cities.

Paths are routes through which the observed moves, e.g. roads, footpaths, railways and walkways. They are the means by which people can view the city and form their mental map of it. Paths can often be the strongest organizing element in people's mental maps.

Landmarks are usually defined as a simple physical object, such as a church spire, a tower, a dome or a hill (Lynch, 1960). They are not entered into but serve as a point of references. They may be either distant or local. The more familiar a journey is, the more frequently local landmarks are noticed and used.

Edges are linear elements not used or thought as of routes. They may either join two recognizable areas as a seam, or may act as a barrier between recognizable area. Edges may take the form of intensely busy roads, routes, cuttings and streams (Figure 1).



Figure 1. Elements of urban image (Lynch, 1960)

Districts are medium to large elements of a city which the observer walks into and which have an identifiable set of characteristics. These might be related to use or architectural style. A district may be defined by what is exterior to it. Some people organize their mental maps around districts rather than nodes. A node is a point to or from which an observer might be travelling and provides an event on the journey. It is characteristically a major junction. It can also be a meeting of paths. In some districts a node provides a concentration of activities, such that the node is the core of that district (Figure 1) (Lynch, 1960).

It is not easy to distinctly separate each of these defined elements. Districts accommodate nodes, defined with the edges, divided with the roads and attract with the landmarks. In order one to locate himself in a place and develop a sense of belonging, he should comprehend the edge, the roads and connections, signs and nodes of the area. This method can be applied in different scales to various urban areas such as University Campuses. In this study, legibility level of Black Sea Technical University Campus is determined and the image of campus is produced.

2. Method

Mental and cognitive mapping is a widely used method by various disciplines. Cognitive map is defined as, true values that individuals observe and a series of stored hypothesis array in their surroundings (Lyoyd, 1997).

The study area is the Kanuni Campus of Black Sea Technical University (KTU). 150 students (freshman and sophomores) of Architecture and City and Regional Planning Departments participated to this study. Fundamental legibility principles and elements of Kevin Lynch (1960) are used to determine how the selected students generate cognitive maps of the campus. Students are asked to draw and mark the edges, districts, roads, nodes and landmarks on the plan, based on their personal perceptions. As a result, by analysing cognitive maps, produced by students, an image map of campus is generated.

3. Findings and Discussions

In this part Lynchian legibility elements analysed from student's cognitive maps and the outcomes combined into individual maps and graphs. The main findings of the study are as follows;

3.1. Edges

There are various number of edges defined by students. 15 main categories are defined as they overlap almost perfectly. Figure 2 is a summary of these categories that represents four highly recognized and drawn edges. Figure 3 shows that Edge #6 has the rate of %36 (n=54), edge #1 %22 (n=33), Edge #5 %9 (n=14) and Edge #9 %8 (n=12).

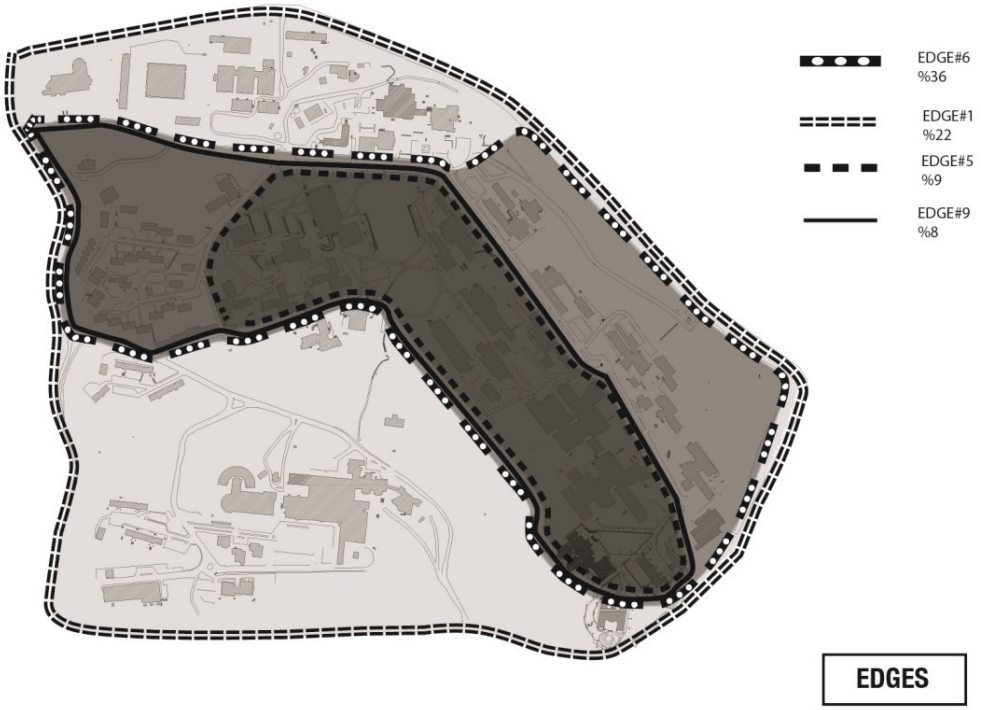


Figure 2. Map showing the edges defined by students

It can be revealed from Figure 2 almost one fifth of students can define the true campus edge (Edge #1). Accordingly, Edge #6 which includes schools, commercial areas, dormitories and housing for faculty is the most recognized edge. These areas are the most crowded, perceived and used places in the campus. The areas outside of Edge #6 are either not easily accessible as medical campus due to harsh topography or areas serve no daily activity.

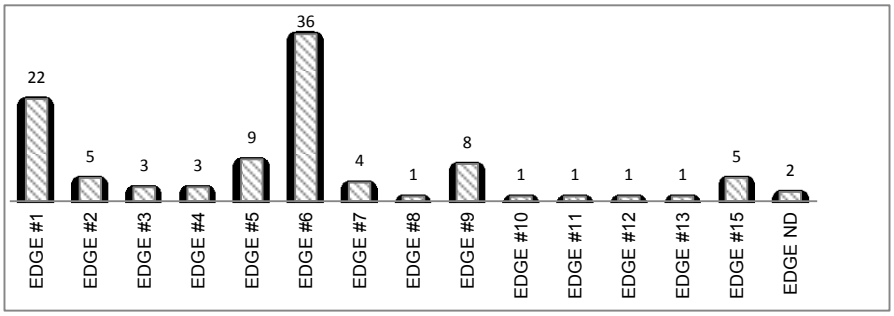


Figure 3. Frequency of edges

3.2. Districts

15 main districts are defined based on collected data. These districts are; trails & green areas, architecture & engineering departments, business administration, medical school, housing, dormitories, sports and recreational areas, commercial areas, convention centre, social areas, administrative and cultural amenities, college of geography, department of science and department of letters. The most recognized districts among given list of areas are; dormitories %48 (n=72), social areas and student affairs %47 (n=71) also commercial %47 (n=70) which are highly used by the student body (Figure 4).

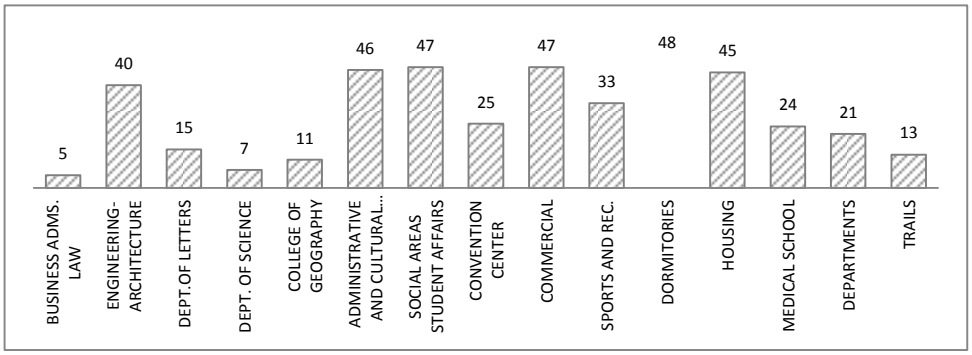


Figure 4. Frequency of districts defined by students

Figure 5 reveals the different districts that are defined by the students. Even though there is a distinct separation between different districts, analyses shows that it was not as clear as it is shown on their map like discussed in the literature. District named as “departments” (#15 on the map), contains departments of different colleges and schools, is divided into sub-districts according to students' cognitive maps (Figure 5). For instance architecture and engineering (#13 on the map) is recognized by the %40 (n=60) of the students.

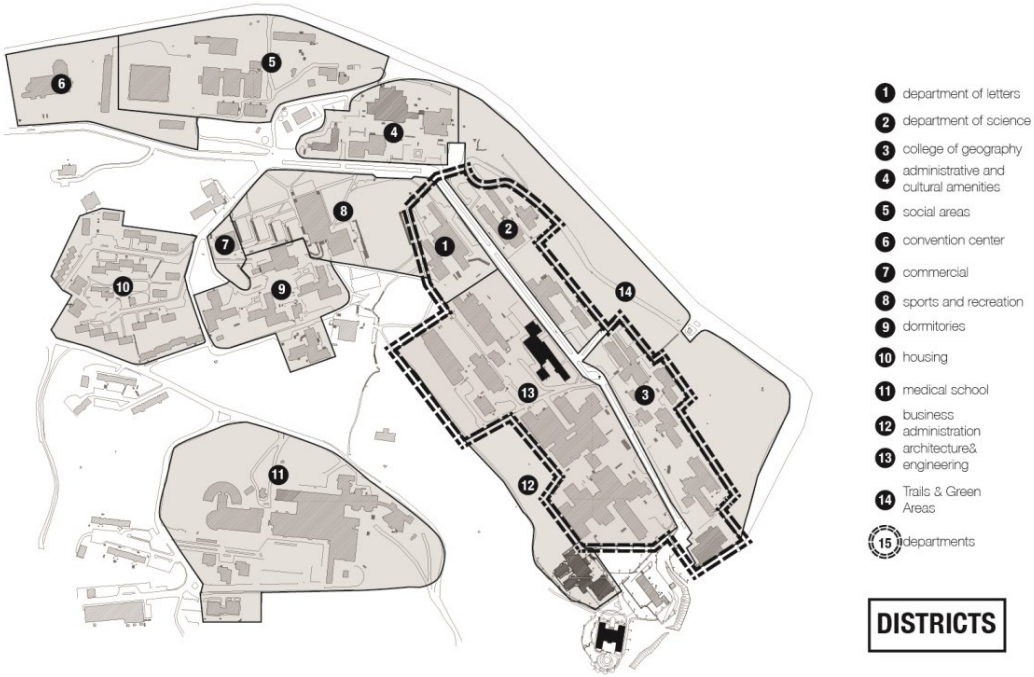


Figure 5. Map showing the districts

3.3. Nodes

21 Nodes are observed by students. Results show that stops (shuttle and bus stops), intersections, courtyards of significant buildings (library, school of architecture, Vakifbank) and gates are defined as the most recognized nodes. Library courtyard %77 (n=116), shuttle stop %68 (n=103), and architecture courtyard %52 (n=79) are the highly defined by the students among the 21 nodes (Figure 6). Similar to Landmarks, nodes are also located on the main arterials and overlap with the significant Landmarks (Figure 7, 12).

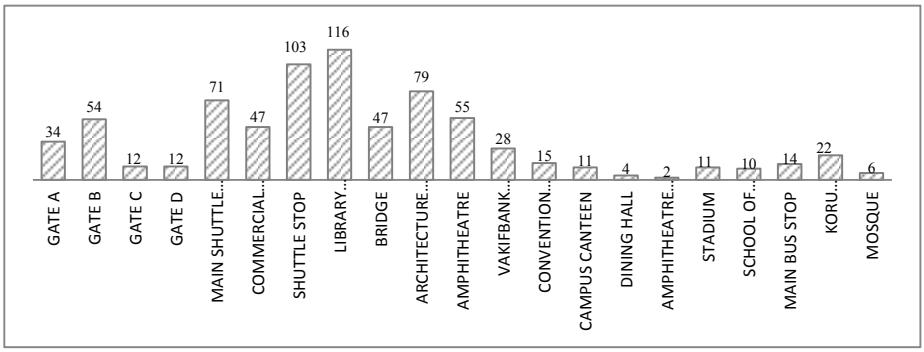


Figure 6. Frequency of Nodes

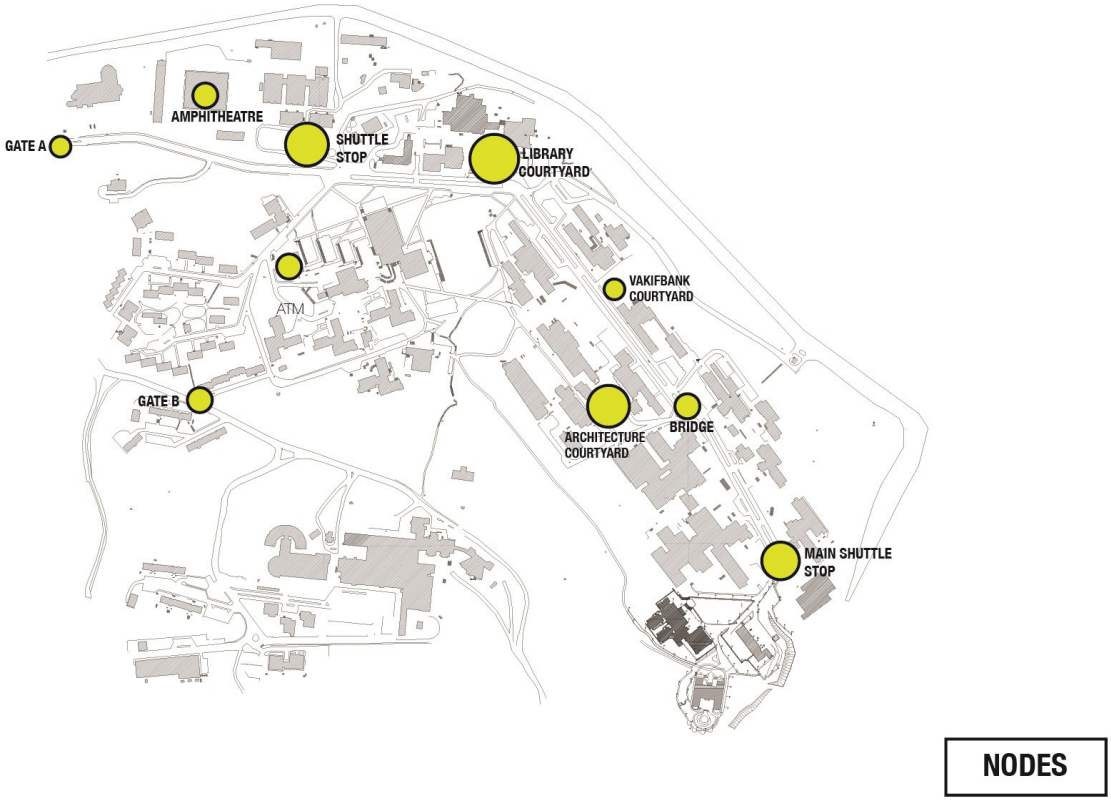


Figure 7. Map showing the highly recognized nodes

3.4. Landmarks

20 landmarks are defined based on collected data. Defined Landmarks contains various buildings, monuments, gates, landscape features such as waterfalls, tall objects such as Flag, windmill, etc. (Figure 8, 10). The most important landmarks are the monuments; monument at the library courtyard %56 (n=84) and monument by the shuttle stop %34 (n=52). Additionally, amphitheatre is recognized by 45 students (%30) as an important landmark and bridge on the arterial %27 (n=41) (fig 3.3).

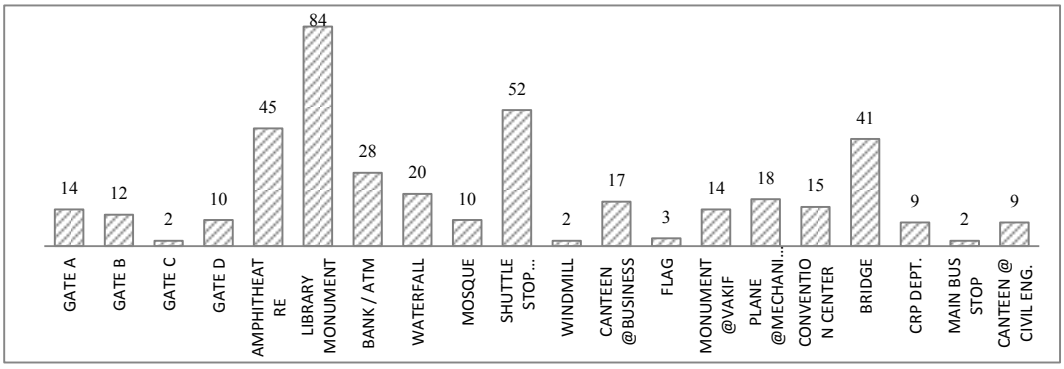


Figure 8. Frequency of Landmarks

As shown on the map below, majority of the landmarks are located on the main arterial (Figure 9).

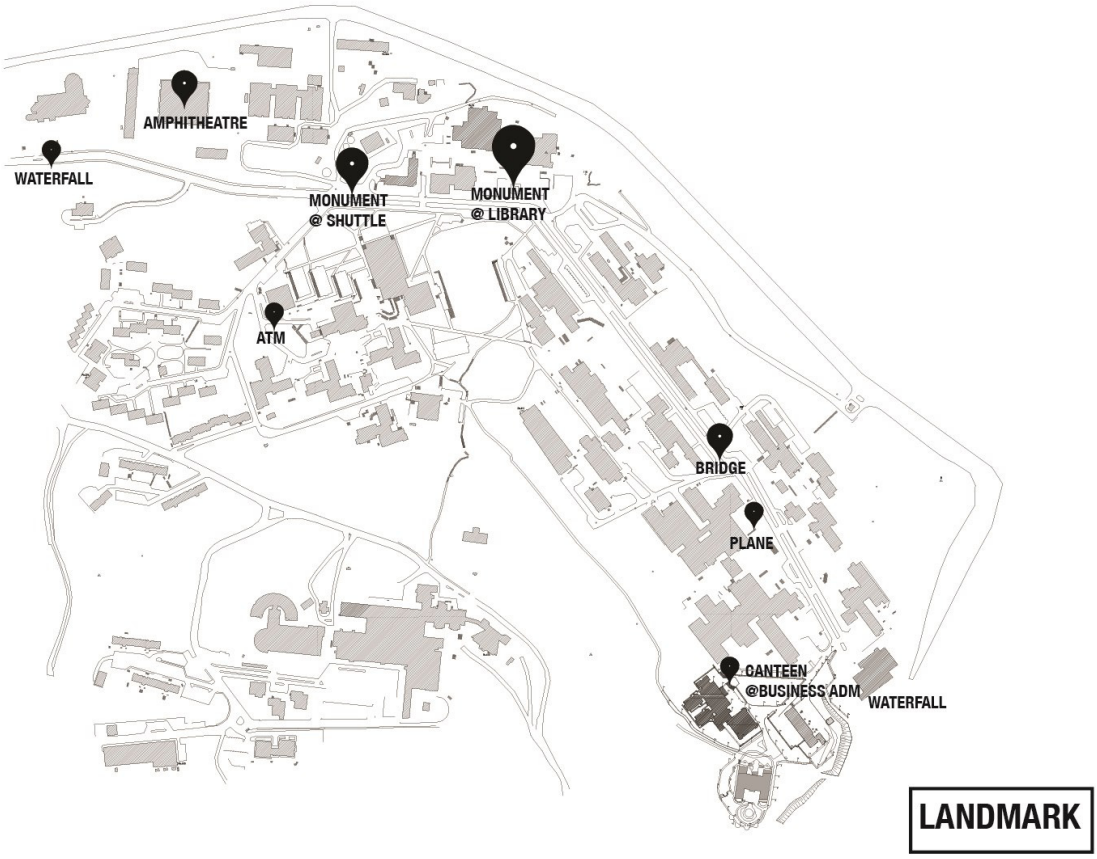


Figure 9. Map showing the locations of perceived Landmarks



Figure 10. Photographs of selected Landmarks (URL 1-5, 2015)

3.5. Roads

The Figure 11 is a summary map of collected data from student cognitive maps showing the important and less important roads and connection in KTU Campus. The map represents the most significant roads with a thick continuous. Gradually the less important roads are drawn with thin and dashed lines. According to students as it is shown in figure below primary campus roads that carry most of the vehicular and pedestrian traffic has the highest degree of perception as a significant road. Additionally, because they provide easy access and shortcuts to distribution points (gates, bus stops and exits) some pedestrian streets are also highly recognized. As a result, it is important to strengthen and improve the condition of the connections that has high level of perception in order to provide a better access to departments and other facilities.

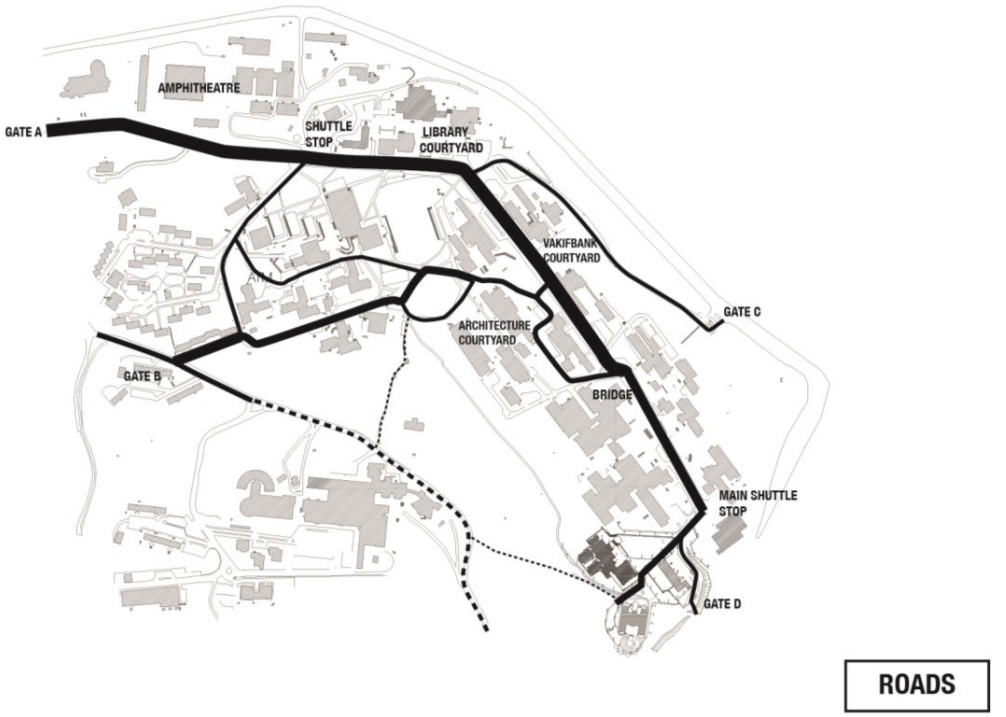


Figure 11. Map showing the perceived roads

4. Conclusion

Figure 12 displays the produced campus image map as the study of student's drawings. Campus has a certain level of perception. Accordingly, illegible and unidentified districts, landmarks and nodes exist. The pre-existing buildings are widely recognized whereas the new buildings, built with different material and style has lower level of legibility.

Districts with high level of activity and student flow, the edges that defines these areas and the nodes and the landmarks that signify these districts perceived the most by the students. Districts and edges are not clearly defined as landmarks, nodes and the roads. In addition, it is clear that significant nodes accommodate highly perceived landmarks.

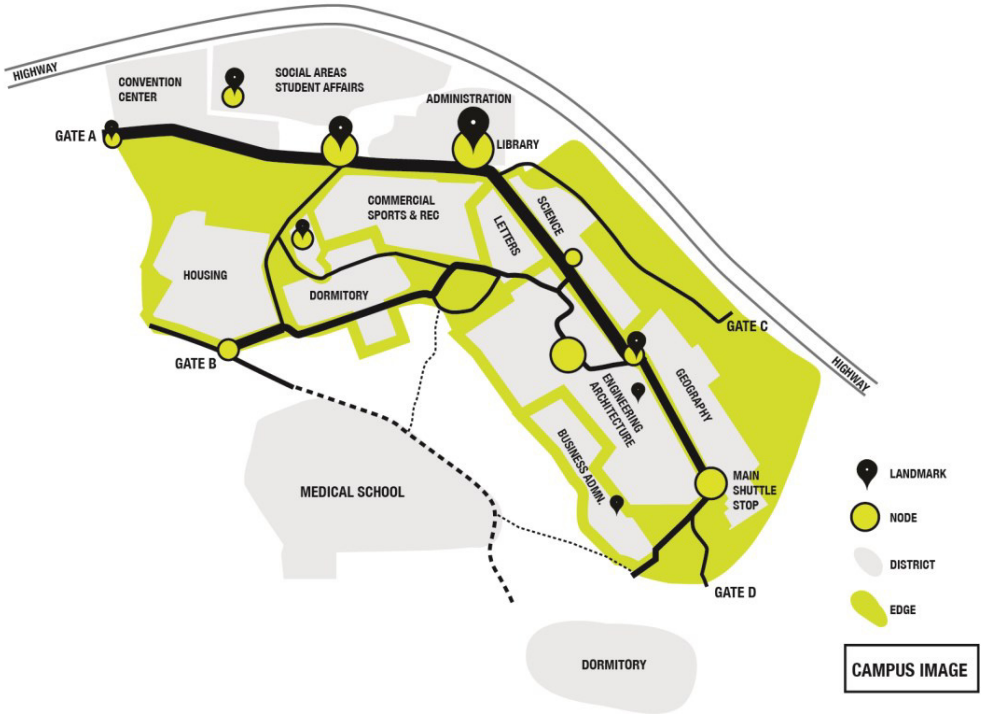


Figure 12. Final Image Map of Campus

As a result it is important to keep the campuses physical conditions good and legible as they contribute to awareness level and improves student's sense of belonging and ownership. As a growing institution, KTU will eventually expand into new areas and built new facilities and services. Thus, in this case there is a need for a comprehensive master plan to prevent creation of disconnected and less legible areas. Furthermore, it is vital to test the legibility level of the campuses with studies like this periodically in order to get a sense of the current condition and understand the tendency for future expansions.

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