

In development of the adaptive model machine learning technologies are used. The ready to use model is a forecast service based on artificial intelligence that is developed with the help of Microsoft Azure Machine Learning Studio (AMLS) service. Selection of the model is determined by the necessity of making calculations by several dozens of criteria.

It is proposed to create the input data database containing information necessary for the model training with the help of an auxiliary program written in C# programming language. The functional of the program includes generation of values of corresponding characteristics of the object in within the defined interval, subsequently forming the input data table and exporting it to Microsoft Excel .csv format. After the model is trained in AMLS user can enter arbitrary parameters of the object and obtain its optimized parameters as the output.

Due to the use of the abovementioned adaptive model within implementation of energy efficiency programs at industrial enterprises minimization of the expenditures for realization of the energy efficiency measures, reduction of the time necessary for making decisions, increase of the quality of implementation results of the operations will be reached.

CITY ZONING

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City zoning was initially proposed as a method that was supposed to solve the organization's problems with area planning, public health and population safety. City zoning generally controls the built environment, offering numerical parameters for the urban form. In the State Building Regulations of Ukraine, in particular in DBN B.1.1-22: 2017 “Composition and content of the zoning plan”, zoning is a city planning documentation of the local level that is developed to determine the conditions and restrictions of the use of the territory of settlements for urban planning needs within the determined zones.[1] Zoning of a certain territory is developed in accordance with the decisions of the Master plan of the settlement. Zoning determines the conditions and restrictions of use of the city territory, provides justification of the boundaries of the territorial zones, establishes town planning regulations, determines the types of prevailing and concurrent use of the land plots, boundary parameters of permitted construction in these zones. That is, zoning is limited to creating a single map of the zones by approving a list of types of permitted development for each of them. An important component of zoning is the scheme of planning restrictions designed in accordance with the requirements of nature conservation, land, urban and other legislation.[2]

Zoning of the territory is created with the purpose of: regulation of planning and development of territories taking into account state, public and private interests, rational use of the territory of the settlement, ensuring free access of citizens to the information regarding the development of the settlement, mutual harmonization of state, community and investors' interests, ensuring compatibility of development of separate land areas with the surrounding development and land use, facilitating the implementation of long-term development tasks of the city or a settlement taking into account the urban features, objects of historical and cultural heritage and ecological state, development of engineering and transport infrastructure of the settlement, improvement of the network of socio-cultural as well as trade and public services of the population, preservation of the objects of cultural heritage and objects of the nature reserve fund. Decisions regarding zoning of the territory are made taking into account the current legislation of Ukraine in the field of urban development and requirements of the state building codes, such as the Land Code of Ukraine, the Water Code of Ukraine, the Law of Ukraine "On Regulation of Urban Planning", the Law of Ukraine "On the Basics of Urban Planning", the Law of Ukraine "On the Improvement of Settlements", DBN B.2.2-12: 2019 "Planning and Development of Territories" [4], State Sanitary and Epidemiological Standards. Urban planning activities contrary to the established functional, construction and landscape designation of the territory are prohibited. Individuals and legal entities are responsible for violating zoning requirements in accordance with the law. [3]

Using all these rules and options, zoning affects the city's shape and design, but it can't really influence what the city will look like in the future. Unfortunately, the Land Code contains only one article, namely Article 180, which deals with land zoning. According to this article, land zoning should be carried out within the settlements. Therefore, the main task of land zoning is to determine the requirements for permissible types of development and other use of land within separate zones in accordance with local building rules. In Ukraine, the planning of the territories of settlements for their use is based on the principle of purpose for each land plot. This means that when a land or property is leased, its intended purpose is set, that is, a permit for certain use of the land, so it is very difficult for developers or land owners to consider some specific situations that are not suitable for regular zoning.

The development and approval of the building codes and zoning plans for settlements have their disadvantages, such as:

- according to Article 30 – 2 of the Law of Ukraine "On Planning and Development of Territories" the drafts development codes should be discussed by the local community, but there are no rules regarding the procedure for approval of these local development rules [5];
- town planning legislation does not specify the entity that has the right to develop draft of local development codes, in particular, it does not specify the

requirements imposed on the entity and whether it is necessary to obtain a license to perform such works[6];

- draft development codes do not require a sanitary and environmental expertise, although this would make the development more expedient;
- no regulatory and methodological support for designing zoning plans and schemes for land use restrictions has been developed in accordance with the local rules for territorial development;
- some areas of the city may not be assigned to a specific area, for example, public lands that is not covered by the law.

Space-spatial coding is primarily focused on mixed land use development and has a balance between uniformity and flexibility of the types for this land using. For more flexible application to urban development projects, Form-Based Code can create more mixed use by setting a few simple rules, leaving everything else for adaptation, innovation and cultural difference within the coding of a particular area. However, the Form-Based Code draws attention to the design of the public sphere and the characteristics of individual buildings, public spaces and streets. With the help of diagrams and tables, which are developed in the coding system of the city, a more detailed use of urban planning processes in the city is proposed and encourages residents to express their views on the development of the city or a particular area. In fact, the purpose of spatial coding is not to control or regulate buildings, streets, and land use, but to offer unique ways to create urban space at each planning site by proposing schematic standards that govern buildings, streets, and the area as a whole. By setting the Form-Based Code on the territory, it is possible to maintain detailed urban planning standards for the settlement, such as construction, urban planning, architectural standards or street design standards, while satisfying the requirement for spatial planning. The components of the Spatial Codes (Form-Based Code) can be: a regulatory master plan of the city or a detailed plan of a particular area, norms and standards of urban space in a particular locality. In addition, coding developers can add components such as architectural standards, landscaping standards, if necessary. Each component has its own elements with typical descriptions and rules. Each element provides the desired levels of descriptions and rules. Urban space standards have two elements – the highway and public space. In order to make this space more passable and accessible, street types are designed based on the use of buildings or a specific area. Public spaces are defined based on area, location, size, generality and types of urban space.[7]

Generally, the development and implementation of three-dimensional coding ("Form-Based Code") will allow a more detailed development of the settlement in accordance with the functional purpose, to include community opinion into the development of these areas. In contrast to the zoning of urban areas, coding can allow the development of the mixed land use as well as the balance of using the urban land.

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COMPOSITIONAL ROLE OF «THRESHOLD SPACES» IN ARCHITECTURAL COMPOSITION

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Compositional problems in architecture are becoming increasingly important due to the complexity of the structure of modern cities' life activities. Today, an architect has to solve technical, economic, social and other problems without which it is impossible to achieve the main goal of architecture – the organization of space for full human life activities. In this sense, the compositional role of movement is quite relevant, which allows to perceive the work of architecture from different positions and angles, to evaluate it as a whole taking into consideration the previous and subsequent fragments of the city, to understand its composition in space and time.

Thus, the relevance of the research topic is proved by considering the ratio of the spatial and compositional organization of the city (ensemble) and the function of movement. Transport and pedestrian traffic is an important city-forming factor. It affects the formation of the compositional structure; the interaction of the ensembles, the perception of which is closely connected with the process of movement; a certain sequence and growth of impressions, the possibility of viewing holistic panoramas, with a sense of unity of different levels of the urban structure.

In modern world, urban environment is becoming more complicated, more and more detached from man, more and more in conflict with his/her genetic code. The loss of humanness has led to the loss of environmental values,