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GIS USING BY EDUCATIONAL MANAGEMENT

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ABSTRACT: *The present paper tries to be an example of interdisciplinary research that combines the Informatics Geographical Systems with the educational field in the attempt to provide to the people involved in this domain a new modern and realiable way of development through a modern approach.*

Keywords: *GIS; Education; Geodatabase; Attribute Domain; Feature Dataset;*

Introduction

The benefits brought into education in everyday life are numberless, that is why the investements and inovations in the educational system should represent a priority especially because the education depends on a great variety of resources. Also, space is one of the key dimenssion of our life, this representing a resource and an important constraint for everybody. Space can have a substantial impact on education. Nowadays, informatics has taken over almost all domains and it is believed that everyone is aware ton the importance of this process. For sure, technology can be "friendly" for a subject like education that often avoids the use of technology in finding solutions.The tendency on the world level is to introduce the Informatics Geographical Systems in the school curriculum and to use it on a large scale of domains.

The level of spacial data achievement - case study, Ion Agârbiceanu school of Alba Iulia

In order to be able to make the project there were four points determined on the field, with the help of a SATNAV technology, which will serve as a starting point and arrival for the traversal that will be done with the purpose of topographical details from the field. The determination of the points was made through real time kinematic measurements (RTK real time Kinematic).

The real time kinematic method RTK uses a radio connection to send data from the satellite, from the base to the mobile. This makes possible the calculation of the coordinates and their read-out in real time, during the measurements.

To determine the measurements made on the field, the traverse coordination points-4 known points from the coordinates: B101, B102, B106, B107 (fig. 1).

After the field stage where the topographical measurements are done, the office stage comes where the obtained data will be processed analytically and graphically.

The conceptual organization of the geo-spacial data

A data base with a relational structure must assure:

- data abstractisation (the data base is a model of the reality);
- the integration of the data (the data base is an assembly of interconnected data collection with controlled redundancy);
- the share datebase (data can be accessed by multiple users, eventually in the same time);

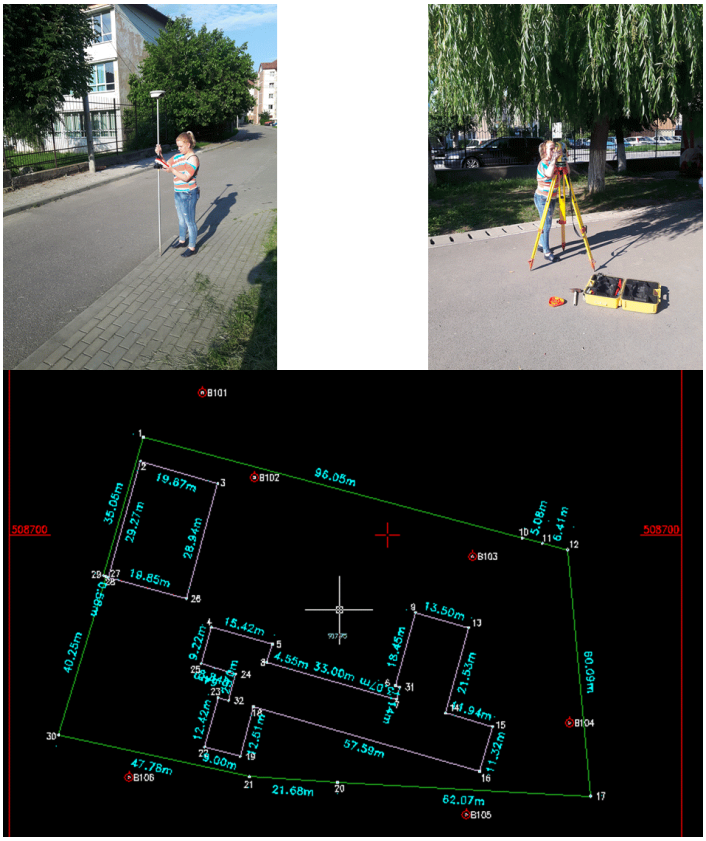

Fig.1 Topograhic measurements made to obtain the cartographic material

- the independence of data (the organization of the data must be transparent for the users, the modification in the database should not affect the application programs).

The layout of the database implies the determination of the study area, of the system of coordinates used, of the necessary levels of the study, of elements included in every level, of the necessary attributes for the description of every type of element, of the codification code and the organization of the attributes.

The physical layout, the integration and the population of the database

In the beginning a new directory is created where the database is introduced on the Geodatabase format, then the levels are to be generated and grouped under a form of feature class, residing in a feature dataset that has repercussions directly on the spatial relations between the same or different feature class (fig. 2).

Fig. 2. Types of files stocked in a Geodatabase

In the same time with the definition of the Feature Dataset a great importance must be given to the registration of the coordinations. The coordination system is a specifical setting of defining the locations on the field. A local coordinates system is defined in the system of projection Stereo 70 on the Krassovski ellipse on the entire set of data and the vertical datum (fig. 3).

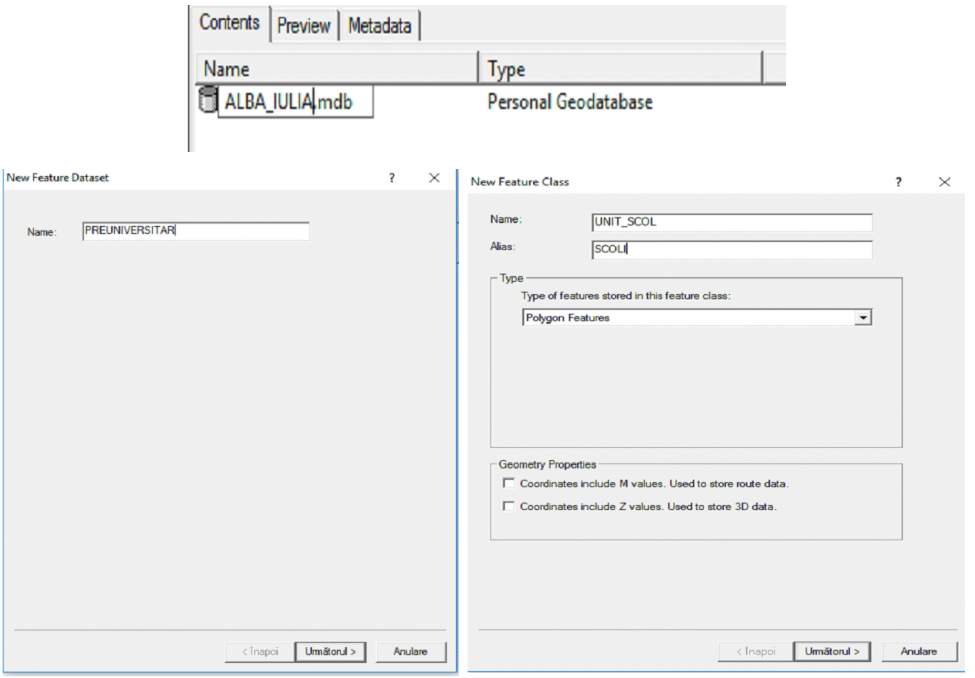

Fig. 3 Geodatabase configuration

The used projection in the production of the topographic plan layout will influence the representation of the distances, forms and surfaces. It will also provide information about the special localization and the represented elements. At the end, all the created themes take new valencies in the way of "decomposion" in value or textual fields, in fact the smallest entities of a database.

Every class of objects from the database is a collection of geographical characteristics with the same type of geometry (point, line or polygone), the same attributes and the same special reference. The characteristic classes can be extended as it is necessary in what concerns the enforcement of the data integrity in the GDB. Only one domain can be used for a number of characteristic classes from the database

The domains are essential to assure the fact that the introduction of the data is exact and according to the established standards. These impose the integrity of the data by restricting the values of the data that a user can add for a certain domain.

In the window Domain Properties at the Field Type it can be chosen from the list short integer, long integer, float, double, text or data according to the field characteristics. Range specifies a valid interval of values for a number attribute, for example in the case of the domain STUDENTS an interval of minimum 100 or maximum 1200 students on school is chosen and Coded Values-specify a valid set of values for an attribute.. these codes allow us to chose the values of the attributes from a drop-down menu, as an

alternative to the manual introduction of the text. Because the touch of the virtual keyboard of the mobile device with full precision is difficult, in a certain way, it is useful the use of those coded values to introduce correctly the data any time possible (fig. 4, 5).

be "enriched" and updated any time it is needed.

An illustration of the obtained results took shape through theme plans, analysis, graphics, reports, all these filling a cartographic panel, which is complex and complete because it was done on the integrated data base (fig. 6).

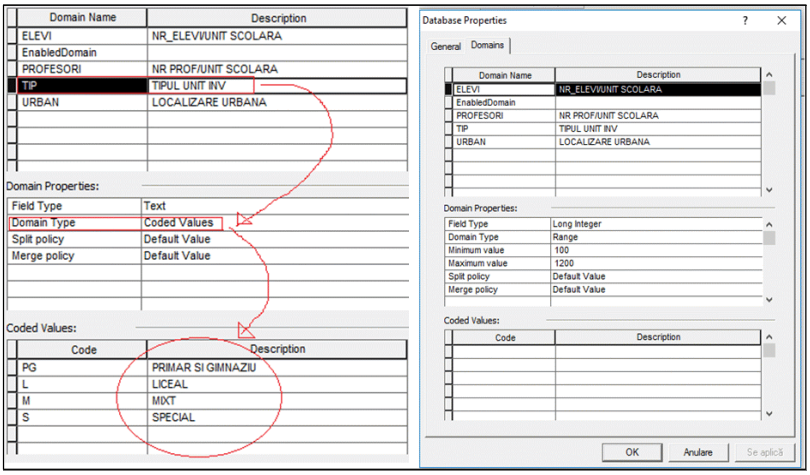

Fig. 4 Attribute Domain - Coded Values and Range

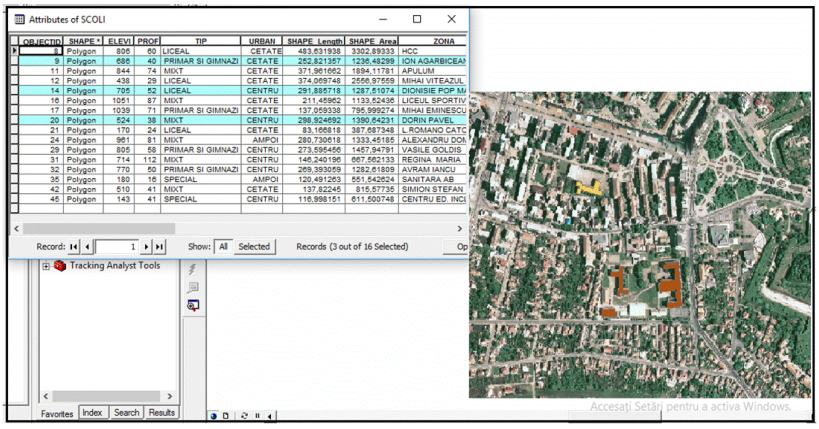

Fig. 5. Spatial and attribute data for Schools Layer

Results and discussions

As a result of the performed intercessions a series of aspects with concise character were underlined, in order to reflect the situation of the educational system from Alba Iulia, at a certain moment in time. Of course our actions were conditioned by the limited quantity of data, so the database can

Conclusions

As a general conclusion we can say that the informatics technology becomes a key element in time efficiency and offered services. The existence and implementation of a GIS will be indispensable and compulsory no matter where it will be

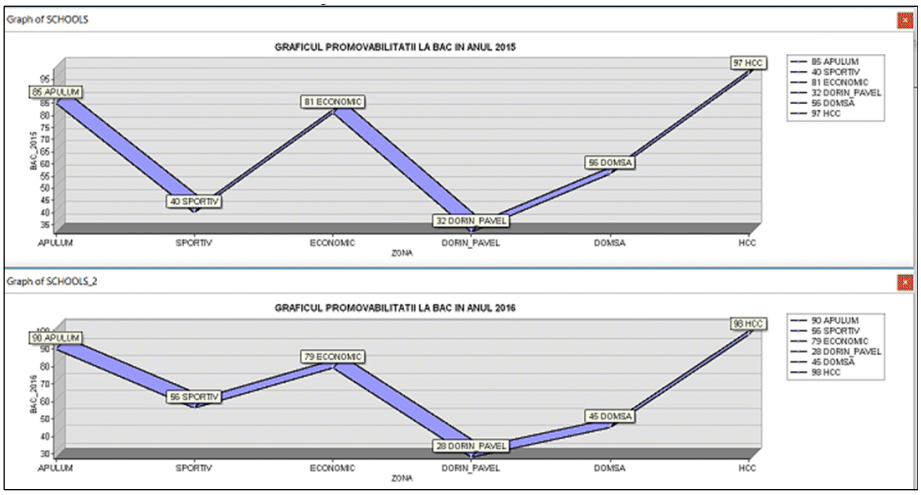

Fig. 6. Graphics for Baccalaureate

implemented: in an institution, a company or an organization (no matter the domain), due to the applicability to all levels (economic, social, political, financial, educational, etc). The GIS technology proves its utility in any domain that bases on using the special information. Through this project we underlined the utility of creating a database of geospacial data in the educational field in Romania. As an example we chose to represent, in general, the utility of such an applied structure to the level of the educational system of Alba Iulia town.

The project that makes the object of the current paper should be developed on the base of an octagonal system: on a horizontal axe the quantity side must be detected, starting from the institution, place, county, region, country and the vertical axe or qualitative, the projection, introduction, analysis and visualization of the information should be done progressively: monouser, multiuser, enterprise.

This way the attention can be concentrated on a school and the surrounding area, on a region from the country or even at the national level.

Being in the era of communication where the access to information can be easily done, and rapidly by the help of the internet, it is wishful that these databases made in a structural way, should be accessible to the interested public, this way the information can be done in a rapid and efficient way.

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