

Stage 3 - Project 9SOL

Realization of the integrated architecture of the innovative 9SOL system

REALIZATION OF INTEGRATED SOFTWARE ARCHITECTURE

The command, control and information system represents all the equipment, facilities, procedures, software components and personnel involved in the command and control processes as well as the one intended for operating the equipment. All of the aforementioned relationships form by definition the C2 system that allows decision makers to plan, direct and lead the actions established by law.

It follows from the above that C2 systems provide only the control and control processes, while the C4 systems have a wider character and, of course, other additional functions. In a practical sense, C2 systems are included under the definition of C4 systems, but not all C4 systems can be thought of exactly as C2 systems. Funcțiunile sistemului de comanda-control 9SOL.

In order to exercise the command and control, in accordance with the objectives set within the project, a command and control system (C2) will be created, which will have the following characteristics / functionalities:

- a) the control unit - the digital table;
- b) the integrity of the command and control structure - specialized servers;
- c) command chain clarity - software solutions for generating and analyzing scenarios;
- d) continuity of command and control - the communications server;
- e) order responsibility and freedom of action - information obtained in real time with the help of sensors.

The collection of the necessary information for command and control must be carried out in real time and provide the full volume of data needed (audio, video, images, biomedical signals) for the decision-making processes of the beneficiary institutions.

In essence, the information flow in the database is summarized in Figure 1.

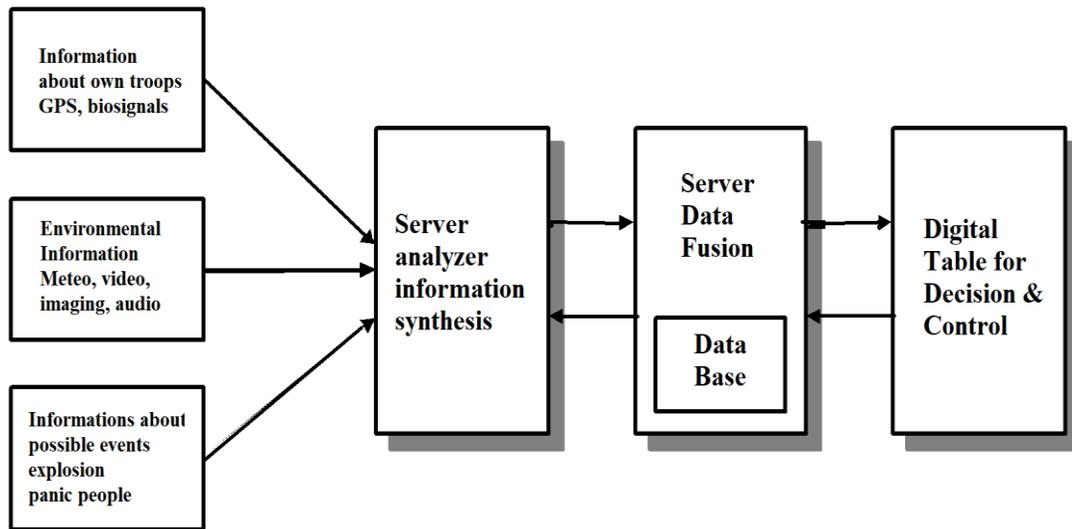


Figure 1. The architecture of the innovative 9SOL system.

The specific software applications developed in step 2 are components of the physical domain of the 9SOL command and control system, intended for the IT subsystem. These include: common services, user applications, database applications, graphics-oriented applications, computer-oriented applications.

The common services (level 3 of the reference model) define a set of common facilities that are needed for one or more applications of the users on the upper levels of the integrated system.

The level of joint services provides the following facilities:

- reduce the effort to execute the applications by the user;
- ensures the interoperability of the applications by using standard solutions common, corresponding to the requirements of the users' applications;
- offers standard interfaces between computing (servers) and communications equipment, as well as between software applications.

The common services cover:

- network services;
- data exchange;
- data management;
- graphics services.

Network and data exchange services will be provided in accordance with the Open Systems Interconnection Model (OSI). Typical applications of data exchange applications refer to: file transfer, message transfer, remote application execution, conversation between digital control desk displays, distributed file system, data security.

The data management service will ensure data access and security. For access to the data stored in the relational database, the protocols used are based on the commands of the data definition language and the data manipulation language (Data Manipulation Language), which allow the data to be entered into the database management system. relational data and making it available to applications. A specific protocol is also used to access the data stored in the file system. The remote organized databases (at different command points) will be accessible through appropriate protocols.

The resilience of 9SQL system databases is based on a distributed database system, in which part of the databases of the different command centers are replicated.

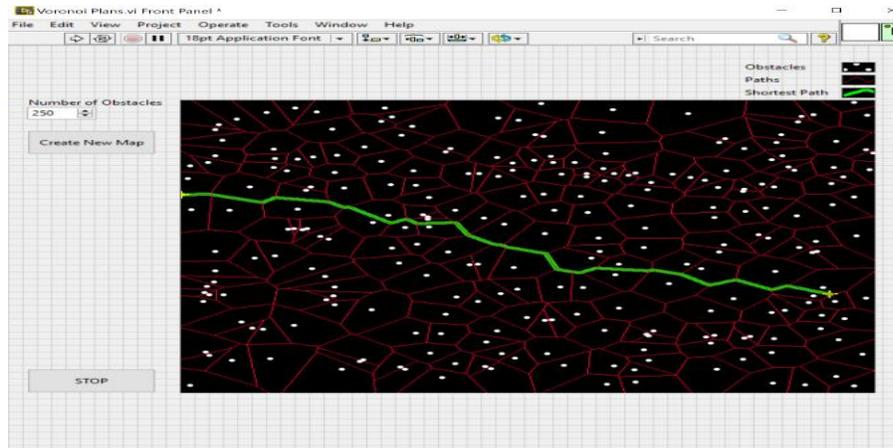
The recordings and content of the replicated data segments depend on the operational requirements regarding functionality, viability, safety and performance.

By integrating all the local databases of the operational units, virtually a global database is obtained for all subordinate tactical units, capable of providing the information necessary for the command and control of military actions.

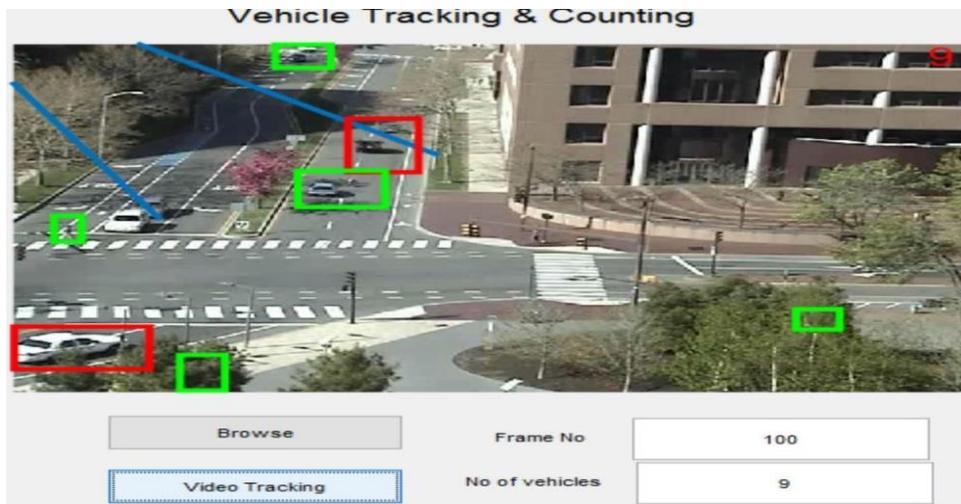
Data exchange services transfer information representing objects such as: orders, reports, graphical objects, digital geographic map, video images, biomedical signals, etc.

In the innovative 9SQL system, the following services are foreseen for the exchange of data:

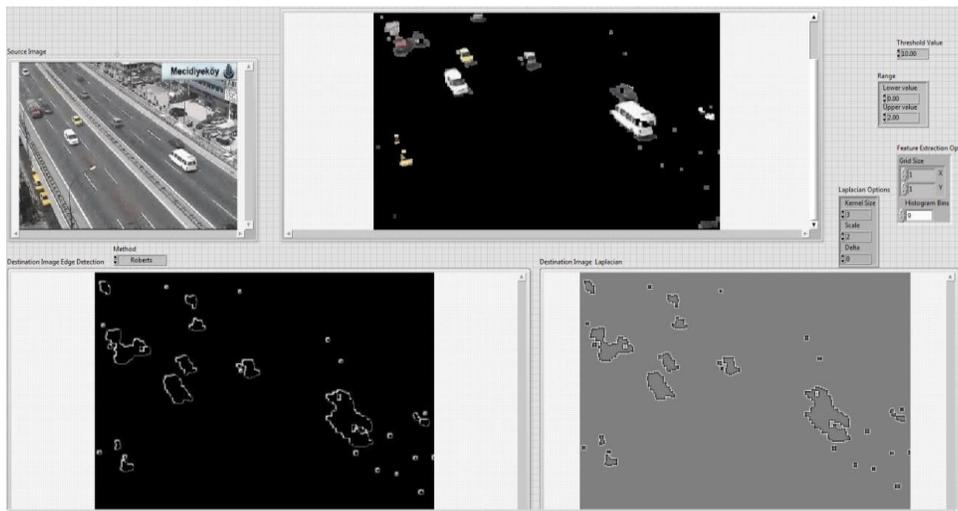
- exchange of documents;
- the exchange of graphic and geographical data;



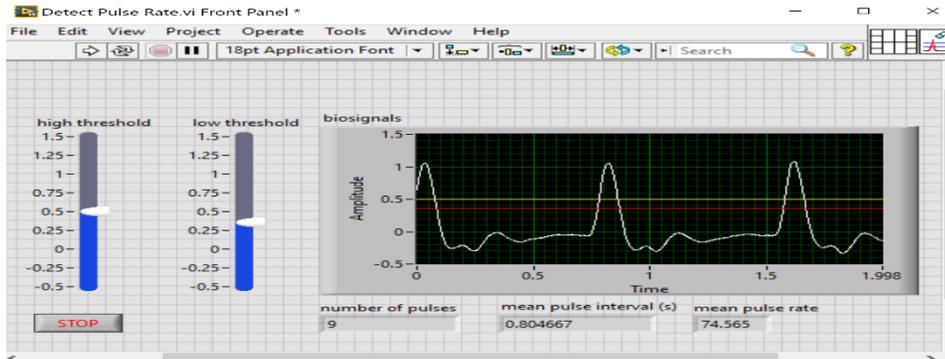
- compressing data and images;



- video and audio data exchange;
- Multimedia Data Fusion;



➤ biomedical signals;



➤ evaluation of prediction by standards.

