

## Customer

LLC "Rovalentspetservis" supplies objects of any complexity degree with modern security systems. It offers a full spectrum of own-made equipment - from sensors and simple home alarm systems to powerful security complexes for large enterprises.

## Objective

The task is to develop, produce and test experimental model of access controller intended to control staff's access to the enterprise and operate the turnstile, electromechanical and electromagnetic door locks.

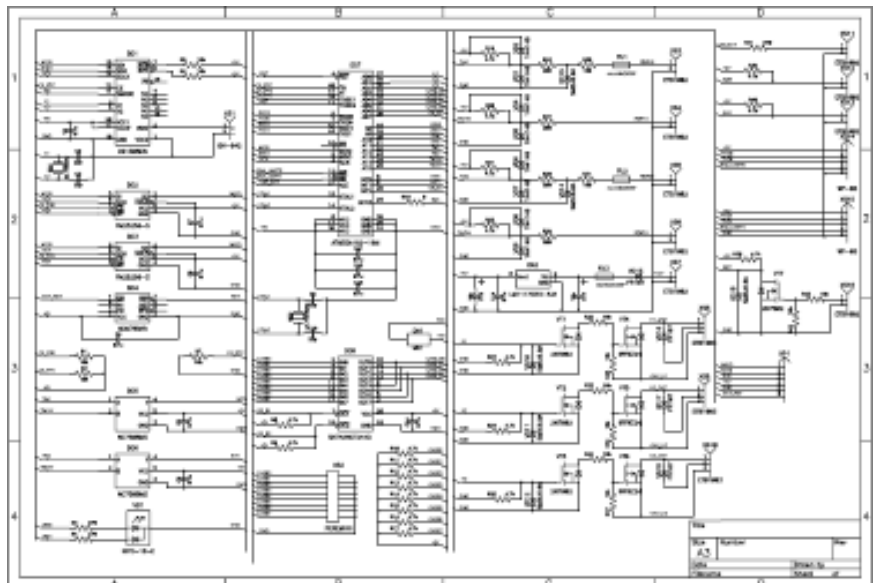
The access controller is designed to:

- Manage turnstile or electric lock status;
- Control passage direction;
- Connect to different types of readers;
- Keep key codes;
- Record event log;
- Exchange information with other controllers from enterprise network;
- Exchange information with computer.



## Solution

We offered a concept to organize the network with access controllers capable of exchanging information between them. Our team developed protocols and suggested RS485 interface as most appropriate for our solution (high reliability with fewer man-hours during implementation).



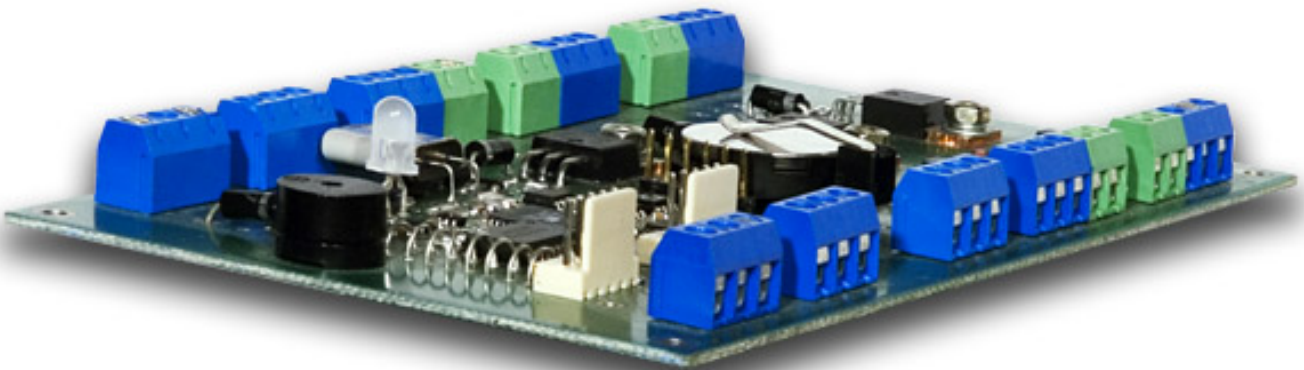


The team developed principal electric scheme, circuit board and software for Atmega162 microcontroller. The device uses FRAM-based memory with unlimited number of re-write cycles to store the event log. The following features were realized in the device:

- Power outputs and power circuits are secured from repolarization, short circuit and voltage swing;
- Possibility of in-circuit programming and software upgrading;
- Protocol to transmit event log to computer;
- Built-in software for two devices on the basis of one hardware-based platform with different prime cost.

### Benefits and features

- Usage of FRAM-based memory;
- Connection of different operating devices (turnstile, electric lock);
- Network with various number of access controls (from small companies to large enterprises);
- Low prime cost of end product.



Technologies	FRAM, RTC, RS485, 1-Wire, IButton, Wiegand
Tools and interfaces	AVR Studio, PCAD, AutoCad
Programming languages	C, ASM
Project management tools	MS Project, CVS
Efforts	60 man-days
Duration	2 months