**Multifunctional Wireless Access Control System – mWAC**

Project ID: PoC5\_12\_2

Lead beneficiary: Faculty of Electrical Engineering Osijek

Project leader: Dr. Drago Žagar, Full Professor

Total project budget: 201,611.37 kn

Approved budget: 113,934.76 kn

Project duration: 1st January 2014 – 31st December 2014

Recognised centre: Business Incubator BIOS, Osijek

An Electronic Access Control System is a selective restriction of access to a place or other resources and has been used for a long time. The concept itself is composed of an access control mechanism to allow or deny access to places and resources with electronic identity authentication. The electronic identity is mainly enforced by using magnetic and radio cards or specialized devices. Tracking objects and people through the spatio-temporal domain as well as one card per object provides personalized identity allowing simplicity of use.

The proposed project encompasses Wireless Sensor Network (WSN) implementation in conjunction with embedded computer systems. The goal is to implement a hybrid solution that would be fault tolerant, price competitive, data distributed and free of large infrastructure, complex setup and usage. Low priced access points (a wireless reader and an electromagnetic lock) will provide a more effective solution than the existing systems. The aim of the project is to prove technical implementation of a large number of access points in ACS using WSN which is not suited for real-time communication. Furthermore, a reliability validation of the system speed of communication is an important factor that will be tested throughout the project.

Main project activities include: simulation of the proposed system solution and implementation of the functional prototype installed and used at the Faculty of Electrical Engineering in Osijek financed by PoC (30 access points). Testing the system reliability from access points to coordinator devices will be conducted using WSN which will lead to enhanced modeling of real-time communication. The main administration Web application will be developed as a standard cloud-based solution using shared services and infrastructure. The desired goals will be reached by PoC financial support for communication systems, using resources of the Faculty of Electrical Engineering, project associates and a newly employed engineer. The final project result is an enhanced system model by means of which efficiency and commercialization solutions will be determined.