**Application of Chaos Theory in Encryption – CryptoChaos**

Project ID: PoC4\_12\_15-U-1

Lead beneficiary: Faculty of Electrical Engineering Osijek

Project leader: Dr. Kruno Miličević, Associate Professor

Total project budget: 362,248.50 kn

Approved budget: 301,073.50 kn

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Recognized centre: Business Incubator BIOS, Osijek

In recent years, research in the field of controlled chaos is very active and new ideas about the possible application of chaos in cryptosystems have arisen. The proof of innovative concept performed through the following activities determined to which extent this kind of encryption satisfies the market needs:

1. Market potential study

2. Analysis of the properties of different chaotic systems

3. Purchase and installation of laboratory equipment

4. Development and testing of various prototypes

5. Evaluation of the results with respect to the specified requirements

6. Developing a commercialization plan

The project has resulted in an encryption device based on chaos theory. The device is realized in the form of software and hardware encryption systems in order to exploit advantages inherent to chaos. In the software encryption system the chaotic signal is generated using a computer algorithm, while in the hardware encryption system the chaotic system is generated using electronic/electric circuits. Built systems have been analyzed in detail and evaluated with regard to market requirements. Furthermore, directions for future development and commercialization have been defined, e.g. upgrade of the system for the implementation in the existing TCP/IP network, contacting firms with a view to cooperating in commercialization, etc.