**Capacitive Passive Identification System – CapsID**

Project ID: PoC5\_12\_1

Lead beneficiary: Faculty of Electrical Engineering Osijek

Project leader: Dr. Davor Vinko, Assistant Professor

Total project budget: 351,195.20 kn

Approved budget: 294,161.37 kn

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Recognised centre: Business Incubator BIOS, Osijek

The capacitive passive identification system (capsID) is an electronic system for monitoring and security identification of products, movable and immovable objects and living beings. The proposed system is based on the concept used by the existing identification systems and it consists of two separate devices: a tag and a tag reader. The tag can be active or passive. Active tags have their own power supply (usually a battery), while passive tags have no on-board power supply, but instead are wirelessly powered by the reader device.

A key technical feature of the proposed system is capacitive wireless energy transfer from the reader device to the passive tag. Capacitive powering enables integration of the passive tag within an object, inside of a product, and implantation in living beings. In addition, the major advantage of capacitive powering is the ability to operate within an electrically conductive object. Such feature is not available in inductively powered ID systems which are dominant nowadays.

The expected final project result is a functional system prototype which consists of an active reader and a passive tag which uses capacitive energy transfer from the reader to the passive tag, and enables data transmission from the passive tag to the reader, with an emphasis on the ability to work inside an electrically conductive object.