**OPEN INNOVATION LAB - UDJG**

**Annex 4 – Challenge no. 26**

**Bee Hive Monitoring System using fog computing**

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| 1. **Name of the challenge:**  * Bee Hive Monitoring System using fog computing |
| 1. **Context:**  * In the modern world bees are struggling to survive. Pollution, pesticides and all kind of chemical products kill bees. The increasing number of radio electric devices broadcasting radio frequency interfere with bees’ ability to orient and return home. In this tough environment bee farmers need to be able to check more frequently the health status of the bee hives and take decision fast with no additional costs. |
| 1. **Problem:** 2. We need to add to an existing bee hive hardware monitoring system:    * Sound processing capabilities using machine learning algorithms.    * Bee counting capabilities 3. We need to develop a web software application that will be able to process data received from bee hives and display it in a graphical form. |
| 1. **Additional info:**  * At the end of the project we will want to have a prototype device equipped with various sensors able to record, process and send to the cloud temperature, humidity, atmospheric pressure and sound. The web based software application will be able to process data and display it, helping farmers to manage bee hives in an efficient manner, take decision fast and avoiding to travel to the field to locally check it. * A fully functional bee hive monitoring hardware is available to work with. * There are no limitations in using a specific microprocessor type or software language or machine learning algorithm. * Only the public resources (Internet) are available at the beginning of the project; Specific issues met by the team during development can be addressed together with the company experts in every field (hardware, software, psychology |
| 1. **Skills of the team:**  * Software - microcontrollers programming * Software - analyses collected data and correlate data using machine learning * Software – web programming (front end and back end) |
| 1. **About the Seeker:**   *Description of company/institution:* **SOFTEHNICA**   * Our company covers a wide range of activities pertaining to the IT sector, from specialized consulting services, software development and analysis, network installation and configuration, to IT system integration and turnkey software solutions. * Our main area of expertise is software development, and being our history of creating and continuously developing our own products on various markets, industries and client profiles, we have a strong experience in addressing quick a wide range of needs, we can take over challenges from various industries, always extending our area of competence.   *Vision: where do you see the company/institution in 5 years?*   * All our experience and organizational culture are strongly oriented towards finding solutions, continuously learning and conquering the so called impossible projects. Our main competencies above all the technology experience are adaptability, agility and intelligence. * We go way beyond our current resources, products or solutions because we have the capacity to integrate them with new ones, to develop and develop the existing ones. In 5 years, our company would have developed or started several research and development projects. Human Resources, with its challenges and massive transformation, remains an important theme in our pursuit and with the help of technology, psychology, VR, AI concepts and tools we will be able to make a big difference in unveiling this rich field   *Description of the specific unit/department/function that opens the challenge and how the challenge will be integrated in the company vision:*     * Since our beginnings we have been focused on the added value, on the impact we can bring in the community or on the needs we can respond to, beyond everyday business. We have a Research Business Unit oriented towards using cutting-edge technology (VR, AI) to investigate and solve the challenges and changes our society faces. |