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| 1. **Name of the challenge** *(short, powerful and inspiring description):*   **Electric power gridbox – environment for microgrid visualisation** |
| 1. **Context*:*** *(what is the background information behind the challenge, what is the state of the art of the sectors, the role of the organization in this context, the target group to whom the solution need to be addressed, etc.)*   Currently there take place changes in architecture of electric prower networks. The networks are extended for new elements, such as photovoltaic panels, large capacity batteries, charging stations for electromobiles . These changes bring about demand for new tools for efficient modelling and simulation of lectric power distribution. The goal is to design and implement a software tool for visualisation and modelling of intelligent electric power network. It shall help in design and optimisation of new networks and optimisation of the existing ones. An example: Packet Tracer developed by the CISCO and used for design and simulation of computer networks. |
| 1. **Problem:** (*What i*s *the problem that needs to be solved, why is important to solve, impact of this problem in the close future, impact of the problem on local or international area)*   Currently there are only a few tools for visualisation and modelling of power networks, which is a chance of creating own original solution. The goal is to develop a tool for visualisation of intelligent electric power network and its components (power stations, households, photovoltaic panels, large capacity batteries, charging stations for electromobiles, etc.). It has to be easy to handle for users without any knowledge of programming language. Modelling of changes in the power network architecture and monitoring their consequences before its implementation may save extensive resources. The tool will enable simple development of 2D/3D models of power network including the preprepared components (power stations, households, photovoltaic panels, large capacity batteries, charging stations for electromobiles, etc.). The suggested modelling framework will be Unity.   1. **Additional info (for internal use):**  *(what is expected to be delivered by the team (idea/concept/prototype), what are the specific tools & instruments that shall be used (eg. Programing language etc), what are the asset (as knowledge, materials) will be given to the team*   Real life challenge, chance to deepen the knowledge of energy generation and distribution sectors. The tool will be used in these sectors.   1. **Skills of the team (for internal use):** *what specific skills shall the team have in order to address the challenge*   Obligatory technologies: C#, javascript. Recommended technology: Unity. Useful knowledge areas: Design and development of computer games, Architecture of information systems, Object-oriented analysis and software design. |
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| 1. **About the Seeker:**   **Sféra, a.s.** has history of 27 years in the Slovak, Czech, Hungarian and Austrian markets . It has been providing IT products and services with special focus on the power generation and distribution sectors. Mentor: Ing. Peter Chochol, PhD. |