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| 1. **Name of the challenge** *(short, powerful and inspiring description):*   **3D space generator** |
| 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.)*     Project is an interesting intersection of AI a Virtual Reality technologies with a certain research aspect due to the innovative interlinkage of these technologies. Current modern types of neuron networks enable to create artificial outputs that are similar to real objects or hard to distinguish from them. Generative Adversarial Networks (GAN) were successfully applied in image generation (DCGAN), voice generation (SpecGAN) or in 3D objects (3dGAN). They also enable transformation of text representation of input into target output, e.g. image description into a required image. |
| 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)*   To design and implement software product enabling generation of virtual 3D space by means of voice instructions. In the work on this project will be utilized existing solutions for processing of natural language, e.g. Google Cloud Speech API, Microsoft Speech Recognition API, tools for creation of architectures and trainings of neuron networks, e.g. Tensorflow, Microsoft Cognitive Toolkit and VR devices e.g. Microsoft HoloLens, HTC Vive.   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*   In the future the solution might be expanded for generation of various types of 3D spaces and objects. Then it could be used for functional generation of artificial 3D space in case no real 3D models are available. |
| 1. **Skills of the team (for internal use):** *what specific skills shall the team have in order to address the challenge*   Python, Tensorflow, Keras, C#, Unity, Cloud Speech Recognition (Google, Microsoft a pod.),. Useful knowledge areas: Neuron networks, Information retrieval, Image processing, Graphics and multimediá, Advanced methods of computer graphics. |
| **5. About the Seeker:**  **Accenture, s.r.o.** is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. It actively researches the possibilities of utilizing voice recognition and virtual assistant and seeks experimental concepts for solving of real world scenarios. Mentor: Ing. Vladimír Hlaváček. |