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Visualizing Point Clouds in Virtual Reality

As the field of virtual reality (VR) continues to grow and expand, there is an ever-increasing need for VR applications and programs. This project is sponsored by Blackmore Sensor and Analytics under the Software Factory program. The main objective is to take LIDAR-created point clouds and shift them into a VR environment. Once these points are in a VR setting, a user can then navigate the space and view the point cloud from any angle, height, and/or distance, thus allowing technicians to observe potential latent sampling errors or to simply grant users a videogame experience in VR environments. In order to achieve this goal, the point cloud must first be loaded into Unity, a game engine that provides application development for VR devices. Once the points are in a Scene, a user is granted the ability to navigate the VR space by way of a physics capsule, a movement system, a simple menu, and a cross-hair component. In the future, we plan on computing meshes for these VR environments, therefore granting the user a simulated physical world with realistic collision detection.

Acknowledgements: Tyler Wright (MSU Undergrad Student) - Computer Science