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| **Project title** | real-time point cloud construction and information system | | | | | | | | |
| **One-sentence summary** | This project is about implementing a point-cloud data from ROS to VR in Unity. | | | | | | | | |
| **Related research project** | *Firebot, Telepresence* | | | | | | | | |
| **Type of assignment** | *SSS, Minor* | | | | | | | | |
| **Project executive summary** | *The Dutch fire service does many tasks besides the obvious tasks like extinguishing fires, such as providing fire safety information, rescuing people and animals, assisting in accidents with hazardous substances or trapped people and disaster management. From all these tasks, however, one of the most risk prone is that of fires and accidents in difficult to reach places or large buildings. One of the biggest problems in most of these situations is the lack of the current information about the situation. This lack of information makes it a lot more difficult for the firemen and especially their commanders to make proper, well thought-out, on the spot decisions. But in today's day and age there surely must be some sort of machine that can help the firemen in these difficult situations.*  *That is why the research group Ambient Intelligence, together with the firemen, have been working on a solution to this problem. What they have come up with is a robot that will be able to enter these dangerous and difficult to reach places without having to risk the safety of a fireman. This robot will be armed with cameras that will send their data back to the firemen so they will have real-time visual information. Thanks to this information they can then make more appropriate choices in order to combat the fire.*  *The part we will play in this whole project is making sure the firemen will be able to actually see and use the information provided by the robot. To achieve this task we will create a connection between the robot’s cameras and a VR headset that the firemen will use to see a visualisation of the data gathered by the robot. This means we are responsible for establishing a connection between the source of the robot’s data and the VR headset. The data will be used to create a point cloud. A point cloud is a set of data points in space. This will give the firemen a clear indication of the environment around the robot and still be able to distinguish features of a building when it is on fire and normal visibility would be compromised.* | | | | | | | | |
| **Keywords** | ROS, Unity, VR | | | | | | | | |
| **Visual explanation** |  | | | | | | | | |
| **Duration** | ***Start*** | *2020-02-10* | ***End*** | *2020-07-10* | | ***# Months*** | | 5 | |
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