

sdmay20-47: Real Time Volumetric Analysis

Week 4 Report

October 20 - October 27

Team Members

Kenneth — *Team Lead*

Alain — *Chief hardware developer*

Dan — *Chief Software Developer*

Luke — *Chief Interface Developer*

Max — *Chief Backend Developer*

Summary of Progress this Report

Over the last few weeks we have been discussing our project and the simulator that we are going to be doing our testing on. As of recently, our ROS environment Gazebo has been difficult to navigate and find a clear direction in which to go when looking for things such as internal simulated sensor data or camera feed to train the drone on. For this reason, we have been experimenting with Microsoft's Open Source AirSim as a possible replacement to our simulator. The Environment is close to being set up and with a company such as Microsoft to support us when we have specific simulation questions, we believe that it will be a smoother move towards the future.

Pending Issues

The discussion on AirSim vs Gazebo is still on the table. Although AirSim seems like a potential 'solves all', we need to keep consideration of the work we have already invested in the Gazebo environment. Until we start receiving the direct feed from our simulated environment, the machine learning is going to move a bit slower than hoped for.

Plans for Upcoming Reporting Period

Our plans moving forward are to experiment with this new environment and see if it is a potential replacement to the less documented Gazebo environment. If it is, the next goal will be to use as much as we can from the previous environment's learning experience to better our knowledge in this new environment. We plan to get the controls working with the simulated drone as well as the direct internal simulated camera feed sent to a program to start our machine learning process.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Kenneth	Communication with the client, setting up and holding meetings, setting up the new simulation environment and looking deeper into whether the new simulation system is a better fit	8	
Alain	Understanding hardware, working with one of the grad. students to figure out existing	8	

	hardware. Additionally is in charge of setting up and calibrating the hardware in preparations to install software for machine learning		
Dan	Attending meetings with the Client, setting up and holding meetings, setting up the new simulation environment and looking deeper into whether the new simulation system is a better fit	8	
Luke	Focused on tensor-flow and machine learning to help teach the drone how to detect and make decisions based on the objects it sees.	8	
Max	Currently focusing on getting and sending the internal camera feed to a file or a live program for further processing. Additionally, focusing on the new environment and helping determine if it is better than the previous simulation environment	8	

Gitlab Activity SummaryNothing to report.
