Student	Title	Description	Objectives/Outcomes	Examiner
	Development of an Android App for surveying	Mobile devices are becoming ubiquitous. However, there are not many survey applications for such devices. The goal of this project is to develop a survey application for a mobile device.	Develop an Android application for surveying. The application will be developed and tested using the Android SDK.	G Sithole
	Ceres Solver	In May 2012 Google released a library for solving nonlinear least squares problems, called ceres-solver. The library can be used for a variety nonlinear least squares problems such as bundle adjustment and network adjustment.	Study and test how the ceres-library can be used for surveying and photogrammetric computations. Identify and document the limitations of the library.	G Sithole
	Segmentation of Airborne Scanner point clouds	For many point cloud applications it is necessary to segment a point cloud. The purpose of this project is to segment an airborne scanner point cloud.	Test and document different methods for segmenting a point cloud.	G Sithole
Majola, Langalethu	Segmentation of Terrestrial Laser Scanner point clouds	For many point cloud applications it is necessary to segment a point cloud. The purpose of this project is to segment a terrestrial scanner point cloud.	Test and document different methods for segmenting a point cloud.	G Sithole
	Streamed Segmentation of point clouds	Segmentation of point clouds over the web opens the door to new ways of processing point clouds. Because of the large size of point clouds, the processing may have to be done by streaming.	Investigate how a point cloud can be processed by streaming and develop a prototype to segment a point cloud by streaming.	G Sithole
Thankge, Cleupas	Content retrieval in vector data of cities	Vector data of urban areas provide a wealth of information. However this information is often accessed using structured queries. A content retrieval system based on natural language is a possible solution.	Explore and test ways in which content can be retrieved from vector data of urban scenes. A user should be able to search a scene based on natural language.	G Sithole
	Navigation models for indoor spaces.	Grid based or network based navigation models are often used for indoor navigation. However, these are not always ideal.	Explore and test various navigation models with the objective of designing a hybrid model that is able to accommodate as many navigation scenarios as possible.	G Sithole

	Application of the Point Cloud Library (PCL) for lidar point cloud analysis	The Point Cloud Library (or PCL http://pointclouds.org/) is a large scale, open project for 2D/3D image and point cloud processing. It is maintained by the Open Perception Foundation and supported by many companies involved in point cloud processing. The purpose of this project is to develop tools based on this library that can be used as teaching tools for point cloud processing	Use the PCL to develop software that can be used as a teaching tool for point cloud processing.	G Sithole