2015 Masters progress report

# Development of a close quarter capable aerial drone

## Stellenbosch UNIVERSITY

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This Master’s project is being completed as a part time project at the Department of Electrical and Electronic Engineering of Stellenbosch University. It is expected to be a 3 year project with set deliverables every year.

2015 was the first year of study and was spent primarily on research and familiarising myself with the knowledge critical to the design of such a platform. Due to the unique use-case of the design, it was discovered that a non-standard configuration must be used. Substantial research was done into exploring the best options for this configuration with the year ending after a final configuration decision was made. This was set as the 2015 development goal for the project laid out in the original project plan.

2016 will be spent using the knowledge obtained in 2015 to develop the selected configuration into a fully functional flying machine. Work will be completed to configure the new platform as a basic flying machine so that a skilled pilot can perform basic manoeuvres. This includes finalising all platform and hardware design decisions and configuring the flight controller to operate with this new, custom configuration.

2017 will build on those developments and fine tune the control system to work for the intended use case. This will mostly involve giving the drone the capabilities to reject disturbances introduced in a mining environment. After which the final document needs to be finalised.

In reference to these development goals the research and write up is being done in parallel. (See attached).

Based on the write up already done a research paper has been accepted and presented at a peer reviewed conference (See attached).