## Development of a close quarter Unmanned Aerial system

Angus Steele Council of Scientific and Industrial Research

Johann Treurnicht University of Stellenbosch

## Background

Unmanned aerial systems (UAS) have gained a lot of attention from researchers and developers across the world. Their ability to explore complex terrains quickly makes them ideal for an array of applications, where their land counterparts will not succeed. With recent advances in computing technologies it is no possible to have extremely agile and stable aircraft.   
  
The downside of an aerial system is their limited abilities close to navigate close to walls and other objects. This downfall restricts drones from being used inside a close quarter environment, as in a search and rescue mission through rubble, or even safety inspections inside a recently blasted mine.

## Response

The Mechatronics department of the CSIR along with the Electronics Systems Lab at The University of Stellenbosch have partnered to develop a drone that can handle the disturbances introduced by being close to a wall or floor. The aerial platform will also need to be able to withstand impacts from hitting unexpected objects and rectify itself, so it can complete its mission.   
  
To be a useful device, the platform is required to take a sensor payload and still maintain a flight time of at least 30 minutes.

## Progress

Currently, the final configuration decisions are being made for the platform. Based on many factors, 3 concepts have been decided on. Each concept will be validated and compared to the other two designs. The project is expected to end in 2017.

## Outputs

Conference Paper – ROBMECH 2015