Minutes 8/4/16

Send BOM to Maan if ordering parts through UC

Send BOM to Adrian if ordering parts through NZDF

Adrian

* Ash or no ash 1st priority
* Project requires both telemetry & ash capture
* Ash sample dry and sieved using 75micron sieve
* Look at papers on aircrafts that have been through ash
* Look at particle distribution in the sample
* Particle composition, size, shape are all variable even from same eruption
* Richard from NIWA might provide us with more info later on in the project
* Can use past UAV from NIWA
* Sample the air while traveling up and down if possible
* Consider the flow of air on the inlets of sampling space
* Check alphasense size detection over 17 microns
* Adrian will look at the class under which this project will fall under in terms of CAA regulation
  + The past project did not go to high altitudes
  + The report does not specify any detail apart from the 2kg limit

Mike

* Looked at data sets from NIWA. This was to look at the travelling distances on the weather balloon
* Looked at UAV control systems & radiosondes
  + To send data back
  + Base it off last year project
  + Ample amounts of resources for pixhawk: hardware and software
  + Cheapest option
  + Easy data manipulation so pixhawk can transfer data
  + microSD: save data as backup
  + check if system can cope with the range
* Check if radiosondes can send all the data rather than pixhawk

Jamie

* Looked at magnetometer
* Found paper used a magnetometer to test presence of ash particle in a reservoir
* Might not work if used in continuous flow
* Have magnetometers at UC so can test them free of charge
* Also looked at off the shelf OPC
* Viable option
* Looked at peer reviewed papers on OPC
* SHARP had a viable module that could be used in our project
* Expensive OPC also looked at
* Most at PM2 & PM 10
* Very cheap OPC are “exactly the way to go” – Adrain 2016
* Sent email to alphasense-a2, waiting for reply
* Need to verify the cheap sensors with known data sets or reliable sensors.
* IZON a company based in Christchurch can potentially help us with ash sample testing

Jake

* Made a OPC prototype
* Proof of concept confirmed
* Does ash or no ash at current stage
* Spectral quality of ash will be done on a later stage
* Accurate ash representation is expected
* Used white LED
* The system does not need to be enclosed
* Dust seems to settle on the lens
* The lens can be charged so that ash repels of it.

Parth

* Looked at electrostatic sensors
* No viable modules available, however the concept is simple to create
* Will require a simple MCU with ADC to detect the change in voltage
* Also looked at sample areas that will be fitted on the UAV
* Need to finalise on the exact size of the concepts.

Maan

* Recovery of UAV will be one of the biggest issues