Requirements

Weight - 250g +/-10g

Dimensions - 66mm diameter x 160mm height

Parachute -

Electronics hardmounted - last year used glue but might be better to clip in/make detachable. Clips (like RAM),

Sensors -

In packet to transmit - “packet count, mission time, pressure, temperature, altitude, battery voltage, GPS longitude, GPS latitude, soft state, Bonus” -> Read sensor values and concatenate then transmit

Packet count and mission time do not reset with processor reset. → write/read these counts to SD card

How to detect ground for audio signal trigger → pressure/gps/force change/speed constant etc or combination of all

Video → store on SD

Parachute active mechanism → no chemicals. Spring? Servo?

Accelerometer → integrate on laptop (maybe arduino?)

### Components we need

* Parachute
* Thermostat - https://uk.rs-online.com/web/p/temperature-sensors-humidity-sensors/5402805/
* Microcontroller - This looks good:<https://uk.rs-online.com/web/p/processor-microcontroller-development-kits/1697584/>
* Barometer - <https://uk.rs-online.com/web/p/pressure-sensors/7884925/>
* GPS board - <https://uk.rs-online.com/web/p/gps-chips-gps-modules/1734049/>
* 433MHz transmitter/receiver → 433MHz LoRa Arduino Breakout <https://uk.rs-online.com/web/p/radio-frequency-development-kits/1245502/> x2
* SD card - Included in suggested MCU
* HD camera - <https://uk.rs-online.com/web/p/video-modules/9132673/> (bit ott)
* Resistors - SOURCED
* LEDs - SOURCED
* Servo/active parachute mechanisms
* Accelerometer - https://uk.rs-online.com/mobile/p/accelerometer-sensors/9054665/
* Mounting/mechanism to mount -
* Casing - 3D Print
* Batteries -

Tests we want to do

Roles (what requirements are done by who)

* Electronics
  + 11, 16, 17, 18,20,B1, B3
* Software
  + 11, 12,13, 15, 16, 17, 19,20,24,25,B1, B3
* Mechanical
  + 1-7, 9, 10, B2
* Systems
  + 8,9, 21,22,23,24,B1,B2

Jobs to do

Testing

Data processing

Part Order

Write up the report (LaTeX)

CAD

Outreach

Questions to ask

What is soft state (in packet we need to transmit)?

Is WUSAT managing outreach or are we (do we just need to send materials to WUSAT)?