# Power Budget:

We use a double cell Lithium-Ion battery to power the main system. The battery has a nominal voltage of 9v and maximum capacity of 600mAh each. Allows up to 2 hours of duration of operation. The Battery is lightweight and compact. Well known battery manufacturer.

|  |  |
| --- | --- |
| Component | Power Consumption (Wh) |
| CPU (ATmega328) | 0.238 |
| Pressure Sensor (BMP 280) | 0.007392 |
| Acceleration and Gyro Sensor (MPU6050) | 0.02574 |
| GPS Module | 0.792 |
| XBEE | 0.726 |
| Servo Motor (Mechanical Gyro Control) | 3.32 |
| Servo Motor (Parachute Ejection)(x2) | 12.24 |
| Buzzer | 0.792 |

In the above Budget Power Consumption is calculated for a period of 2 hrs on assumption that CanSat may be turned on for 2h, while the actual flight time might be less than that.

**Total Power Drained from the Battery for 2 hrs operation = 5.369772 Wh.**

### Changes Made After PDR:

Battery configuration used to power our CANSAT has been changed from Series to ‘Parallel’. This enables us for proper stepping down of voltage according to the requirements using the voltage divider system.

# Mass budget:

### Method of correction:

In case any error occurs the lower part will be equipped with extra space for increasing weight with screws and nuts. Initially it will include 6 screws that can be detached if the structure is too heavy.

**Margin = 500 – 497.1 = 2.9g**

|  |  |
| --- | --- |
| Part | Mass Contributed (in g) |
|  |  |
| PC ABS Panels | 43.79 ± 0.2 |
| Aluminium Rods | 61.33 ± 0.2 |
| Base Plate | 22 ± 0.2 |
| Parachute 1 CF Container | 54.84 ± 0.2 |
| Parachutes | 90 ± 0.2 |
| Shackle | 10 ± 0.2 |
| Carbon Fiber tube | 30.28 ± 0.2 |
| Dampers and Foam | 30 ± 0.5 |
| Screws, Washers and nuts | 20.25 ± 0.2 |
| Servos | 27 ± 0.2 |
| Other 3-D printed parts | 20 ± 0.2 |
| PCB 1 | 75 ± 0.5 |
| Camera | 20 ± 0.2 |
| PCB 2 | 40 ± 0.5 |
| Gyroscope | 22 ± 0.2 |
| Wiring | 25 ± 0.5 |
| Batteries | 105 ± 0.2 |
|  |  |

**TOTAL MASS = 696.49 ± 4.6 g = 701.09 g**

**ALLOWED LIMIT = 700 ± 50 g = 750 g**

### Changes Made After PDR:

Minor revisions were made in the mass calculations.