Battery :

Type = Li ion

Capacity = 3000mAh

Voltage configuration = 3.7V in 4S configuration

Stand-by mode (~2 hr)

| Component | Voltage  (V) | Current  (A) | Power  (W) |
| --- | --- | --- | --- |
| Bharat Pi | 9 | 2 | 18 |
| Xbee Pro S2C | 3.3 | 0.01 | 0.033 |
| GY-91 sensor | 3.3 | 0.01 | 0.033 |
| OV7670 image sensor | 3.3 | 0.01 | 0.033 |
| Gimbal motor | 12 | 0 | 0 |
| Servo motor | 5 | 0 | 0 |
| Total Consumption | - | ~2.03 | ~18.099 |

Energy Requirement :

E(stand-by) = P(total) X Time = 18.099W X 2h = 36.1980Wh

Active mode(~5 mins)

| Component | Voltage  (V) | Current  (A) | Power  (W) |
| --- | --- | --- | --- |
| Bharat Pi | 9 | 2 | 18 |
| Xbee Pro S2C | 3.3 | 0.12 | 0.396 |
| GY-91 sensor | 3.3 | 0.02 | 0.066 |
| OV7670 image sensor | 3.3 | 0.08 | 0.264 |
| Gimbal motor | 12 | 1 | 12 |
| Servo motor | 5 | 0.8 | 4 |
| Total Consumption | - | ~4.02 | ~34.726 |

Energy Requirement : (assuming 5 mins of Launch time and Descent time)

E(active) = P(total) X Time = 34.726 X (5/60) = 2.8938Wh

Total battery capacity :

Capacity(total) = Voltage X Capacity = 14.8V X 3Ah = 44.40 Wh

Total Energy Requirement of CanSat :

E(total) = E(stand-by) + E(active) = 36.1980 + 2.8938Wh

= 39.0918Wh

Available energy after operation :

Remaining energy = Capacity(total) - E(total) = 44.4 - 39.091 = 5.3082Wh

Time left :

1. For standard mode after operation :

Time(h) = Remaining energy / Power consumption during standby

Time(h) = 5.3082/18.099 = 0.2932

~ 17.597 minutes

1. For active mode after operation :

Time(h) = Remaining energy / Power consumption during standby

Time(h) = 5.3082/34.726 = 0.1528

~9.1712 minutes

Battery has enough power left for launch after 2 hours of stand-by