**1. Components and Power Consumption**

| **Component** | **Voltage (V)** | **Current (A) standby** | **Current (A)**  **Capturing image** | **Quantity** | **Power Consumption (W)** |
| --- | --- | --- | --- | --- | --- |
| MG996 Full Metal Servo | 5 | 1 | 2.5 | 2 | 30.0 |
| ESP32 Devkit | 5 | .1 | 0.15 | 1 | 0.75 |
| ESP32-CAM | 5 | .1 | 0.20 | 1 | 1.0 |
| GPS Module (NEO-6M) | 5 | .05 | 0.05 | 1 | 0.25 |
| **Total Load (Max)** | - |  | - | - | **32 W** |

**2. Battery Configuration**

* **Battery Specs**:

**Type**: LiPo

**Capacity**: 3600 mAh (3.6 Ah) each

**Configuration**: 2S (Series)

**Voltage**: 7.4V nominal (3.7V per cell × 2)

* **Total Capacity**:

3600 mAh = 3.6 Ah per battery = **3.6Ah**

* **Total Energy**:

Energy (Wh) = Voltage (V) × Capacity (Ah) = 7.4V × 3.6Ah = **26.64 Wh**

**3. Battery Life Calculation**

Battery life (hours) = Total Battery Energy (Wh) ÷ Total Load (W)

**At Maximum Load:**

* Total Load = 32 W
* Battery Life = 53.28 Wh ÷ 32 W ≈ **1.67 hours**

**At Average Load (estimated at 60% of max due to varying usage):**

* Total Load ≈ 32 W × 0.6 = 19.2 W
* Battery Life = 53.28 Wh ÷ 19.2 W ≈ **2.78 hours**