| Component | Quantity | Description |
|---|---|---|
| ESP32-C3 Supermini | 1 | Main controller (Wi-Fi + Bluetooth) |
| DRV8833 (Motor Driver, SOP-16) | 1 | Dual H-bridge for brushed motors |
| SG90 Servo Motor | 1 | For steering |
| Coreless Brushed Motors (716) | 2 | Drive motors with propellers |
| PS5 Controller (Optional) | 1 | For wireless control via Bluetooth |
| LiPo Battery (1S or 2S) | 1 | 3.7V or 7.4V battery |
| TP4056 Charging Module (Optional) | 1 | USB charging for 1S LiPo |
| MT3608 Boost Converter IC | 1 | Boost 3.7V to 5V |
| Buck Converter (MP1584) | 1 | Optional step-down to 5V |
| Inductor | 1 | 4.7 µH – 10 µH, ≥1.5A |
| Schottky Diode (SS14 or 1N5819) | 1 | For boost converter |
| Input Capacitor (CIN) | 1 | 22–47 µF ceramic/electrolytic |
| Output Capacitor (COUT) | 1 | 47–100 µF |
| Feedback Resistor R1 | 1 | 33kΩ to set 5.3V output |
| Feedback Resistor R2 | 1 | 10kΩ to set 5.3V output |
| Ceramic Capacitors | 5 | 0.1 µF, 1 µF, 10 µF for decoupling |
| Electrolytic Capacitors | 3 | 100 µF, 220 µF, 470 µF @ 16–25V |
| LED + Resistor | 1 | Optional debug indicator |
| Chassis Base | 1 | 3D-printed or plastic base |
| Wheels | 4 | Match motor shaft type |
| Motor Mounts | 4 | To hold 716 motors |
| Screws, Nuts, Spacers | 1 | M2–M3 assorted |
| Silicone Wire (22–28 AWG) | 1 | Power and signal lines |
| Power Switch | 1 | Main ON/OFF |
| Battery Holder (Optional) | 1 | For 18650 or pouch |
| Ultrasonic Sensor (HC-SR04) | 1 | Obstacle detection |
| MPU6050 IMU | 1 | Gyroscope and Accelerometer |
| OLED Display (I2C) | 1 | For status/debug info |