**Components List and Bill of Material – Drizzle Dome Project**

**Microcontroller & Control**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **Arduino Uno R3** | ATmega328P, 16MHz, USB | 1 | 500 | Main controller |
| **L298D Motor Driver** | Dual H-bridge, 2A/channel | 1 | 50 | Motor control |
| **Rain Sensor Module** | Digital output, 3.3-5V | 1 | 50 | Weather detection |

**Motors & Actuators**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **12V DC Geared Motors** | 12V, 200RPM, 2A, Metal Gears | 2 | 400 | Clothesline movement |

**Power System**

**Battery & Charging**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **4S Li-ion Battery Pack** | 14.8V, 3000mAh, BMS Protected | 1 | 1500 | Motor power |
| **4S Li-ion Charger** | Balance charging, 1-2A | 1 | 900 | Battery charging |
| **USB Cable** | USB-A to USB-B, 2m | 1 | 40 | Arduino power |
| **USB Wall Adapter** | 5V 1A output | 1 | 50 | Arduino power supply |

**Power Connections**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **XT60 Male Connector** | 14AWG Silicon Wire, 10cm | 1 | 15 | Battery to L298D |
| **Power Switch** | 12V 10A Toggle Switch | 1 | 50 | System on/off |

**Wiring & Connections**

**Electronic Components**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **Breadboard** | Half-size, 400 tie points | 1 | 60 | Circuit prototyping |
| **Jumper Wires** | Male-Male, 20cm, 40pcs | 1 pack | 20 | Connections |

**Mechanical Components**

**Pulley System**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **Ball Bearing Pulleys** | 50mm diameter, 6mm bore | 4 | 100 | Smooth cable movement |
| **Steel Cable** | 3mm diameter, stainless, 10m | 1 | 150 | Clothesline support |
| **Cable Clamps** | 3mm wire rope clamps | 6 | 60 | Cable termination |
| **Eye Bolts** | M6 x 50mm with nuts | 4 | 50 | Pulley mounting |

**Motor Mounting**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **Motor Mount Brackets** | Universal DC motor clamp | 2 | 30 | Secure motor mounting |
| **Coupling/Adapter** | Motor shaft to cable system | 2 | 40 | Power transmission |
| **Machine Screws** | M4 x 20mm with nuts | 8 | 16 | Assembly hardware |

**Enclosures & Protection**

**Electronics Housing**

| **Component** | **Specification** | **Qty** | **Cost (₹)** | **Purpose** |
| --- | --- | --- | --- | --- |
| **Waterproof Box** | 200x120x100mm, IP65 | 1 | 50 | Electronics protection |
| **Cable Glands** | PG7, waterproof entry | 4 | 40 | Sealed cable entry |
| **Foam Padding** | For component mounting | 1 sheet | 30 | Shock absorption |

**Total Project Cost:** ₹ 4,660