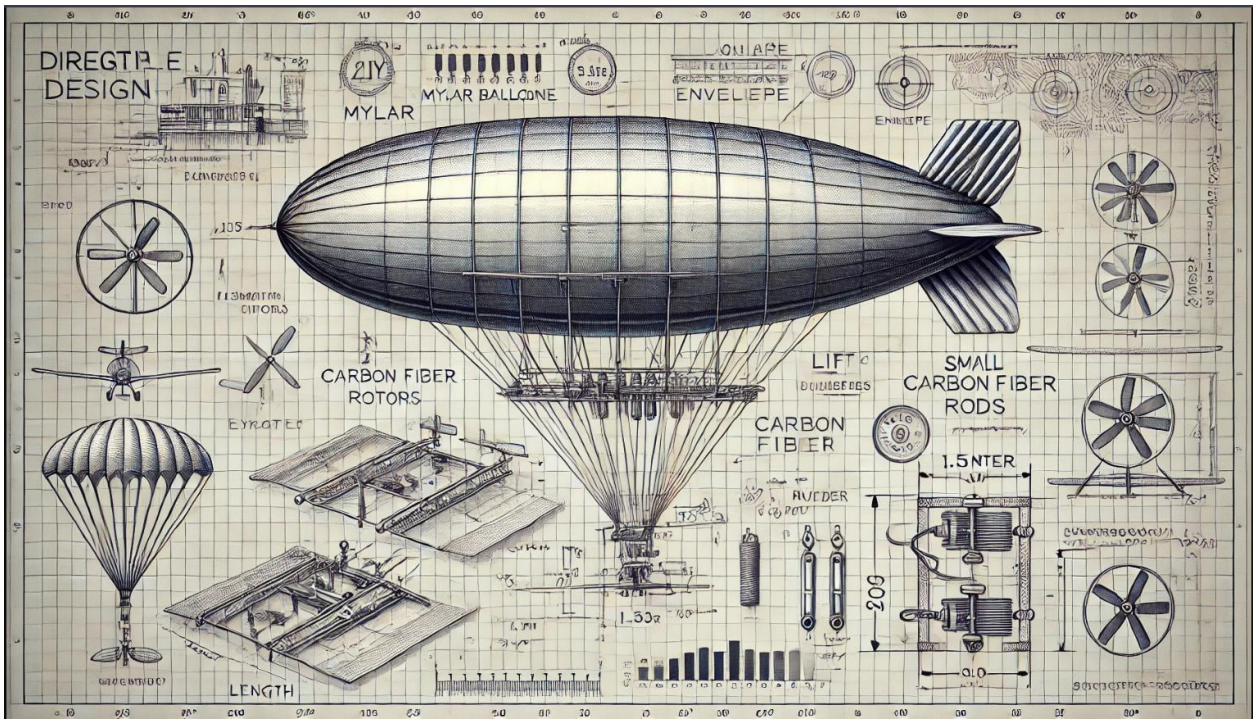
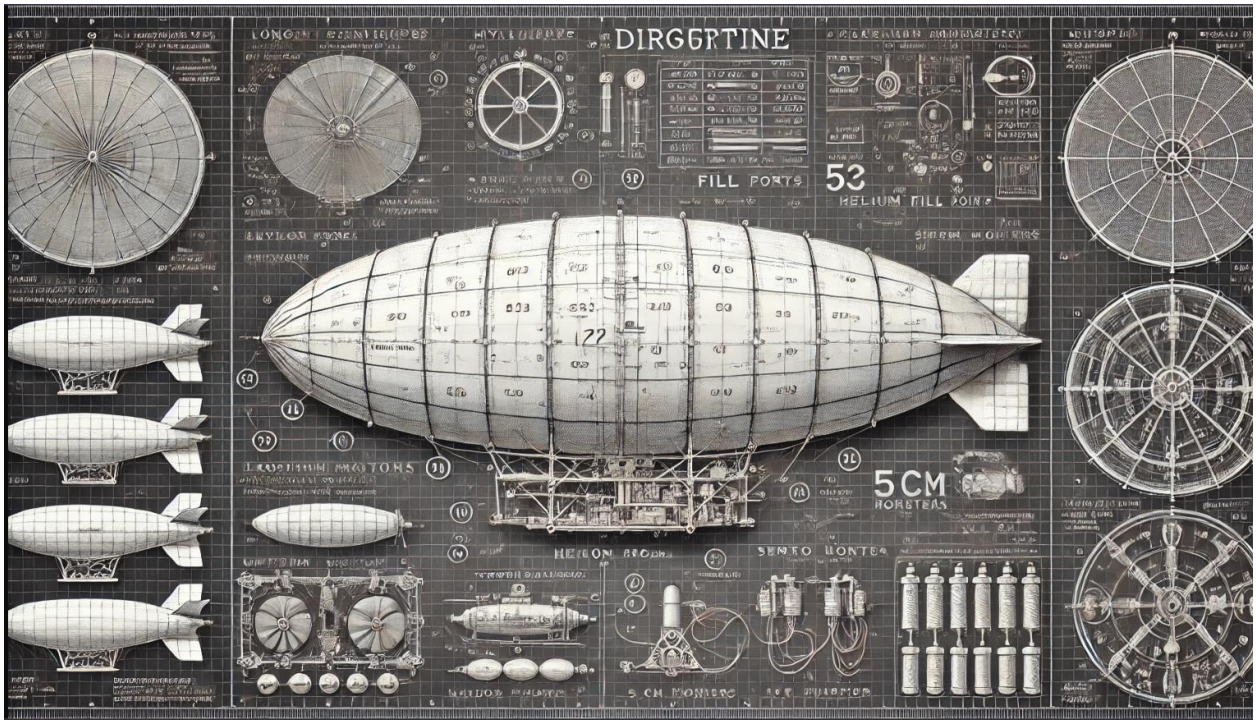
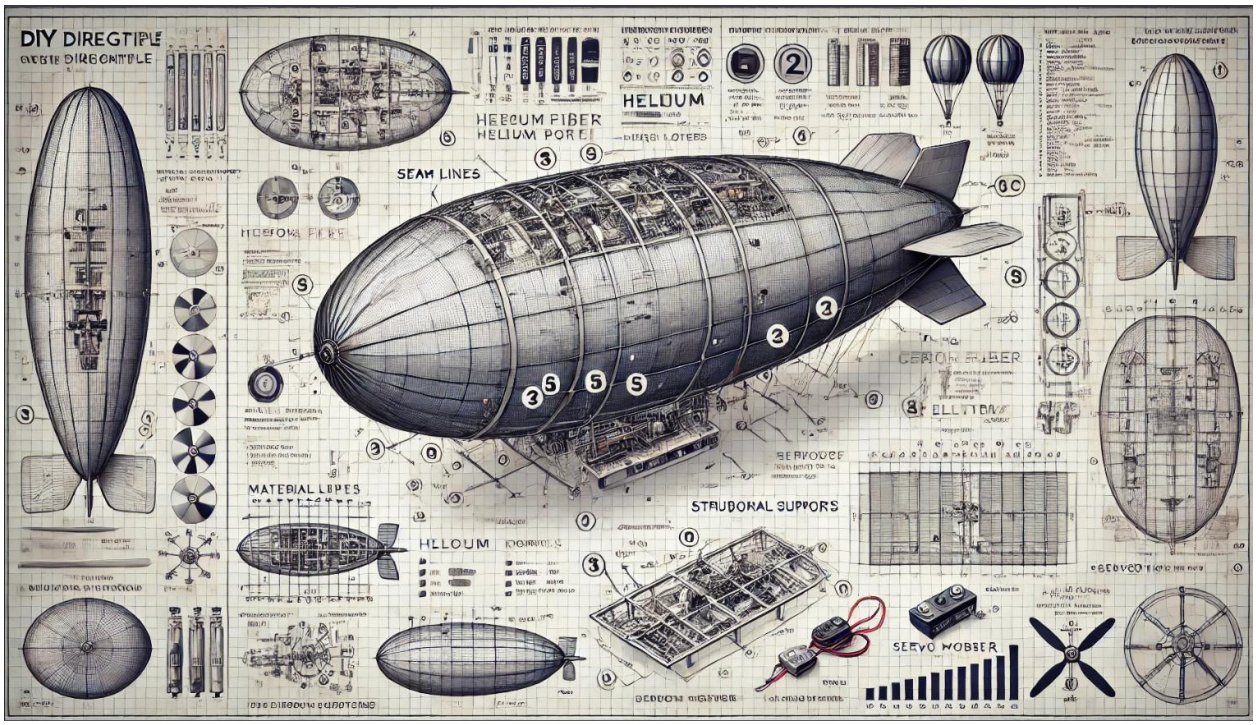

DIREGTP_E
DESIGN
MYLAR
MYLAR BALLOONE
ENVELIEPE
CARBON FIBER
ROTORS
LIFT
SMALL
CARBON FIBER
RODS
CARBON
FIBER
1.5NTER
LENGTH


DIRGGTINE
FILL PORTS
53
HELIUM FILL POINTS
5CM
HORSTEAS




# Materials Needed:

## *Envelope (Mylar Balloon or Custom Material)*

- **Material**: 2 square meters of Mylar sheet, 5-micron thickness (lightweight and airtight).
- **Helium port**: A small valve suitable for helium inflation.
- **Sealant**: Heat sealer or airtight double-sided adhesive tape.

## *Frame (Carbon Fiber or Similar Lightweight Material)*

- **Carbon fiber rods**:
  - 2 pieces, 1 meter each (for the long sides).
  - 2 pieces, 0.3 meters each (for the shorter sides).
  - 2 pieces, 0.1 meters each (for vertical supports).
- **Connectors**: Nylon brackets for securing corners or lightweight epoxy glue.

## *Propulsion System*

- **Motors**:
  - 2 DC brushless motors (e.g., 1806 motors for drones).
  - Thrust: 200-300 grams each.
- **Propellers**:
  - 2 pieces, 5 cm diameter, compatible with the motors.
- **Electronic Speed Controllers (ESCs)**:
  - 2 small ESCs to regulate motor speed.

## *Control Surfaces (Rudder and Elevator)*

- **Material**: Thin plastic or foam sheets for lightweight control surfaces.
- **Hinges**:
  - 4 small plastic or metal hinges (2 per surface).
- **Servo motors**:
  - 2 mini servos (e.g., SG90 or similar).

## *Electrical Components*

- **Battery**: 7.4V 2S LiPo battery, 1000-1500mAh.
- **RC Receiver and Controller**: 4-channel RC transmitter and receiver set.
- **Wiring**: Lightweight insulated copper wires (20-22 gauge).

- **Miscellaneous**: JST connectors, soldering wire, and a small soldering iron.

### *Miscellaneous Tools*

- Heat sealer or tape, small screwdriver set, wire cutters, zip ties, and lightweight glue.

## Assembly:

### *Step 1: Attach Motors and Propellers*

1. **Bracket Mounting**:
    - Use nylon brackets or clamps to attach the motors to the sides of the carbon fiber frame. Ensure they are secured symmetrically to maintain balance.
    - Use screws to fix the motors onto the brackets tightly.
2. **Attach Propellers**:
    - Place the propellers onto the motor shafts, aligning them with the motor threads.
    - Tighten the propeller nuts to ensure they are securely attached.
3. **Wire the Motors**:
    - Connect the motor leads to the ESCs. Use soldering or connectors to ensure solid connections.
    - Route the ESC wires neatly along the frame using zip ties.

### *Step 2: Install Control Surfaces*

1. **Cut and Shape the Surfaces**:
    - Cut the rudder and elevator out of foam or thin plastic sheets. Dimensions: rudder (8x5 cm), elevator (10x4 cm).
2. **Hinge Installation**:
    - Attach 2 small hinges to each control surface using glue or screws.
    - Secure the hinges onto the rear of the frame.
3. **Attach Servo Motors**:
    - Mount the servos near the rudder and elevator.
    - Use servo horns and linkages to connect the servos to the control surfaces.
    - Test the range of motion to ensure smooth operation.

### *Step 3: Wire the Components*

1. **Connect Motors to Receiver**:
    - Plug the ESC signal wires into the designated channels on the receiver.
2. **Connect Servo Motors to Receiver**:
    - Plug the servo signal wires into channels designated for rudder and elevator control.
3. **Power Setup**:
    - Connect the battery to the ESCs using a JST connector.
4. **Test Connections**:
    - Power on the system and test motor and servo operations using the RC transmitter. Adjust as necessary.