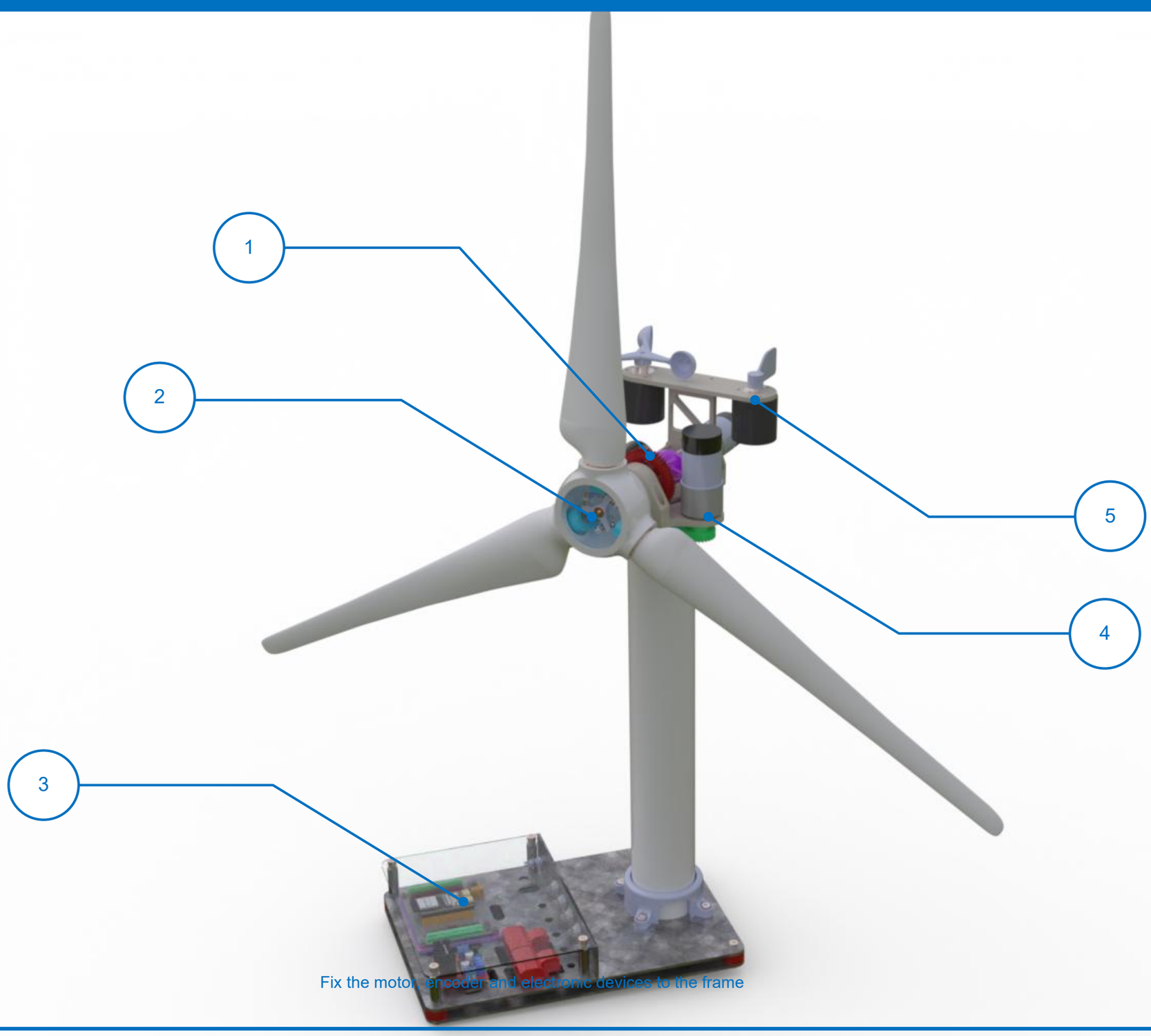
List of parts



1 Electricity generation subsystem

3 Electronic control device subsystem

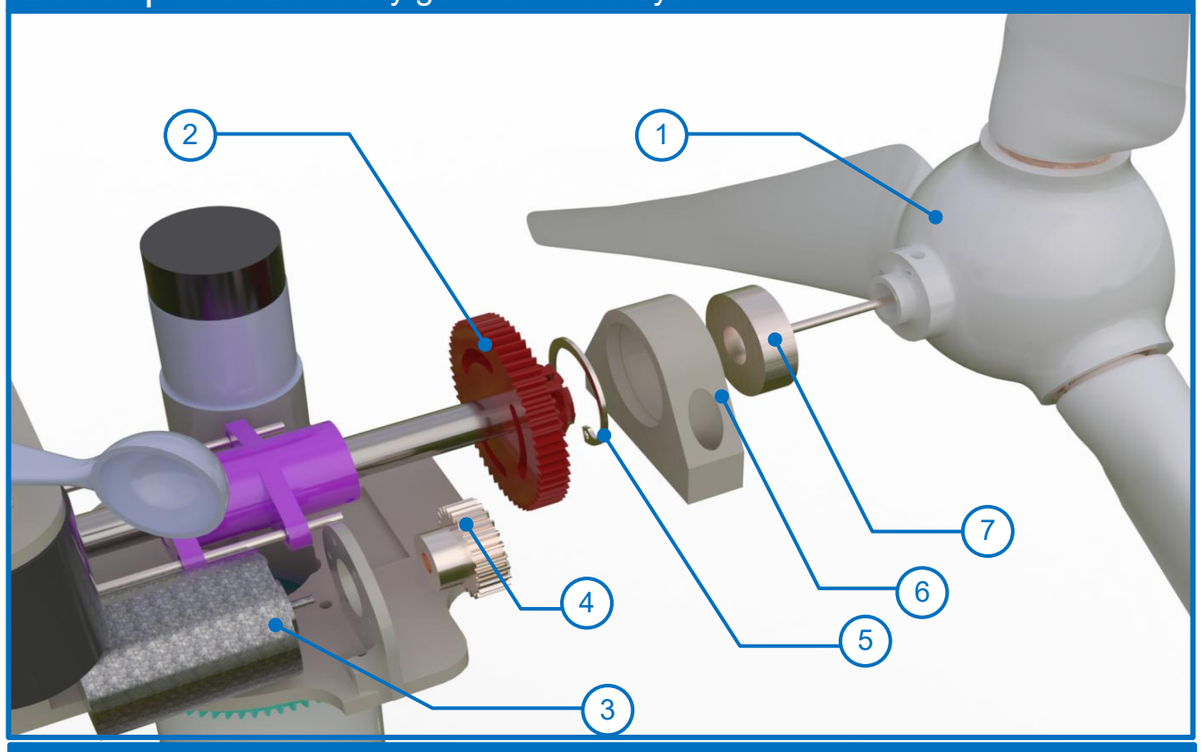
5 Measurement subsystem

2 Blade angle change subsystem

4 Nacelle rotation subsystem

Estimated price: 350€

List of parts Electricity generation subsystem



1 Hub

2 55-tooth gear

3 Direct current generator

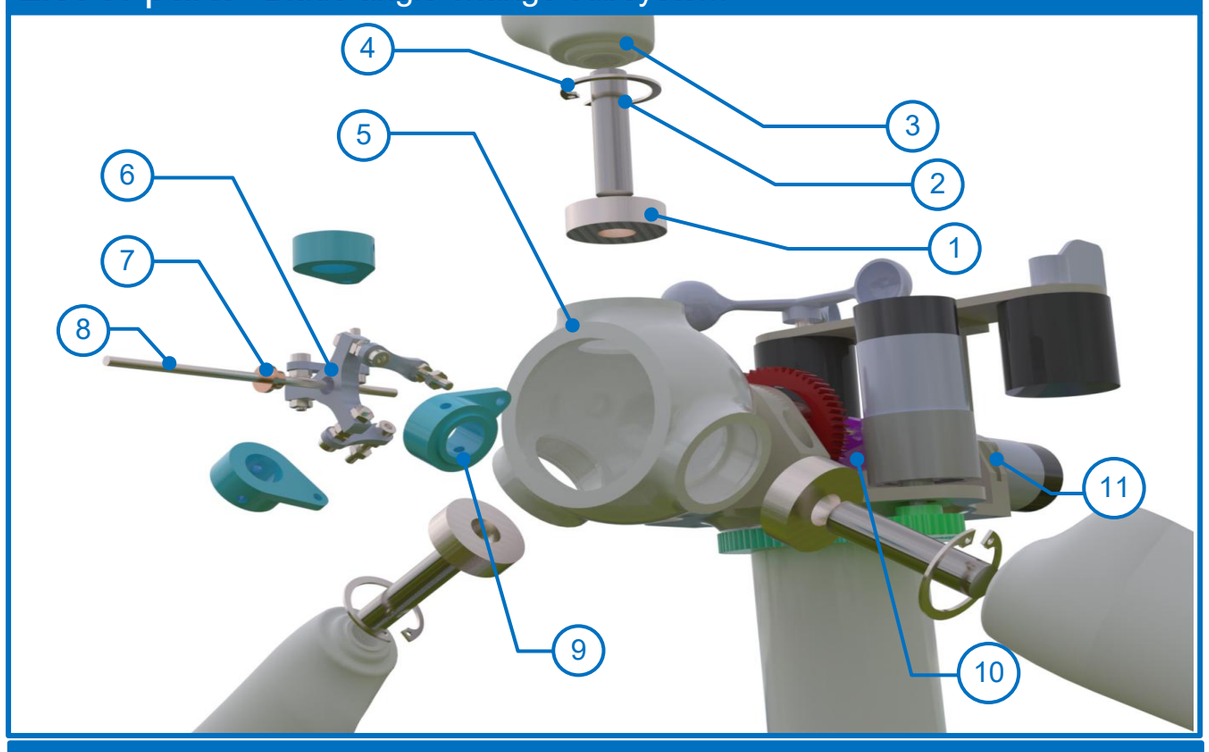
4 24-tooth gear

5 Retaining ring

6 Bearing support

7 Bearing 12x32x10 mm

List of parts Blade angle change subsystem



1 Bearing 12x32x10 mm

2 Axis

3 Blade

4 Retaining ring

5 Hub

6 Crank support

7 3mm bronze bushing

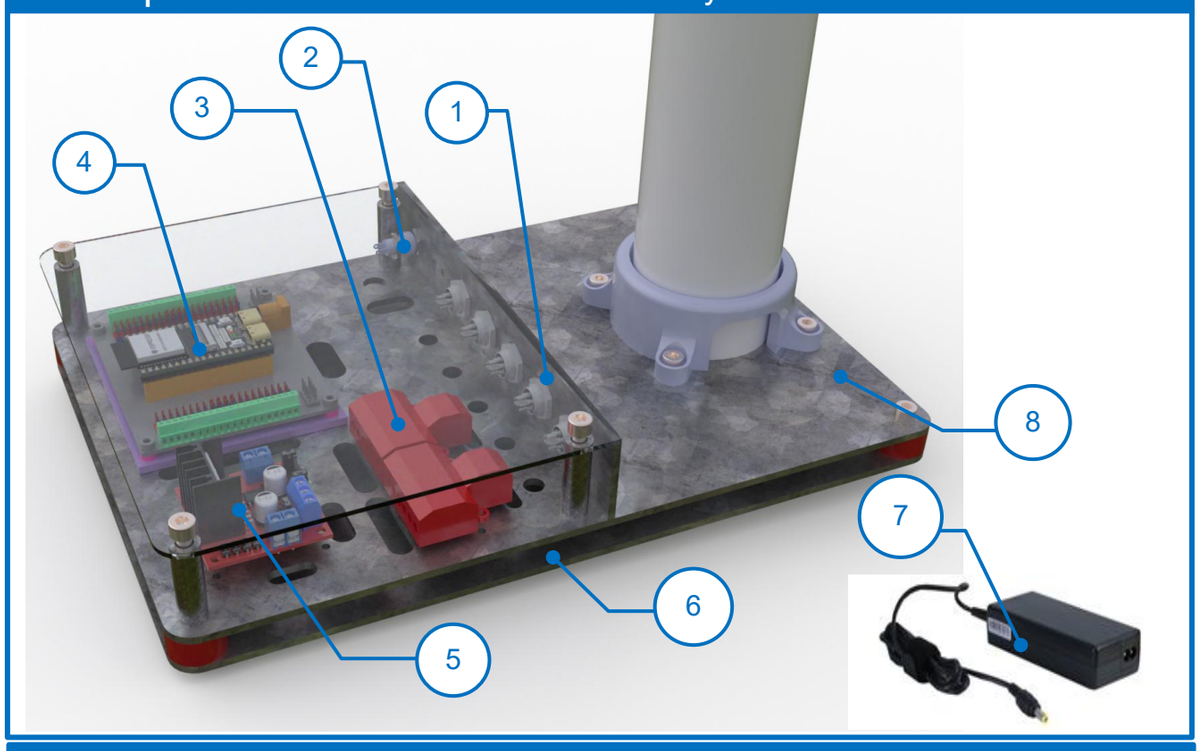
8 Push bar

9 Cam

10 Linear transmission mechanism

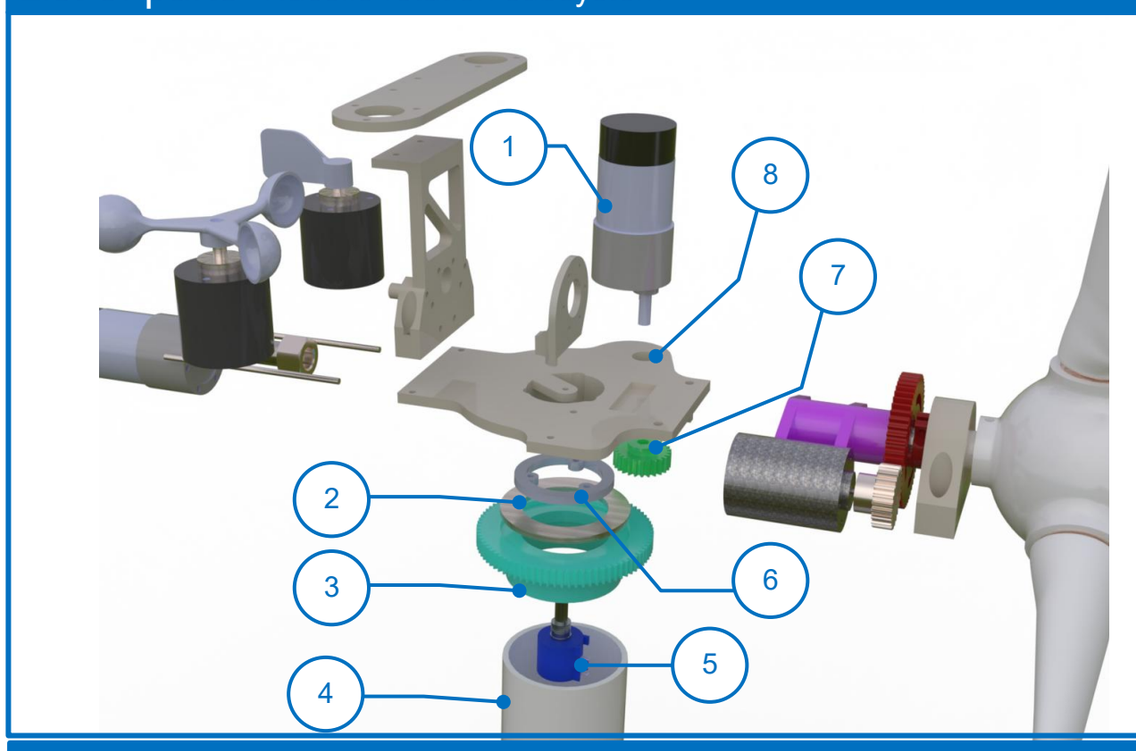
11 DC motor with encoder

List of parts Electronic control device subsystem



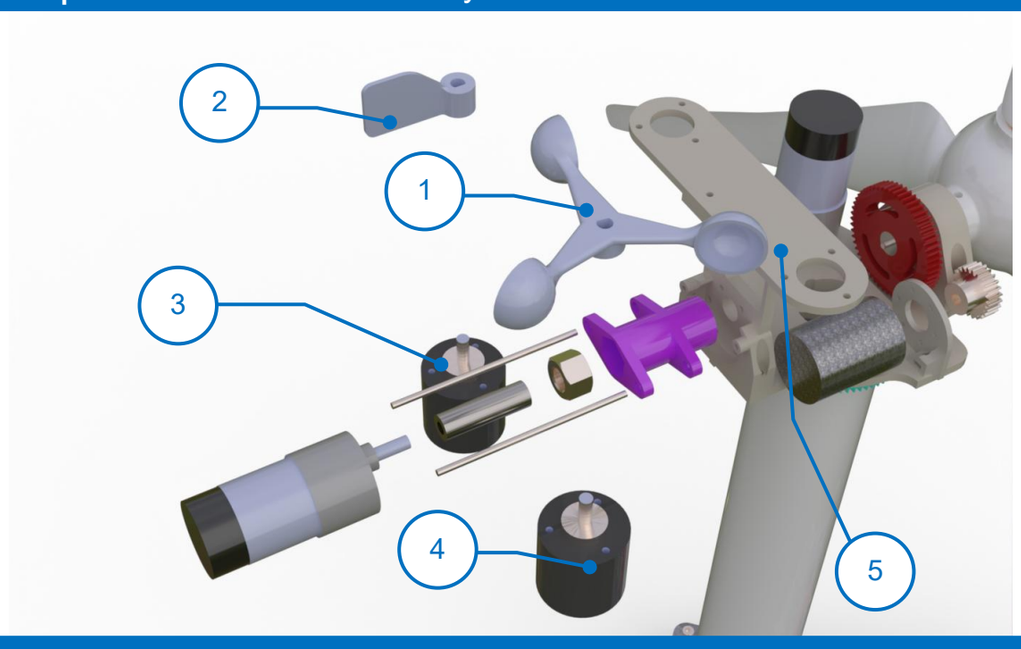
1. Electrical panel connectors
2. Electrical power connectors
3. Terminal block
4. Control unit ESP32
5. Driver L298n
6. 12V to 5V voltage regulator
7. Power supply 12V 5A
8. Frame

List of parts Nacelle rotation subsystem



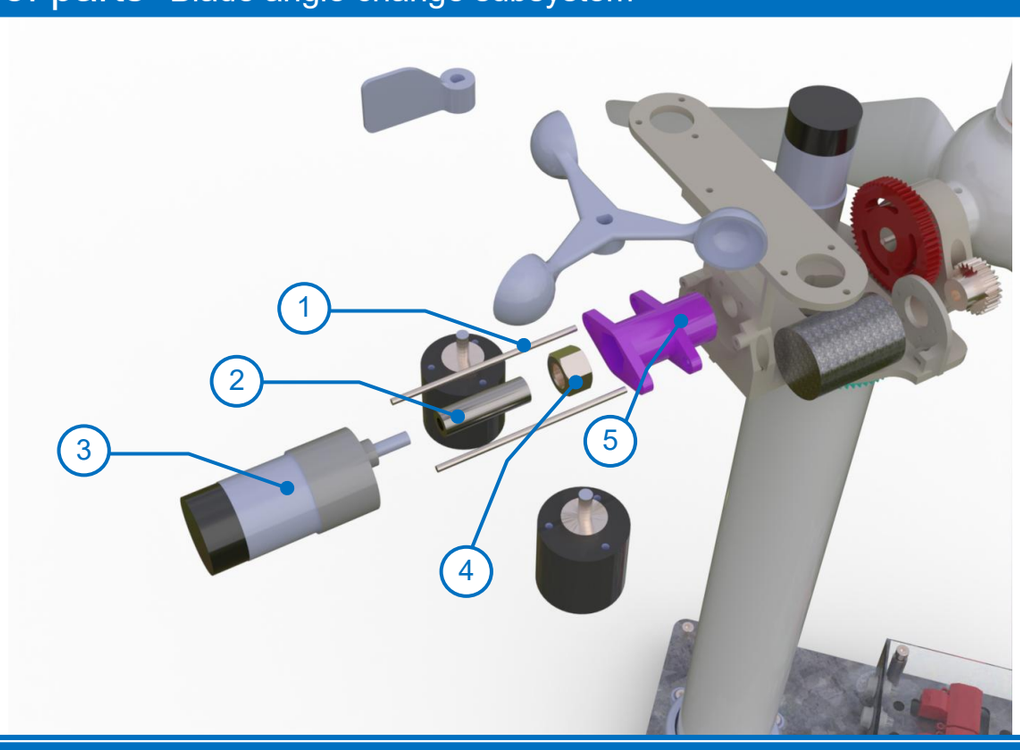
1. DC motor with encoder
2. Bearing 40x60x3 mm
3. 84-tooth gear
4. Tube
5. 10K multi-turn potentiometer
6. Retaining ring
7. 26-tooth gear
8. Frame

List of parts Measurement subsystem



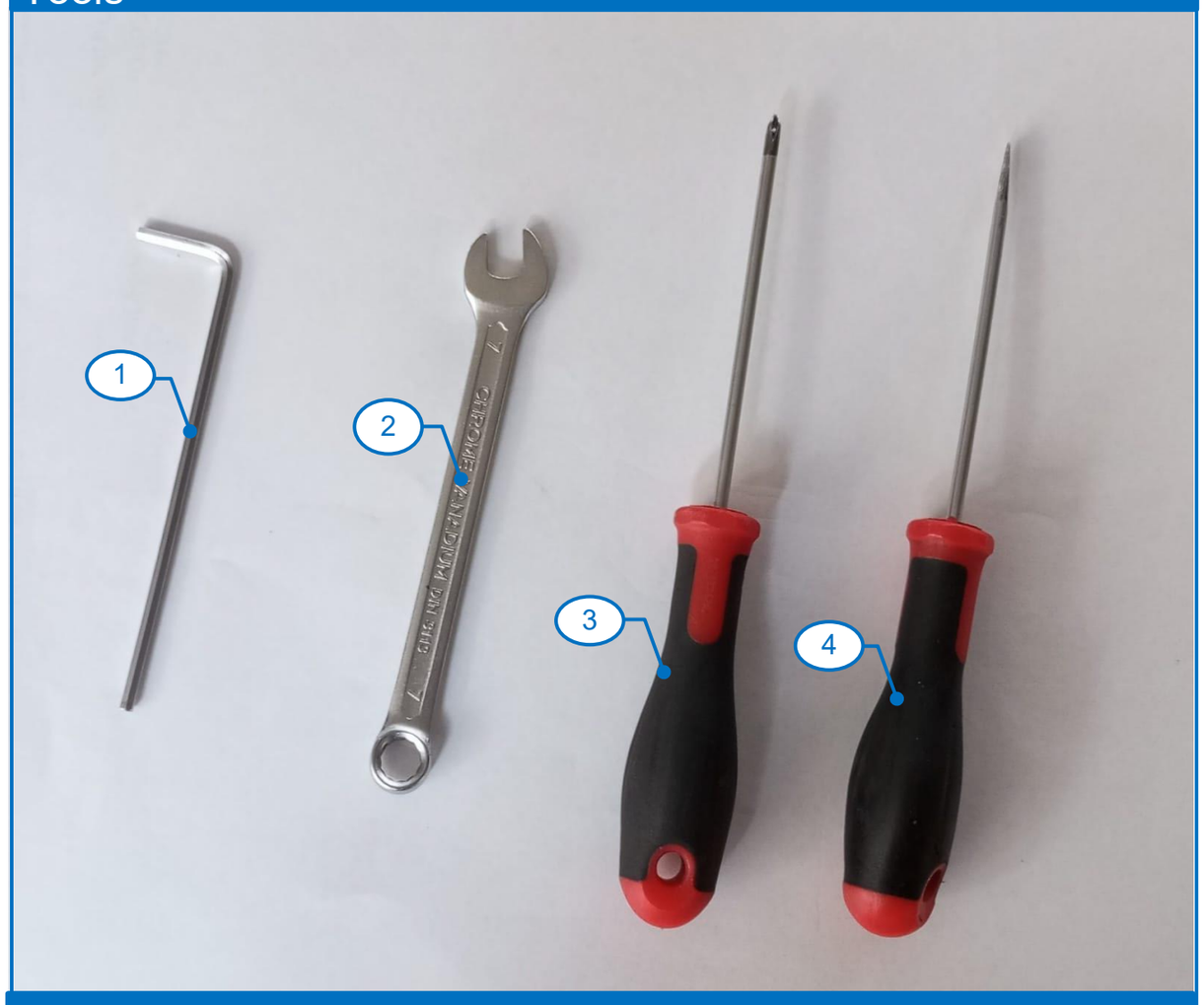
1. Anemometer blades
2. Weather vane blade
3. Anemometer encoder
4. Weather vane encoder
5. Frame

List of parts Blade angle change subsystem



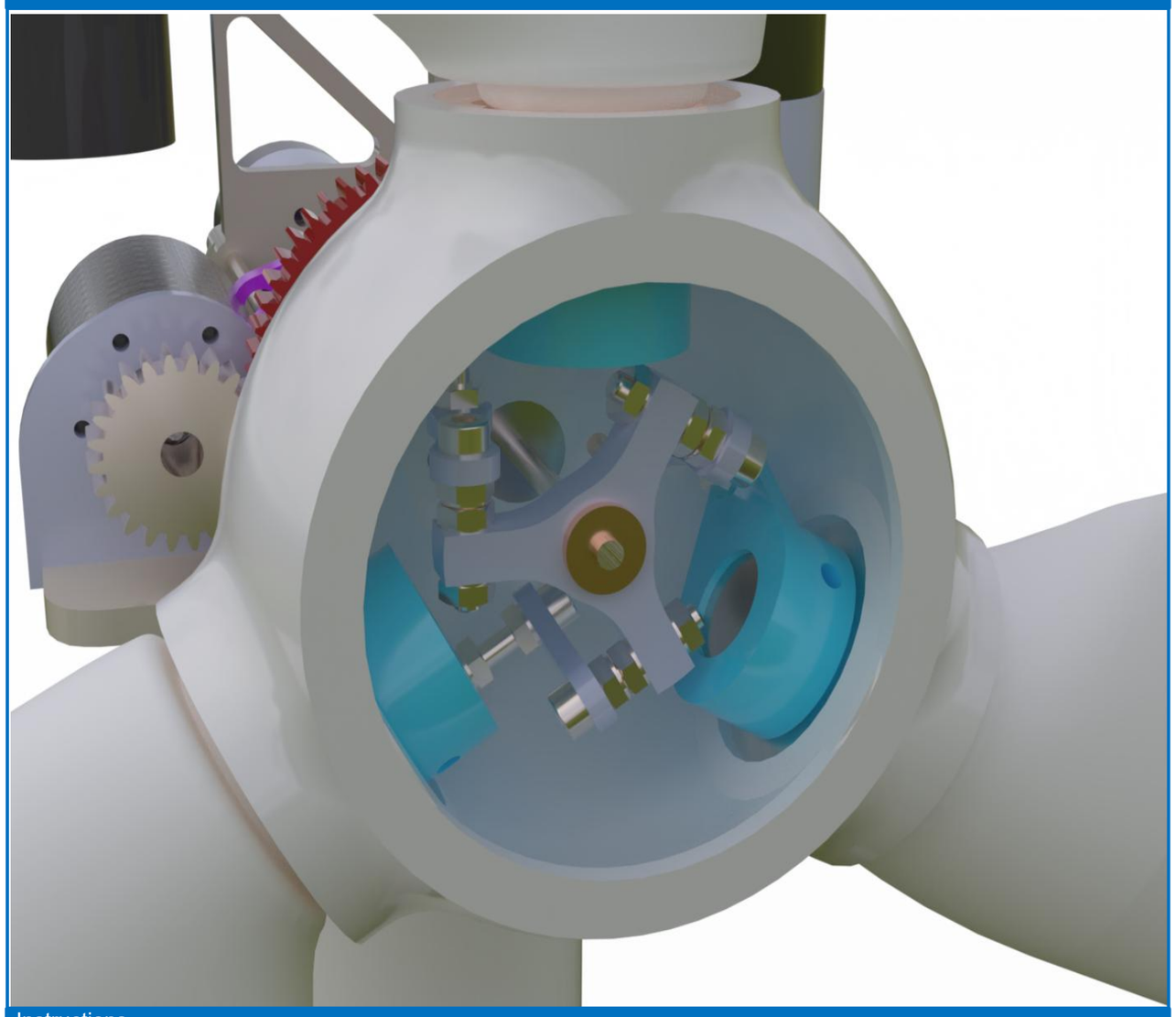
1. 3mm guide bar
2. Screw M12
3. DC motor with encoder
4. Nut M12
5. Linear transmission mechanism support

Tools



1. Hex key 2, 3,4 and 6 mm
2. fixed wrench 7, 8 and 10 mm
3. Small Phillips screwdriver
4. Small Flathead screwdriver

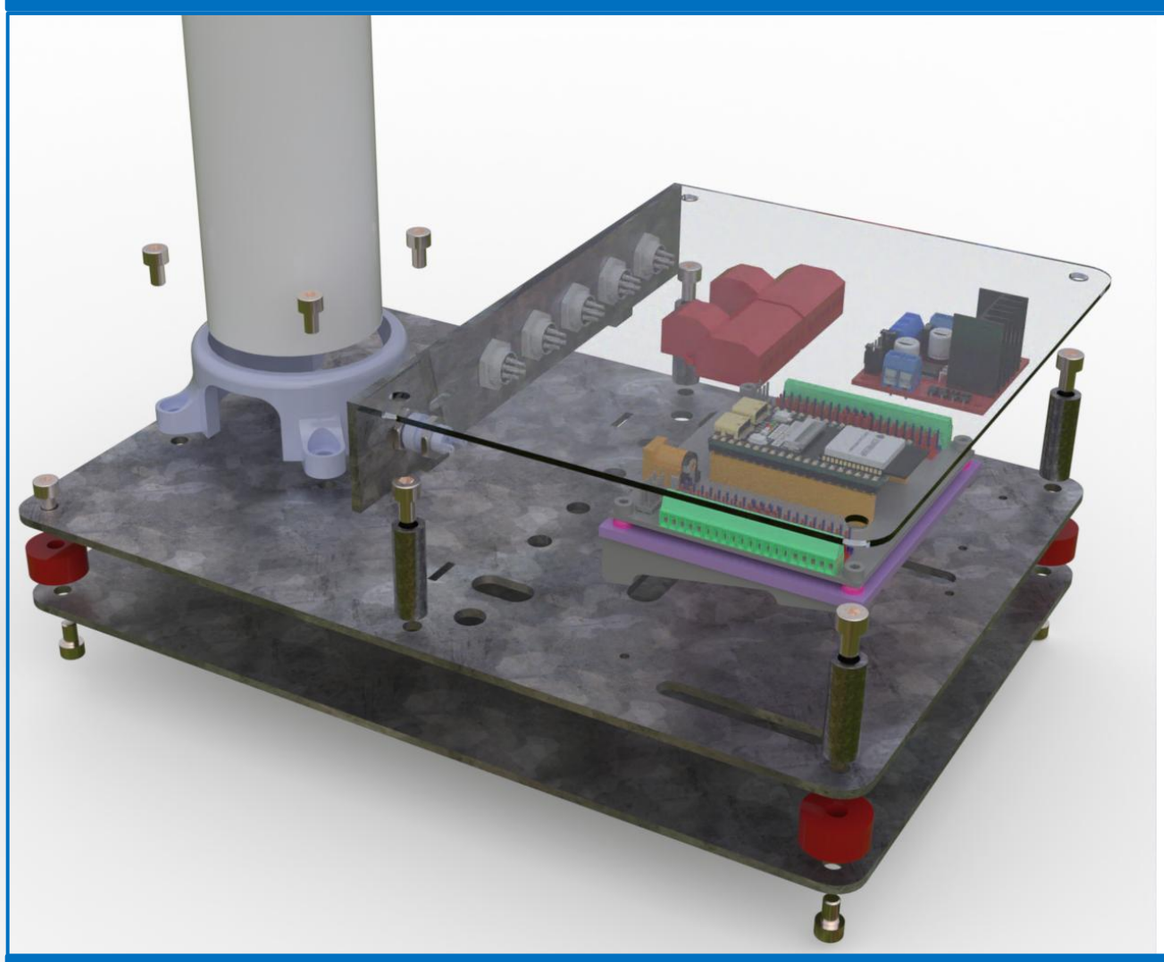
Step 1: Assembly of the hub elements



Instructions

Assemble the hub elements as shown in the figure

Step 2: Electrical system assembly



Instructions

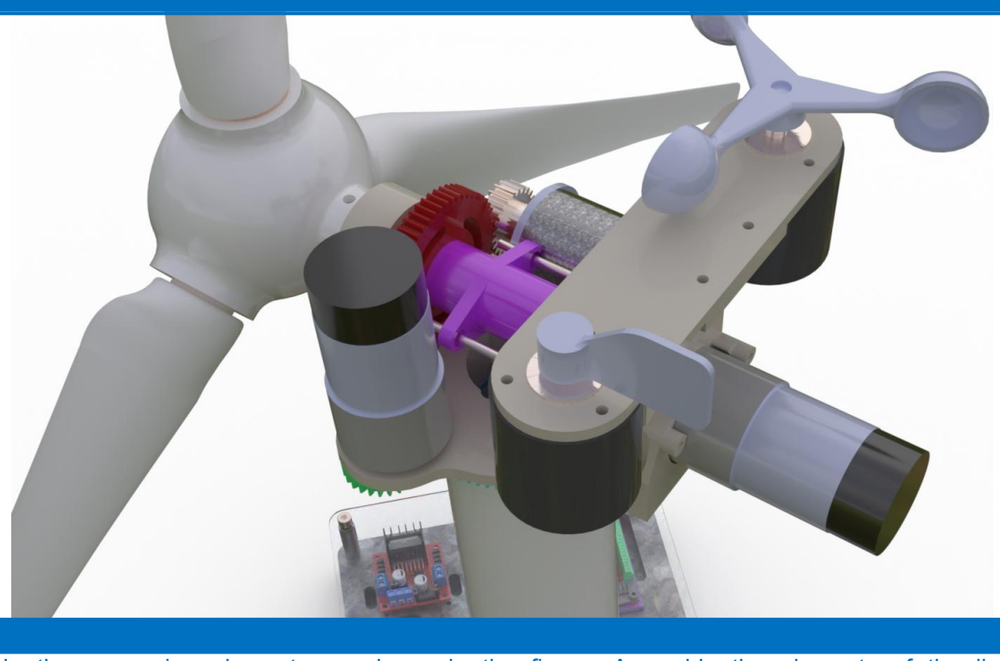
Assemble the electrical elements as shown in the figure

Step 3: Assemble the nacelle's rotating elements

Instructions

Assemble the nacelle's pivoting elements as shown in the figure. If necessary, refer to the CAD design.

Step 4: Assemble the measuring elements



Instructions

Assemble the measuring elements as shown in the figure. Assemble the elements of the linear transmission.

Step 5: General view of the assembled wind turbine

Instructions

The assembly process must be supported by the CAD model.