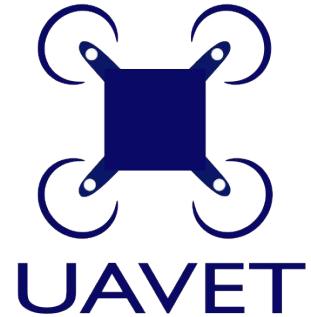
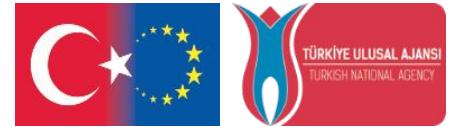




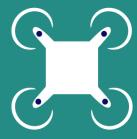
Co-funded by
the European Union



Developing Vocational Skills of Electro-Mechanical
Technicians for UAV Maintenance and Repair

MODULES 4

**Maintenance & Repair of Flight Controller
Board, Sensors, and Remote Controller**



MODULES 4:

MAINTENANCE & REPAIR OF FLIGHT CONTROLLER

BOARD, SENSORS, AND REMOTE CONTROLLER

UAVET TRAINING PROGRAM

Duration: 8 hours

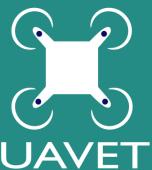
Target groups: Electromechanical technicians

Teaching Methods: Blended learning

INTRODUCTION

In the context of the rapid advancement of unmanned aerial vehicle (UAV) technology, proper maintenance and repair of essential components are critical aspects to ensure their efficient and safe operation. Modern UAVs are equipped with complex systems, such as the flight controller, advanced navigation sensors and sophisticated remote controls that allow real-time monitoring and operation. Each of these components requires periodic maintenance, software updates, and occasionally, repairs to maintain flight stability, data accuracy and optimal control.

LESSON	DURATION	CATEGORY - TASK
Lesson 1	2 hours	Category 3 Task:1 Introduction in the system of navigation and autopilot UAV Task:2 Maintenance and the repair controller off flight
Lesson 2	2 hours	Category 3 Task: 3 Sensors of navigation you UAV-SITE- I'm going and GPS Task: 4 Maintenance and the repair sensor UAV
Lesson 3	2 hours	Category 3 Task:5 Monitoring and calibrating sensor Task:6 Energy monitoring and flight management
Lesson 4	2 hours	Category 3 Task:7-UAV Remote control maintenance and repair

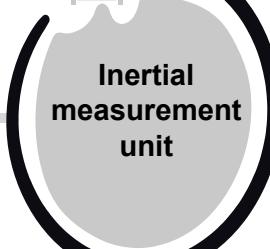
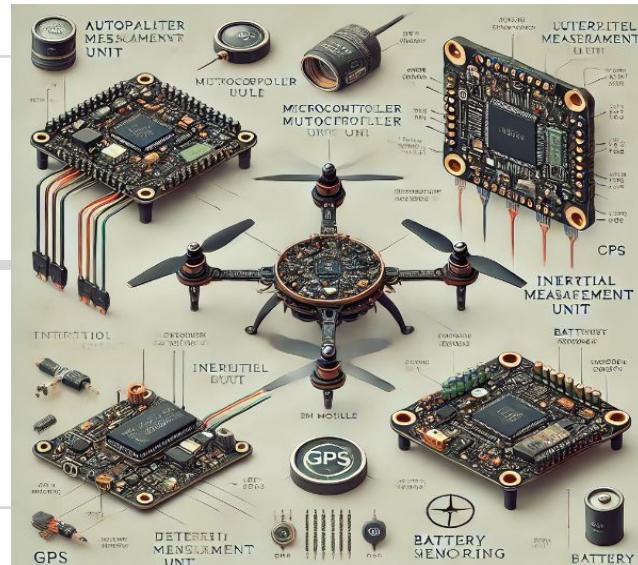
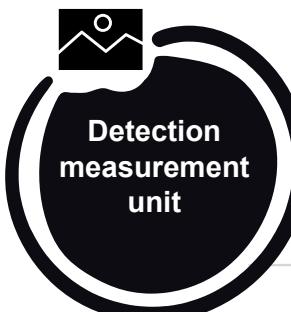


MODULE 4 – LESSON 1

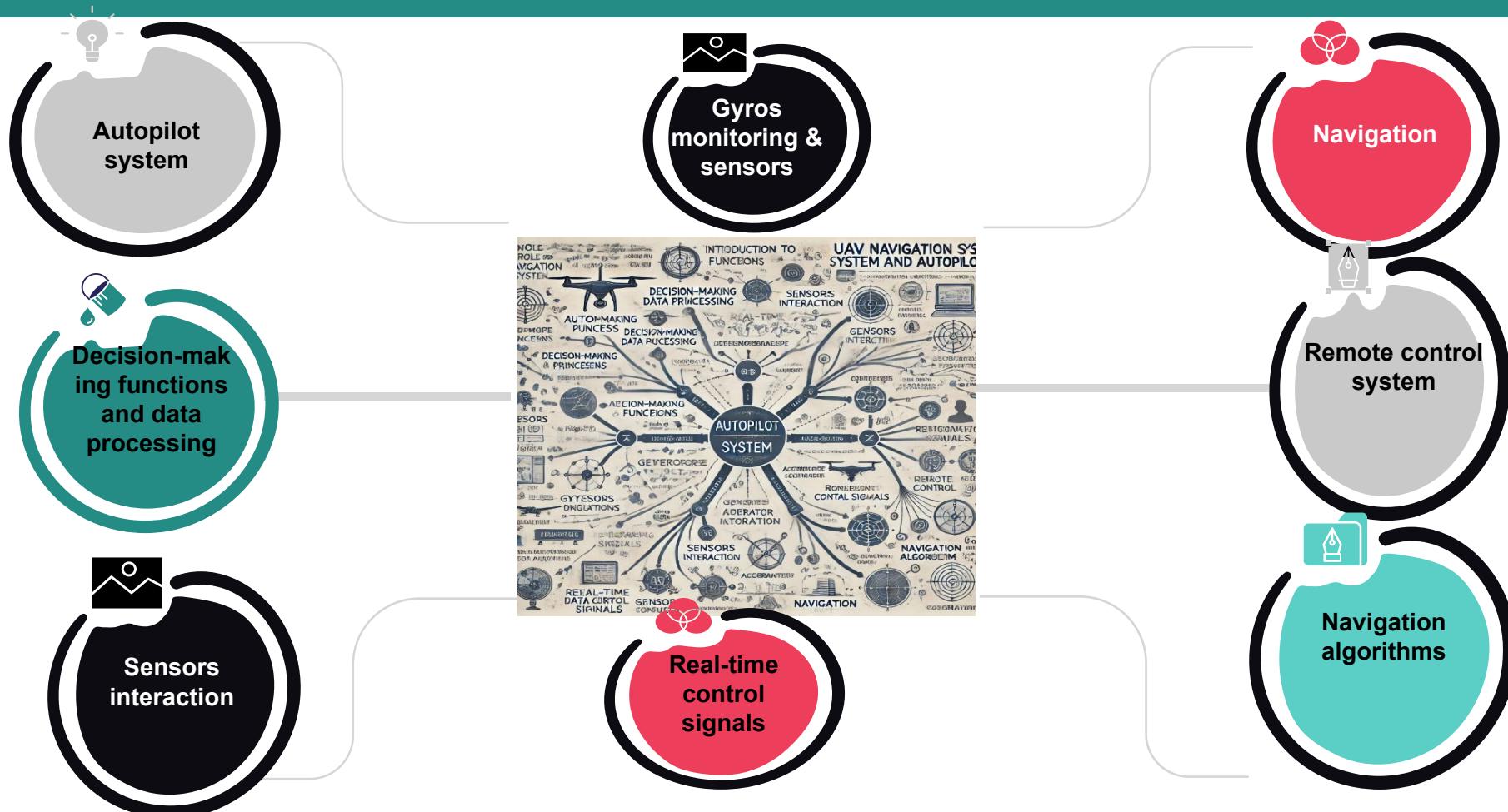
Introduction in the system of navigation and autopilot UAV

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none">• Navigation system and autopilot overview• The role and functions of the autopilot in UAV control	<ul style="list-style-type: none">• The students WILL explain the role the autopilot in functioning UAV-SITE• will TO describe How autopilot takes decisions USING data from sensors of navigation and from the operator	<ul style="list-style-type: none">• CHARTS of System of navigation of the UAV-SITE• UAV-training for demonstrations• simulate	<ol style="list-style-type: none">1. The teacher introduces the UAV and explains the role of the autopilot.2. Discussions about how the autopilot works, using diagrams.3. Do demonstrations practicalities of the UAV in flight and the role of the autopilot in maintaining stability.	<ul style="list-style-type: none">• Students will be able to identify and explain the role of the autopilot in a UAV.• Will accurately show how data from navigation sensors is collected and used.	<ul style="list-style-type: none">• Oral questions to check understanding of key concepts.• Observing student participation to discussions and demonstrations.

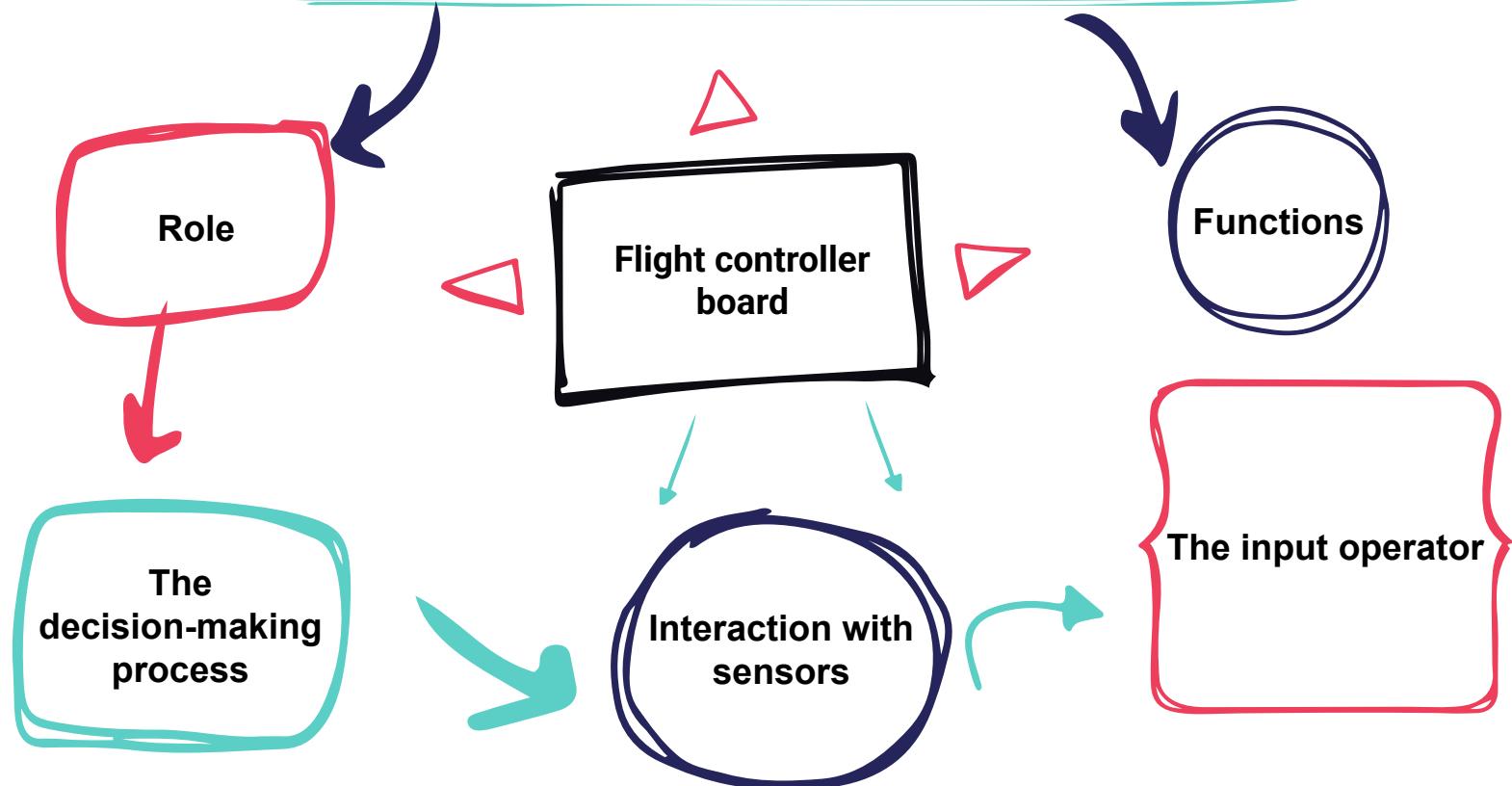
Introduction in the system of navigation and autopilot UAV



Maintenance and the repair controller of flight



Introduction in the system of navigation UAV and autopilot

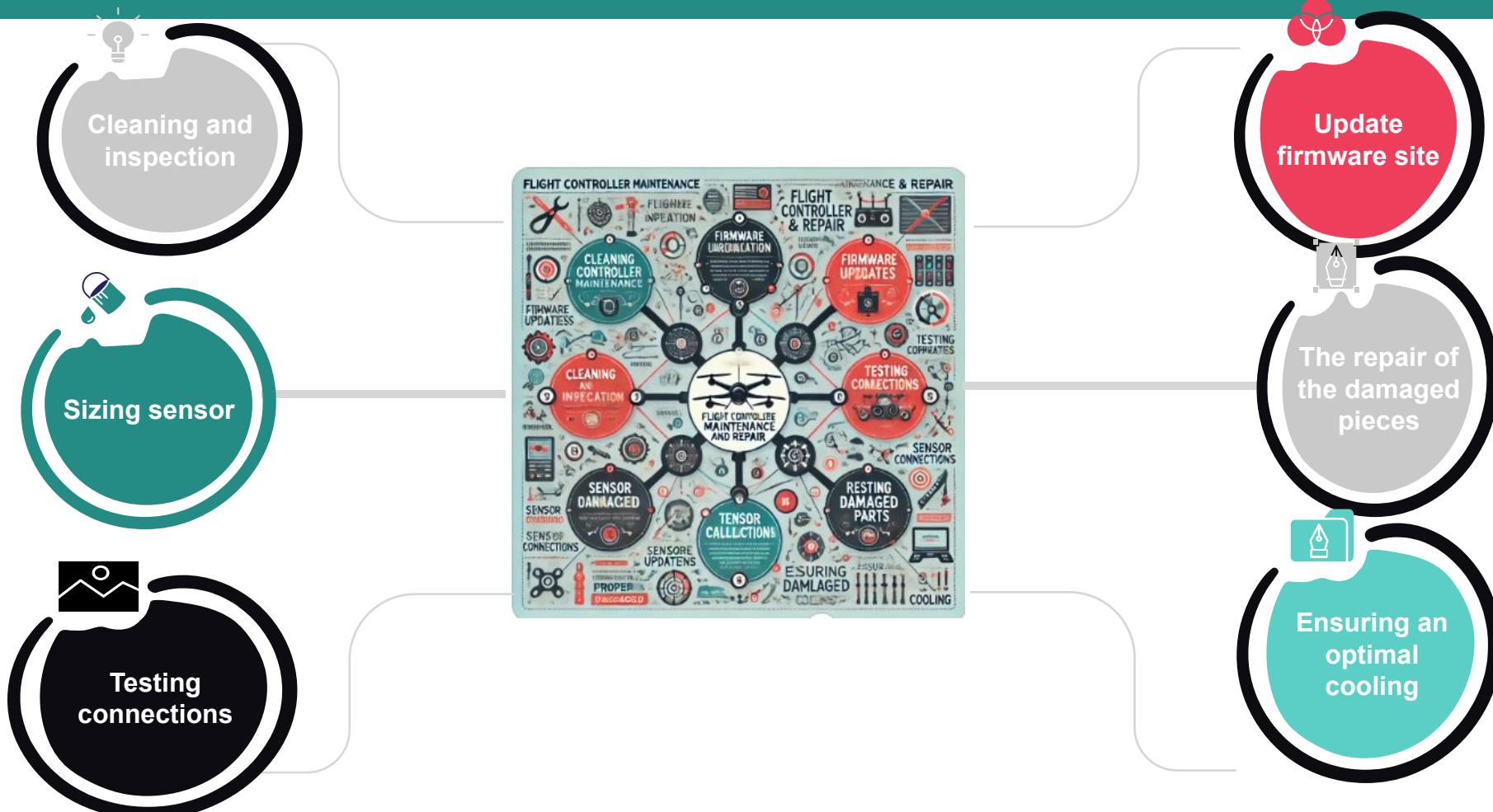


MODULE 4 – LESSON 1

Maintenance and the repair controller off light

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none"> And the importance of the flight control board. Flight control board components. Preventive maintenance techniques. Diagnosing defects frequent. Flight Control Board Repair Procedures. 	<ul style="list-style-type: none"> Explain role and function controller of flight in a UAV. I identify FAULTS some common that occur on the control board and how they can be prevented or repaired. apply A correct firmware verification and update procedures. Calibrate internal sensors for optimal operation of the UAV. Do a physical maintenance operations and diagnostics. Replaces defective components or fix the need to replace the control board. 	<ul style="list-style-type: none"> dummyUAVs of (or reduced models) Replacement Flight Controller (flight control board) for UAV Multimeter (for testing circuits) Kit of repairs for electronic maintenance UAV Technical Manualit 	<p>Introduction – 10 minutes The teacher presents the UAV and explain the role of the flight control board; discuss the importance of its proper maintenance.</p> <p>2.The theoretical part – 20 minutes Explain connections they ELECTRICAL, detection defects etc.). The students WILL effect a update of firmware- on control board USING the computers and Software available. Presint how to identify and prevent control board problems. Examples of diagnostics will be shown -frequent defects.</p> <p>3.Practical activity – 30 minutes Students test electrical connections using a digital multimeter. The testing of the sensors and their calibration</p>	<ul style="list-style-type: none"> Description of the function of the flight controller and its importance. Successfully conducting tests on the electrical connections of the board. Updating the firmware of the control board and identifying frequent errors in its operation. Correct calibration of sensors and understanding the diagnostic process. Physical maintenance of the flight controller 	<p>Observation of practical activity: Students will be assessed on how well they perform technical tasks, such as testing electrical connections, and calibrating sensors.</p> <p>Oral questions: During the lesson, the teacher will ask questions to check if the students understand the steps.</p> <p>Final Project: Students will be given a scenario with a specific problem related to the control board (e.g. a faulty sensor) and will have to identify and solve the problem.</p> <p>Individual feedback will be given to each student, highlighting strengths and areas for improvement.</p>

Maintenance and the repair controller of flight



Maintenance and the repair controller of flight

Cleaning and Inspection

Sign out: Turn off the UAV, disconnect the battery before starting any maintenance work.

Cleaning: Use a soft brush or compressed air to remove dust or dirt from the flight controller and related components.

Verification: Visually inspect the controller for signs of physical damage such as cracks, weak solder, or damaged components.

Up date firmware

Connect to PC: Connect the flight controller to a computer via the USB cable and access the manufacturer's dedicated software.

Update: Check for available firmware updates and follow the update instructions. Make sure not to disconnect the controller during the update process to avoid possible malfunctions.

Sizing sensor

Stabilization: Place the UAV on a flat and stable surface.

Accessing the settings: Through the configuration software, calibrate the inertial sensors (IMU) etc compass to ensure that the UAV has accurate orientation and movement data.

Verification: After calibration, perform a test to ensure that the data provided by the sensors is correct.

Testing connections

Physical check: Examine all electrical connections of the flight controller to ensure that the wires are not loose or damaged.

Testing: With the UAV powered on, check that all components respond correctly to commands sent by the flight controller. Make sure there are no delays or errors in his reactions.

The repair of the damaged pieces

Identification: If you identify a faulty component, such as a broken connector or a non-functional sensor, assess whether it can be repaired or needs to be replaced.

Solution: Use a soldering gun to repair poor electrical connections or replace faulty components with new ones. If you do not have experience working with electronics, it is recommended to ask for the help of a specialist.

Ensuring optimal cooling

Verification: Make sure the airflow to the flight controller is not obstructed and that the UAV has an efficient cooling system.

Adding radiators: If you notice that the controller overheats, consider adding additional heatsinks or fans to prevent damage to the controller.

Final recommendations

Perform a regular inspection of the flight controller, even if the UAV appears to be operating properly

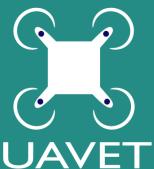


Keep documentation up-to-date with all interventions performed, including firmware updates and sensor calibration.



Be sure to work in a clean, well-lit environment when performing maintenance or repairs.





MODULE 4 - LESSON 2

UAV navigation sensors - IMU and GPS

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
• Introduction to IMU (Inertial Measurement Unit)	• The students WILL understand the functions and importance IMU-SITE and GPS-SITE in the system of navigation of the UAV-SITE.	• IMU and GPS sensor models • Technical manuals of UAVs • UAV motion simulation programs	1. the professor explained the functioning of the IMU and its components. 2. Demonstrate how GPS guides the drone into space. 3. Students identify sensors on a UAV model.	• Students will be able to explain the role of IMU and GPS. • They will be able to explain how these components contribute to the navigation of the UAV.	• Observing students during practical activities.
• The Role of GPS in UAV Navigation	• will identify components IMU-SITE(gyroscope, accelerometer, magnetometer).				• Verification of knowledge about IMU and GPS with the help of the application Kahoot

UAV navigation sensors - IMU and GPS

Gyroscope

It measures the rotation and orientation of the drone in around the three axes (pitch, roll and yaw). It provides information on how much quickly rotate the drone in time flight, helping to maintain stability.



Accelerometer

It measures the acceleration of the UAV on the three axes and helps to detect changes in position or speed. It contributes to the maintenance balance and detection sudden changes in movement.



Magnetometer

It works like a compass and detect direction from north magnetically, helping to establish orientation of the drone in space.



GPS-

provides data on geographic position of the drone (latitude, longitude and altitude) and speed of displacement. It is essential for long distance navigation, settling routes and to maintain position drones in a specific area.



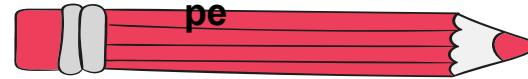
Pressure sensors

Barometric altimeter: Measures air pressure to determine the altitude of the drone. This information is essential for maintaining a constant heights and to avoid collisions.



IMU – Inertial Measurement Unit

Gyroscope



The IMU is an essential component of the navigation system of any drone, being an electronic device that contains the following sensors:

- **Gyroscope**
- **Accelerometer**
- **Magnetometer or compass**

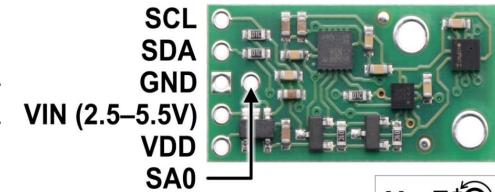
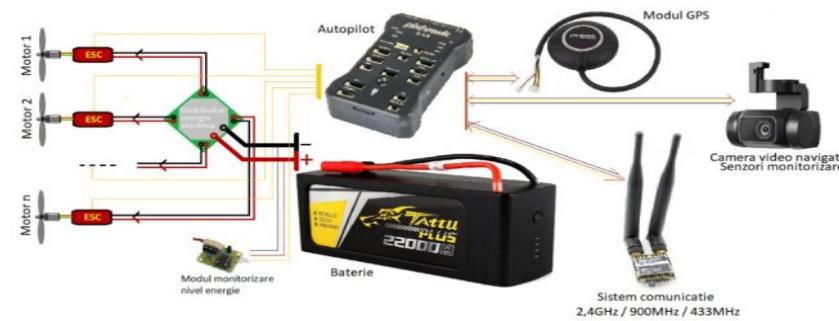


Accelerometer



The role of the inertial sensor is to provide angles of attitude, angular velocities and accelerations to the block of autopilot calculator.

Magnetometer or compass



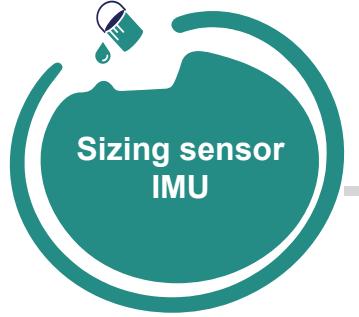
IMU sensor



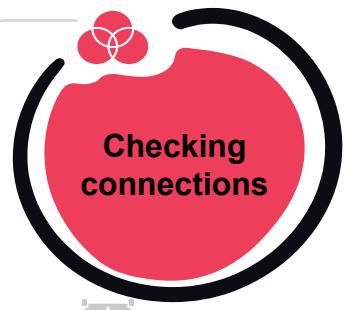
MODULE 4 – LESSON 2

Maintenance and the repair sensor UAV

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none">Importance of UAV sensor maintenanceSensor cleaning and calibrationFunctionality testing of sensorsReplacing damaged sensors	<ul style="list-style-type: none">Understand the importance of sensor maintenance to UAV performance.Learn how to clean and calibrate sensors.Be able to perform diagnostic tests for UAV sensors.Know the procedures for replacing damaged sensors.	<ul style="list-style-type: none">Power Point presentation with images and diagrams.UAV sensors (eg: GPS, altimeter, cameras).Cleaning tools (ex: cleaning solutions, cloths).Kdiagnostic it for functional tests.User manuals for specific sensors.	<p>Introduction (10 min) Discussion of the importance of sensors in UAV operation. Presentation of lesson objectives.</p> <p>Sensor cleaning and calibration (20 min) Demonstration of sensor cleaning techniques. Hands-on exercise: Students clean UAV sensors.</p> <p>Functionality testing (20 min) Explanation of diagnostic procedures. Activity: Students perform tests to verify the functionality of the sensors.</p> <p>Replacing damaged sensors (20 min)</p>	<ul style="list-style-type: none">Students will be able to identify, clean, calibrate and test UAV sensors. Students will learn how to replace damaged sensors.	<ul style="list-style-type: none">Evaluation by observation during practical activities. Written or oral test at the end of the lesson to evaluate the knowledge acquired.



Maintenance and the repair of UAV sensor



Maintenance and the repair sensor UAV

Cleaning and Inspection

Shut down and log out: Before starting any activity, turn off the UAV and disconnect the battery to avoid the risk of damage.

Cleaning: Use compressed air to remove dust and dirt from the IMU and GPS sensors. Be sure to remove any impurities that could affect their accuracy.

Visual inspection: Check the sensors for signs of wear, cracks, loose cables, or other physical damage that could affect functionality.

Checking connections

Connectors and cables: Make sure all the cables connecting the IMU and GPS sensors to the control board are securely fastened and shows no signs of damage.

Testing: If you suspect a problem, check the connections with a multimeter to ensure electrical continuity.

Sizing sensor IMU

Software access: Connect the UAV to a computer and open the flight control software.

Calibration procedure: Place the UAV on a flat and stable surface, then follow the steps indicated by the software to calibrate the IMU sensors. Correct calibration is essential to ensure the accuracy of the UAV's orientation and movements.

Verification: After calibration, perform a flight test to verify that the UAV responds correctly to commands and that the orientation data is

Maintenance the sensor GPS

Installation check: Make sure the GPS antenna is mounted correctly and is not obstructed by other components of the UAV. A **firmware update:** Periodically check for firmware updates for the GPS sensor. Updates can improve performance and accuracy.

Testing: Check GPS signal reception in an open area with no obstacles interfering with the signal. Make sure the UAV has a stable GPS connection before flying.

Diagnosing and replacing damaged components

Testing: If the IMU or GPS sensors are not working properly, use the UAV software to check the data provided by them. Any unusual data or errors indicate that the sensor may be faulty.

Identification: If you identify a damaged sensor, check the specifications to obtain a suitable substitute.

Replacement: If the sensor is damaged or not working properly, replace it with a new one, taking care to make the correct connection and

Prevention issues

Flight environment: Avoid flying the UAV in areas with strong electromagnetic interference, as it may affect the operation of the IMU and GPS sensors.

Pre-Flight Check: Always perform a quick check of sensor functionality before each flight to identify potential problems.

Final recommendations

If you are unsure about the repair procedure, seek the help of a specialist to avoid further damage to the sensors.



Calibrate sensors IMMU and GPS to intervals **REGULAR** for maintaining **PRECISION** in **FUNCTIONING**.

Follow these procedures to keep your UAV's navigation sensors in optimal condition, ensuring safe and accurate flights.



Mode	Gyroscope	Accelerometer	Barometer	Compass	GPS	Notes
ACRO / Gyro Only	-X-					Normally a default mode and is more "acrobatic" flight (drone cannot auto-level)
ANGLE (Stable/Level/Acc)	-X-	-X-				Stable mode; will try to keep the model level to the ground (but not at a fixed position).
HORIZON	-X-					Combines the stable effect with slow RC commands and acrobatics with fast RC commands.
BARO (Altitude Hold)	-X-	-X-	-X-			Barometer is used in order to keep a certain (fixed) height when no other commands are received.
MAG (Heading Hold)	-X-	-X-		-X-		Heading (compass direction) lock mode, it will try to keep its Yaw orientation.
HEADFREE (CareFree)	-X-	-X-		-X-		Holds the orientation (yaw) of the drone and will always move in the same 2D direction for the same ROLL/PITCH stick movement.
GPS / Return to Home	-X-	-X-		-X-	-X-	Automatically uses compass and GPS to return home to the starting GPS point.
GPS / Waypoint	-X-	-X-		-X-	-X-	Automatically follows pre-configured GPS way-points autonomously.
GPS / Position Hold	-X-	-X-		-X-	-X-	Hold current position using GPS and baro (if available).
Failsafe	-X-					Aircraft reverts to acro / gyro only when no other modes are selected.

MODULE 4 – LESSON 3

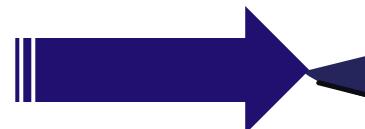
Sensor monitoring and calibration

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none"> • Sensor calibration process • And the importance of monitoring sensor data for UAV flight 	<ul style="list-style-type: none"> • Students will learn how to calibrate IMU and GPS sensors. • They will understand the importance of accurate data for flight safety and efficiency. 	<ul style="list-style-type: none"> • Software for sizing sensor UAV-hate of training for exercises practical • Multimeter for checking connections 	<ol style="list-style-type: none"> 1. The teacher explains how to calibrate the sensors and why this activity is necessary 2. Demonstrate sensor calibration using a real UAV or simulator. 3. Students will perform the calibration process on their own under the supervision of the teacher 	<ul style="list-style-type: none"> • Students will be able to calibrate the sensors in the independent way . • They will understand how sensor data influences the stability of the UAV. 	<ul style="list-style-type: none"> • Evaluation of students' practical activity. • A written mini-report in which students describe the calibration process.

Sensor monitoring and calibration

1

Sensor calibration



The importance of calibration
 Steps and tools

2

Data monitoring



Data verification
 Impact on flight stability



Monitoring sensor

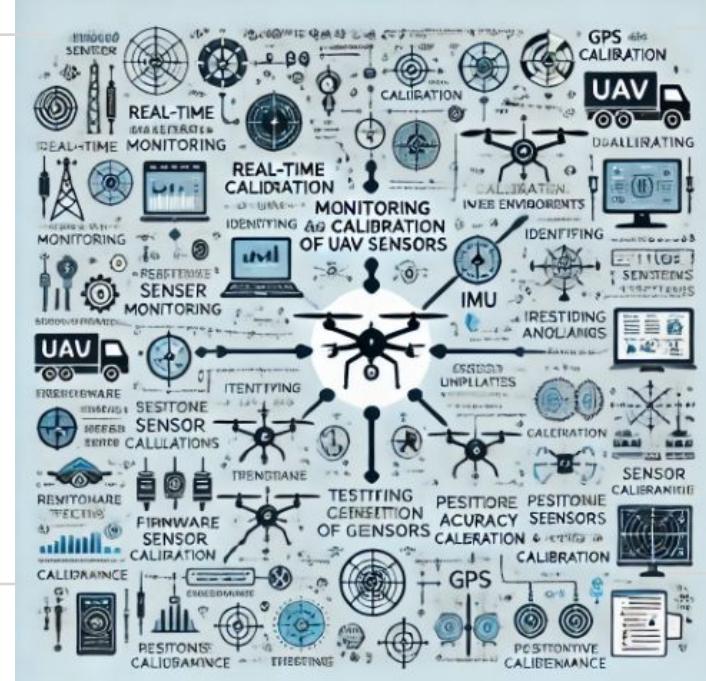


Periodic checks



Sizing sensor IMU and GPS

Sensor monitoring



Preventive maintenance

Sensor monitoring and calibration

MONITORING sensors

Real-time data verification: Connect the UAV to a computer or tablet that can display real-time sensor data. This will give a picture of how the sensors respond to the movements of the drone. **Analysis of possible anomalies:** It notices if there are abnormal fluctuations in the data provided by the sensors, such as speed, altitude or orientation. Abnormalities could indicate problems with one of the sensors. **Functionality testing in different environments:** Flying the drone in different conditions (eg in open areas, indoors, near obstacles) will help identify errors and determine the quality of the GPS signal or IMU response.

Calibration of IMU sensors

IMU calibration:

Step 1: Place the UAV on a flat and horizontal surface, avoiding vibrations or other movements.

Step 2: Access the drone software or app that allows sensor calibration. Many drones offer calibration options in their interface.

Step 3: Follow the software instructions to perform the calibration. This process may involve rotating the drone on its axis, moving it in different directions, or holding it in specific positions.

Step 4: Verify that the IMU is working properly after calibration by performing flight tests and monitoring data provided by sensor.

GPS sensor calibration

Step 1: Place the UAV in an open area, away from buildings, trees or other obstacles that may interfere with the GPS signal.

Step 2: Make sure the drone has enough battery and that the weather conditions are favorable (no rain or strong wind).

Step 3: Activate GPS calibration mode via the drone app or remote control. Some drones require you to perform a rotational movement of the drone (for example, rotating around its vertical or horizontal axis) to calibrate the GPS.

Step 4: It waits for the drone to establish a connection with a sufficient number of satellites. Calibration is complete when the GPS displays correct and stable coordinates.

Periodic checks

Firmware update: Make sure your sensor and drone firmware are always up-to-date, as updates can improve sensor accuracy and stability.

Testing regular: Performs periodic flight tests to verify that sensors are properly calibrated and that the drone responds properly to flight commands.

Final recommendations

Sensor Cleaning: Cleans sensors of dust, dirt or other impurities that could affect their performance.

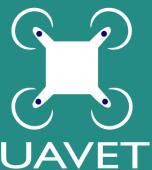


Checking cables and connections:
Make sure all sensor connections are secure and there are no damaged or loose cables.



By performing these monitoring and calibration steps, the UAV will benefit from optimal flight accuracy and the navigation sensors will function correctly and efficiently.





MODULE 4 – LESSON 3

Monitoring energy and flight management

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none">• The role sensor of energy• Making decisions in function of the of energy available	<ul style="list-style-type: none">• Students will learn how to monitor the power level of the UAV.• They will understand how the autopilot uses this data to plan the flight.	<ul style="list-style-type: none">• Models of batteries and sensors of energy• UAV-hate equipped with sensors of energy• Software for monitoring energy	<ol style="list-style-type: none">1. Submission sensor of energy and services.2. Demonstration mode of monitoring energy in time flight.3. The students will effect a simulation in which will monitor power UAV in flight.	<ul style="list-style-type: none">• Students will be able to explain how energy levels are monitored and how they affect flight decisions.• They will be able to use data from the energy sensor in planning a safe flight.	<ul style="list-style-type: none">• Observing energy monitoring activities.• A final presentation where students will explain how they would manage the UAV's power during a flight.

Energy monitoring and flight management

1

Energy sensors



The role of the sensor
Monitoring the energy level

2

Making decisions



Flight planning
The impact of the level of energy

The role of sensors in the functioning of the UAV

Stability and control



Orientation and navigation



IMU, along with the gyroscope and the accelerometer, allows autopilot to maintain the stability of the drone and to adjust movements for to offset factors external, such as wind.

The altitude control



Magnetometer and GPS provides orientation correctness of the drone and provide the coordinates needed for displacement.

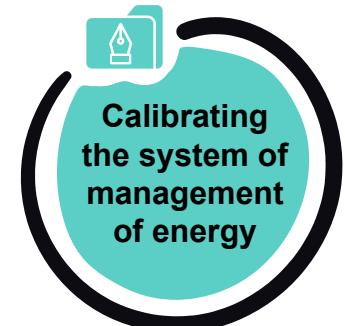
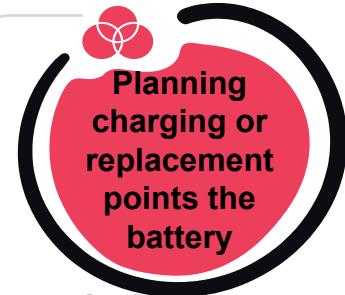
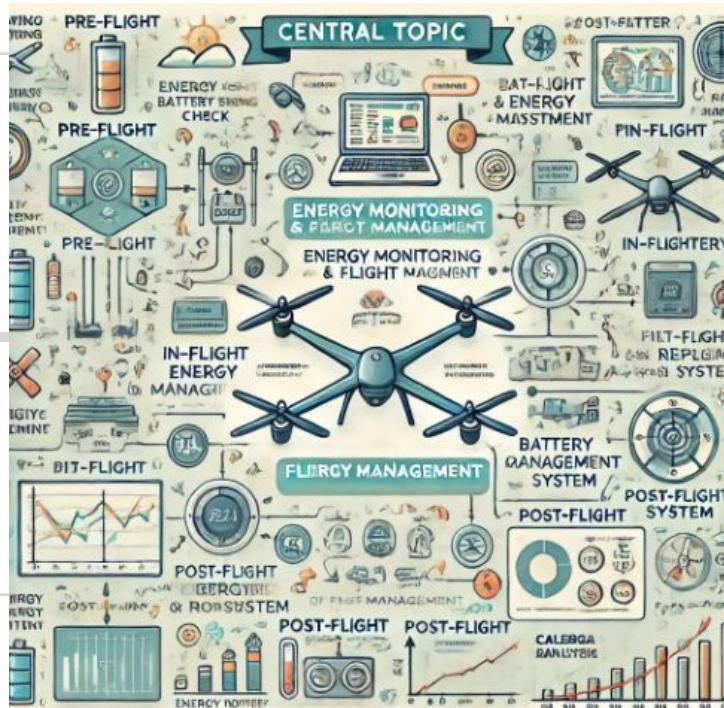
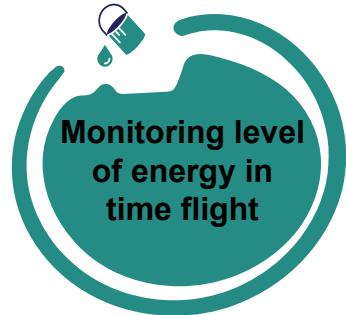
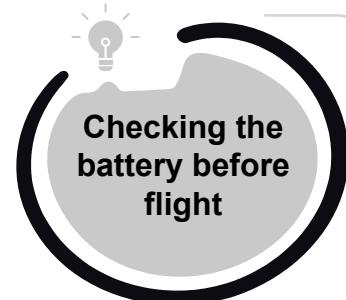
The pressure sensor monitors altitude to keep the drone at desired level.

Energy administrator



The sensor of battery monitoring ensures that the drone works in safety, preventing uncontrolled landings because of the lack of energy.

Maintenance and the repair sensor UAV



Maintenance and the repair sensor of UAV

Battery check before flight:

Before any flight, you must check the battery charge level. Make sure the battery is fully charged to avoid unexpected shutdown during flight. Also inspect the battery for signs of wear, such as swelling or damage.

Energy level monitoring during flight:

In/during the flight, it is essential to monitor the remaining energy level. Most UAVs have a system that transmits this data to the operator. If the energy level drops below a certain threshold, it is recommended to start the return procedure.

Flight time management:

Time of a UAV depends on battery capacity and environmental conditions. For example, strong wind or extreme temperatures can use more energy. It therefore adjusts the flight time according to these conditions.

Planning charging points or battery replacement:

If the flight takes longer, you need to have charging points or spare batteries at hand. This planning helps you continue operations without interruption.

Performing a post-flight review

After every flight, check the remaining power level and overall battery performance. If you notice that your battery is draining faster than usual, it could be a sign that it needs to be replaced or recalibrated.

Calibration of the energy management system:

Make sure that the system of monitoring energy is correctly calibrated to display precise data. If it is necessary, recalibrate the system using Software specific to the UAV.

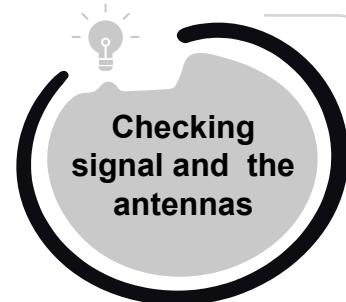


MODULE 4 – LESSON 4

UAV Remote control maintenance and repair

TOPICS	LEARNING GOALS	TEACHING MATERIALS	TEACHING PROCESS	RESULTS	EVALUATION
<ul style="list-style-type: none">The importance of maintenance -UAV remote controls, checking signal and the antennasMaintenance buttons and a control interfaceupdate the softwareTesting and calibrating controls	<ul style="list-style-type: none">To understand the importance of remote control maintenance for the operation of the UAV. To learn how to check the signal and antennas of the remote control. To be able to maintain the buttons and control interface. To know the steps necessary to update the remote control software. To perform tests and calibration of the remote control.To understand the importance of remote control maintenance for the operation of the UAV. To learn how to check the signal and antennas of the remote control. To be able to maintain the buttons and control interface. To know the steps necessary to update the remote control software. To perform tests and calibration of the remote control.To understand the importance of remote control maintenance for the operation of the UAV. To learn how to check the signal and antennas of the remote control. To be able to maintain the buttons and control interface. To know the steps necessary to update the remote control software. To perform tests and calibration of the remote control.To understand the importance of remote control maintenance for the operation of the UAV. To learn how to check the signal and antennas of the remote control. To be able to maintain the buttons and control interface. To know the steps necessary to update the remote control software. To perform tests and calibration of the remote control.	<ul style="list-style-type: none">Power Point presentation with images and diagrams.UAV remote controls for demonstration.Cleaning tools (ex: cleaning solutions, cloths).Laptop or tablet for software updates.A diagnostic kit for functional tests.	<p>Introduction (10 min) Discussion on the importance of remote control in UAV operation. Presentation of lesson objectives.</p> <p>Checking signal and antennas (20 min) Demonstration of how to check antennas and signal. Practical exercise: students check the remote control signal.</p> <p>Maintenance of buttons and control interface (20 min) Explaining the physical wear and tear on the buttons and interface. Activity: Students clean the buttons and, if necessary, simulate replacing them.</p>	<ul style="list-style-type: none">Students will be able to check, maintain and upgrade UAV remote controls. Students will learn how to test and calibrate the controls for accurate UAV response.	<ul style="list-style-type: none">Assessment by observation during practical activities. Written or oral test at the end of the lesson to assess the knowledge acquired

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Maintenance and separation of electronic commands UAV

Checking signal and antennas

Physical check: Inspect the antennas remote controls to make sure they are not bent, broken or damaged. Signal quality: Test the signal in different environments to ensure that the connection with the UAV is stable. If you experience interruptions in communication, check if there is interference of signal. Testing frequencies Make sure that the remote control is operating on the correct frequency and that there is no interference external. If it is necessary, adjust frequency settings.

Maintenance of buttons and interface of control

Cleaning: Use a soft cloth, dry or wet lightly with isopropyl alcohol to clean the buttons and remote control surface. This prevents the accumulation of dirt or dust. Functionality check: Press each button to make sure it reacts correctly. If a button does not answer well, it is possible to replace it. Lubrication: If some buttons or switches are harder to press, apply a special lubricant for equipment electronics.

Updating the remote control software discharge and installation:

Access manufacturer's website to check for firmware updates. Download and install the latest versions to make sure the remote works efficiently and has all the improvements and bug fixes.

Update procedure: Connect the remote control to the computer using a USB cable and follow the manufacturer's instructions to update the firmware. Make sure the update process runs smoothly to avoid performance issues.

Testing and calibration CONTROLS

Calibration: Calibrate the controls according to the manufacturer's instructions to ensure an accurate reaction of the UAV to your inputs.

Testing in real conditions: Test the remote control in the field using the UAV to verify that the controls respond properly to all movements and directions.

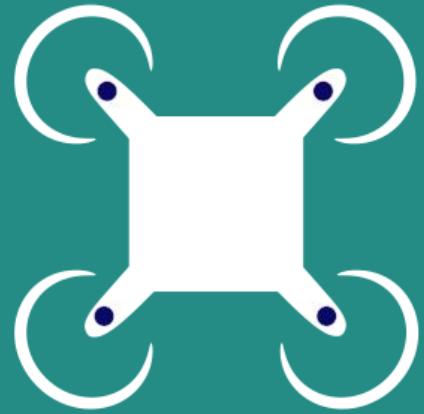
Diagnosis of problems: If you notice any problem with the reaction of the UAV, use the diagnostic functions of the remote control or the software to identify and fix the problems.

General battery maintenance REMOTE

Checking the battery: Check the battery status regularly to make sure it is working optimally.

Full charge: Make sure the battery is fully charged before each flight to avoid interruptions during operation.

Battery replacement: If you notice a significant decrease in battery life, replace it with a new one.



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