

AGENDA

"Foundation Training: Navigating Drone Technology" in
Darıca/TÜRKİYE

12-16 th of May, 2025, Darıca İlçe Milli Eğitim Müdürlüğü

12th of May, 2025, Monday

10.30	Arrival of the participants
11.00	Welcome Session & Presentation of partners
11.15	Project overview and Training Content
12.30	Lunch Break
13.30	WP2 - Scheduling activities and reviewing Gannt Chart
15.00.	Coffee Break
15.30	WP2 – Detail of WP2 and checking list of materials on drive
17.00	Closure and free time

13th of May, 2025, Tuesday –

TRAINER : DARICA MEM & MAYFLY

MORNING SESSION – DARICA MEM HALL

09:00 – 12:30 –

- ABOUT MAYFLY
- HISTORY OF UAV SYSTEMS
- ROTARY WING UNMANNED AERIAL VEHICLES
- AREAS OF USE OF DRONE SYSTEMS
- TYPES AND STRUCTURE OF ROTARY WING UAV
- MECHANICAL DESIGN OF ROTARY WING UAV

12.30-13.30 Lunch

MORNING SESSION – GTU

13.30-15.00 Mechanical collection of drones

15.00-15.15 Coffee Break

15.30-16.30 Controlling a drone with a remote control

16.30-17.30 Autonomous flight of a drone

14th of May, 2025, Wednesday

Trainer : Successios Critavos & Darica Mem

Place : GTÜ

MORNING SESSION - Introduction and Set Up

Part 1 – Introduction to the Hardware

Objective: Familiarize the audience with the components used in the project.

Microcontroller: ESP8266 (NodeMCU)

- Wi-Fi capable development board
- Easy integration with sensors
- Arduino IDE compatible

Sensors Overview:

- **BME680** – Environmental sensor
- **NEO-6M GPS** – Satellite location sensor
- **MicroSD Card Module** – Data storage and (...)

Part 2 – Defining the Real-World Challenge

Up to this point, we've introduced the hardware. But before we continue wiring components and writing more code, we need to understand **why** we're doing it.

What problem are we trying to solve?

Contextual Challenge

Imagine real-world scenarios where drones are used not just for photography or delivery, but as flying laboratories:

- **Precision Agriculture:** A drone flying over a large farm, collecting temperature and humidity data at multiple altitudes to help farmers make better irrigation decisions and detect drought-prone zones early.
- **Pollution Tracking:** A drone patrolling the outskirts of an industrial zone, logging air quality data to detect VOCs or gas leaks in hard-to-reach or hazardous areas.

- **Smart Cities:** A city deploying drones to map real-time temperature variations, identifying heat islands or poor air zones that need more trees, ventilation, or infrastructure changes.
- **Climate Research:** A drone collecting atmospheric data above mountains or forests — places where human access is limited or unsafe — contributing to climate models or ecological studies
- **Water Quality Surveillance:** A drone flying over reservoirs, canals, or treatment facilities, collecting **humidity data** and abnormal humidity levels — early indicators of water pollution or sanitation issues.

This sets the stage for **building a data logging solution** using sensors, GPS, and storage.

Part 3 – “Hello, World!” with ESP8266

Objective: Understand how to program and communicate with the ESP8266.

- Upload basic sketch to blink or print "Hello, World!"
- View output in Serial Monitor

Part 4 – Reading Environmental Data (BME680)

Objective: Capture real-world atmospheric data.

Use case: “What’s the air quality around us?”

Part 5 – Associating Data with Location (GPS Module)

Objective: Record where the data was taken.

Use case: “Where was this air quality sample recorded?”

Part 6 – Saving Data Offline (microSD Module)

Objective: Store data when the drone is flying.

Data is collected autonomously, without real-time communication.

AFTERNOON SESSION – Bringing It All Together

Drone Flight Experiment

- Power it using a battery or USB power bank
- Insert into a small protective box for drone mounting
- Attach box to drone

- Take off and fly in a real outdoor scenario
- Land and retrieve SD card

Data Visualization

Google Maps:

- Clean CSV (remove invalid rows)
- Import into **Google My Maps**
- Plot readings as pins with sensor data

Kepler.gl:

- Clean CSV (remove invalid rows)
- Import into **Google My Maps**
- Plot readings as pins with sensor data

See how sensor values change as the drone moves!

15th of May, 2025, Thursday

Trainer : GTÜ PROFESSORS

Place : GTÜ

10:00 - 10:45: Device Tutorial

10:45 - 11:00: Break

11:00 - 12:00: App Tutorial

Lunch

14:00 - 17:00: Flying the drone

16th of May, 2025, Friday

Responsible : DARICA MEM

Place : DARICA MEM HALL

- Evaluation of the project
- Coordinators meetings
- Closure



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