Track your atmosphere

TTrack Your ATmosphere: Open Learning Materials for Vocational Education and Training.
Final Report

Track your atmosphere

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In the framework of ERASMUS+ program Key Action “Cooperation for innovation and the exchange of good practices” with an Action Type “Strategic Partnerships for vocational education and training”, our project TRack Your ATmosphere (TRYAT) was approved in august 2017 and is co-funded by the European Union.

The project is going to end next August 2020. Here we present the final report on the achieved objectives.

The project’s total duration is 35 months and the participants are teachers, researchers and students from three vocational schools and Research/University Institutes in France, Germany and Italy.
We show the achievements so far for each expected intellectual Output (O)

O1- Learning Plattform. (www.tryat.eu)
The Learning Web Platform is an interactive and versatile tool. It helps learners, teachers, researchers and other involved personnel to crosslink, enhance intercultural teambuilding and work on the related technological and environmental issues. The platform gives even access to online real-time and archived data, maps, evaluation and graphical visualization.

O2- Starter Kit
We have been realizing a starter kit of a system to acquire and manage data from both GNSS and weather stations. The kit enables us testing not only the technology, but even the concept itself.

O3- OER Learning Material ‘Physical and Technical Foundations’
It is an interactive physics course where students learn the foundations of three relevant main topics of the project: satellite technology, propagation of waves and physics of the atmosphere. The corresponding competences are elaborated for the use in different VET curricula.
O4- OER Learning Material 'Informatics and Electrical Engineering'
We have developed an interactive learning unit ("learning environment") with focus on informatics and electronics. The students are given just a problem, namely the collecting of environmental data. This problem is proposed to them in the form of an order from industry “Monitoring of renewable energy plant – measuring wind and sun strength as well as the electrical power”.

O5- Educational videos.
A series of 5-minute long videos have been realizing in all the official languages of the participating countries. The videos deal with the scientific subjects pertaining the project and report on the results themselves, and the way the student worked as teams to achieve them. Different subtopics will be presented in short videos, as a desirable way of dissemination.
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How can we motivate undergraduate students and VET learners?
Track your atmosphere
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Your Own Position
(Maps: XX.XXX, YY.YYY)

Altitude
(MSL = Main Sea Level; „normal Null“)

Velocity

Measurement Precision
(Position Dilution of Precision; <4.0 = gut; >7.0 schwach)

**Coordinates (Sat.)**
Elev = Elevation
Azim = Azimut

**Galileo (EU)**

**GPS (USA)**

**GLONASS (Russ.)**

**QZSS (Japan)**

**BeiDou/COMPASS (China)**
Comprehensive Handbook with physical background and many (home) experiments

- Mechanical Vibration and Waves
- Refractive Index
- Microwaves
- Earth Atmosphere
- Satellite Orbits
- ...

- Water vapor calculation

With data collected from the projects antenna
Track your atmosphere

Motivating Videos for students

In four languages

www.tryat.eu
STARTER KIT 1.0

ARDUINO MEGA 2560
The MEGA 2560 is designed for more complex projects. With 54 digital I/O pins, 16 analog inputs

DS18B20 (Temperature) [2x]
Digital thermometer
Measures Temperatures from -55°C to +125°C

NEO6MV2 (GPS Module)
50 Channels
GPS L1 frequency, C/A Code
SBAS: WAAS, EGNOS, MSAS

BME280 (Temperature, Pressure, Humidity)
Integrated environmental sensor developed specifically for mobile applications where size and low power consumption are key design constraints.
Combined digital humidity, pressure and temperature sensor
based on proven sensing principles

YL-38 (with a FC-37 Rain sensor)
The signal is proportional to the percentage of wet area on the sensor plate, rain intensity has a direct impact on the amplitude and variation of this analog signal
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TRYAT NETWORK

Precipitable Water

Co-funded by the Erasmus+ Programme of the European Union

Open Educational Resources

BY 4.0
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For further details, please visit:

https://www.tryat.eu/