A.A. 2024/2025

Methods in Computer Science
Education: Design
Final Project

Project name	SMART LED THERMOMETER 
Storyline	A thermometer is always useful no matter what. It's even more useful if you can, at a glance, figure out if the temperature is too cold or too hot! It can be used inside your home but it's also useful for something physics and science related such as a vegetable garden.
Target	Third year students at ITI (Istituto Tecnico Informatico e telecomunicazioni)
Level	Easy, a little bit towards medium
Learning goals	To learn about programming in arduino, use of different libraries and tinkering with electrical components.
Hardware	Arduino, use of LEDs, connecting cables, use of humidity/temperature sensor, use of LCD screen
Software	Arduino IDE, definition of variables, working with libraries, if construct, serial, pins, working with the temperature/humidity library and with the LCD screen library
Operating description	The humidity/temperature sensor always shows on the LCD screen the current numbers. When the temperature falls between medium range the yellow led is on. When the temperature falls too low the blue led is on. When the temperature is too hot the red led is on.

Handiwork	A cardboard/plastic box with the right holes and cuts to make space for LEDs and screen
Materials list	Arduino Uno R3, 4 220ohm resistors, 1 blue LED, 1 yellow LED, 1 red LED, 1 humidity/temperature sensor, 1 LCD screen, 1 potentiometer 10K, 1 9V battery with snap-on connector clip, wires for connection (Female-to-Male dupont wires and Breadboard jumpers) and 1 bread board
Lesson planning	Classroom lesson: 3 hours, Cardboard construction: 2 hours Software Production: 2 hours Assembly and final check: 3 hours
Project details	https://drive.google.com/drive/folders/1NuZAWTy1W9PAAMQJlDXOh0fy3PUO31KH?usp=drive_link