Case Study Title:

Arduino weather station

Problem Backgound

Many students lack the motivation for studying STEM objects because they don't relate the theoretical notions taught in the classroom with real life applications and, thus, they don't understand the importance of STEM.

STEM Topics Involved

Physics	■ ■ ■ ■ ■ ■ □ □ □ □
Maths	■ ■ ■ ■ □ □ □ □ □ □
Biology	■ ■ □ □ □ □ □ □ □ □
Chemistry	■ ■ □ □ □ □ □ □ □ □
Technology	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Pedagogic Methods Suggested

□ Lecture	□ Story Telling
■ Problem Based Learning	■ Peer Instruction
■ Inquiry Based Learning	□ Simulation
■ Project Based Learning	□ Role Playing
■ Direct Instruction	□ Debate
■ Collaborative Based Learning	■ Flipped Classroom Approach
□ Game Based Learning	

RoboSTEM

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Solution

The proposed solution is a methodology that involves students in engaging activities where they can see directly how STEM skills can be useful and can understand the importance of STEM. The methodology include the development of a weather station based on an Arduino microcontroller and various sensor and the use of it for daily observations. A team of students will collaborate to assembly, install, programme, test and use the weather station.

Equipment & Materials Required

- Arduino board
- Arduino IDE software
- Sensors: humidity, temperature, barometer, rain and soil humidity
- Breadboard, jumpers
- Power supply

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Assembly Instructions

1. Connect the hardware
2. Arduino Programming
3. Start using the weather station

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