

Case Study Title:

Smart irrigation system based on Arduino

Problem Background

Many students consider that the STEM subjects are boring and/or uninteresting and this limits their participation in STEM activities and stop them in pursuing a STEM related career.

STEM Topics Involved



Physics



Maths



Biology



Chemistry



Technology



Pedagogic Methods Suggested



Lecture



Problem Based Learning



Inquiry Based Learning



Project Based Learning



Direct Instruction



Collaborative Based Learning



Game Based Learning



Story Telling



Peer Instruction



Simulation



Role Playing



Debate



Flipped Classroom Approach

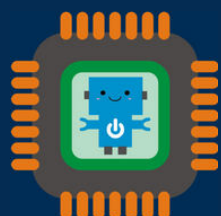
RoboSTEM

Project No. 2019-1-RO01-KA202-063965

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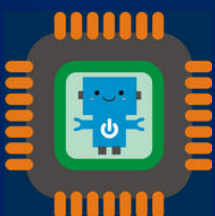
Solution

The proposed solution is an activity that is attractive for students and, in the same time, raises their interest in STEM objects – watering plants with the help of technology.

The methodology include the development and use of a smart irrigation system based on an Arduino microcontroller, a water pump and a soil moisture sensor. A team of students will collaborate to assembly, install, programme, test and use the irrigation system

Equipment & Materials Required

- Arduino board
- Arduino IDE software
- Micro water pump
- Soil humidity sensor
- Breadboard, jumpers
- Water hoses, connectors vessel for water
- Plant pot, soil, plant
- Power supply
- Cutter, hand tools



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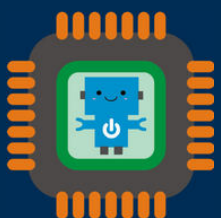
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Assembly Instructions

1. Wire Arduino, sensor, pump
2. Connect the pump, water vessel and plant pot with hoses
3. Arduino Programming
4. Start using the irrigation system



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