

Case Study Title:

Arduino 3D printed robot

Problem Background

The industrial sector needs workers with skills related to 3D printing and robotics as well as with soft skills like teamwork, creativity and problem-solving. However, the curricula includes only theoretical notions of STEM or isolated concepts of mechanics and engineering. Consequently, a methodology that promotes the development of such complex and interdisciplinary skills for students is required.

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

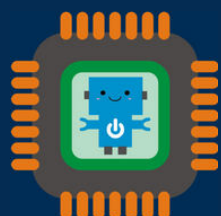
RoboSTEM

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

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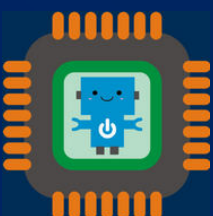


Solution

The proposed solution is a methodology involving the development of a robot based on an Arduino microcontroller and built using 3D printed parts, servomotors and various components. A team of students will collaborate to 3D print, assembly, programme and test the robot.

Equipment & Materials Required

- 3D printer,
- 3D printing materials
- Micro servos 9G – 4 pcs.
- Arduino board
- Arduino IDE software
- Breadboard, jumpers, LED
- hand tools
- Power supply



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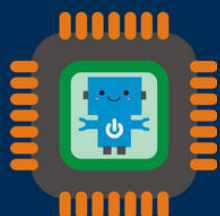
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Assembly Instructions

1. 3D print the parts
2. Assembly the parts and components
3. Wire the servos and Arduino
4. Programme the robot



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