ROBOSTEM Project

Agreement no: 2019-1-RO01-KA202-063965

Lesson Plan for Robotic Arm Introduction

Topic: Working servos with Potentiometers
Subject: Computer science, electrical fundamentals, Microcontrollers

Target Group: Students aged between 15 and 18
The students should be people that are learning about sciences, particularly aimed at

1. Physics
2. Computer Science
3. Mechatronics
4. Mechanical Engineering
5. IT

Objectives:

Obj1. To understand how a servo & potentiometer work
Obj2. To learn more about microcontroller programming
Obj3. To learn about closed loop control

Approach/Methodology used:

Project Based Learning, Small Group instructions, Research Oriented, Simulation

Means/Tools/Educational technology

Arduino Microcontroller, minimum of one potentiometer and one servo, computer for microcontroller programming, breadboard, jumper wires, 5V power supply (to supply servo)

Plan for work

Time	Activities	Methods/ means
5 min	Explain what a potentiometer and a servo are	Presentation
5 min	Explanation of the task and the aim of the project which is to set up the potentiometer as a controller for the servo axis. Leave wiring diagram on the board so they can follow it	Presentation
35 min	Students are divided into groups of 2/3 to recreate the scenario. Those who succeed early can try adding more servos/potentiometers to the programming code/circuit	Project Learning, Research, Simulation

Assessment/Feedback:

The assessment is based on recreating the connection of the electrical devices and programming the microcontroller, extra points can be given for adding more to the circuit since it shows that the students understand what is happening overall.

Bibliography:

See IO2 Robotic Arm since there is an explanation of how to connect one servo/potentiometer & then multiply this.