ROBOSTEM Project

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

Solar Powered Car

Topic/Subject: Students debate velocity and physical measurements (energy, motion) using a solar powered Arduino car.

Target Group: Highschool students.

Objectives:

Obj1. Students will be able to plot car position vs. time
Obj2. Students should be able to determine the velocity of the car from its position vs. time graph
Obj3. Students should be able to construct solar powered car.

Approach/Methodology used: Students understand Constant velocity motion; students can create experiments to test or apply ideas they already know.

Means/Tools/Educational technology

Calculators, Computers, the Internet, Student Spreadsheets, Arduino Kit, Solar powered board.

Plan for work

Time 50’	Activities	Methods/ means
	Students will start by solving a problem involving constant velocity motion in a do-now exercise. The topic of what determines whether something is traveling with constant velocity will then be covered by the class. Then, each student will be instructed to create a solar-powered vehicle that moves at a steady speed. The next step requires students to use a stopwatch and sugar packets to measure and record the position of their car over time. Then learners are asked what they can do to accelerate their car. The students are then free to modify their cars, record the position vs. time again, and calculate velocity. Students will next indicate on a whiteboard whether their improvement made the automobile quicker. Students explain why if they were unable to. Following that, students will report their findings to the class.	Stages of the lesson: Introduction Construction Final test Reflection, Discussion of questions

Assessment/Feedback:

As part of their homework, students will evaluate the advantages and disadvantages of the vehicle design and offer at least one change idea that would address a new need or problem. This involves the students in the process of engineering design.

Bibliography:

https://www.youtube.com/watch?v=p2gxNsRXnnY&ab_channel=YanOstanin