SumoRobot (by Robokoding)

Thu, 12/10/2017 - 14:42 -- Pasquale Lanni
Type of tool:
Multimedia tool – Report
Duration:
90-120 min
Topics addressed:
Digital
Peer Education
Personal development

The SumoRobot is a tool which allows two robots to compete on a SumoField, in a similar fashion to the sport of sumo. It enables kids and teenagers to learn the basics of programming, electronics and robotics in a fun and interactive way.

Aim:

The aim is to enable children and teenagers to learn programming, electronics and robotics. Using the SumoRobot also motivates teamwork, collaboration and learning by doing.
- Promoting science
- Promoting collaboration
- Promoting learning by doing
- Promoting do it yourself
- Learning programming
- Learning electronics
- Learning robotics

SumoRobot allows you to engage a group of people in a fun competition using the basic programming blocks.
The activity is designed to combine the part of the game and the relationship, promoting introductory elements to the computational logic and programming and then developing a training course structured according to the interests shown by the participants: programming & coding, building of robots , repair of IT tools, applied logic and mathematics.

Methodology:

SumoRobot is positioned between different learning methods. The exercise envisages the need to cooperate in small groups and peers, encouraging direct experience and allowing for correction of errors made. All of this is obviously centered on the computer and mechanical technologies that are at the base of the tool.

Step by step process:

1. The educator will give the introduction to robotics (slides, project, computer)
2. Participants will share their experiences with robots
2. Participants get acquainted with the SumoRobot, discovering its components (robots)
3. Forming teams and naming the robots (robots, markers)
4. Going through commands,the program flow and conditions (slides, projector, computers, robots)
5. Teams work independently, testing their code for the robot on the sumofield (sumofield, robots, computers)
6. Teams will compete against each other in a sumorobot competition (sumofield, robots, computers)
7. What's behind: a look at software and hardware
8. Presentation of possible workshops to follow: computational logic; programming; building of robots; repair and reuse of electronic blocks.
9. Evaluation, feedback and group photos

Materials and resources:

Material required (ideally): one pc per group of 3, one robot per group of 3, a gaming dashboard (sumofield).
The laboratory can also be made with only one PC and two robots, but everything is much slower, with long dead times, so less attractive for people, losing part of its effectiveness.
Useful material: projector; speakers.

Outcomes:

The groups who participated in the workshop, regardless of age, background and previous computer skills, expressed the will to continue in a structured, stimulated way. After the first workshop with the SumoRobots everyone has developed an understanding of the logic of programming.
Many are interested to continue learning with a SumoRobot kit independently or would like to attend more extensive courses on the topic

Evaluation:

The tool can be used as encouragement to improve ICT skills and get the participants more interested into the topic. It is suitable to use with any age group above 7. The advantage is that the participants don’t need any previous experience and the disadvantage is that that instructor would need extensive knowledge in the topic.
Additionally the advantage is that the same tool can be used for many different courses to teach different skills.
The tool works perfectly as a "hook" for groups of boys and girls, but can also be used with adults.
The limit being the number of people that can attend the workshops should not exceed 15.
The test and preparation phase prior to the workshop must be carefully planned: a lot of stops can block the work in itinere. In this case the lab is slow and unattractive.

Notes for further use:

Playing is possible by connecting robots with wires or wifi. In the first case the instructions must be loaded from time to time, while in the second it is possible to change the programming in real time. The wireless option is also preferable due to the freedom of movement granted to robots, but is obviously not recommended without a good connection.

The instructors should have a good knowledge about the tool and experience in programming,

electronics and robotics. The instructors should also have experience in assembling the SumoRobot so they can conduct all the different workshops utilizing this tool.

Workshop duration: 90 minutes.
The workshop includes an implementation and test phase of the tool.
The tool has already been used in many laboratories.

Rating:

Average: 5 (1 vote)
