Robotics for everyone: from virtual to real robots

Tipologia dell'ente/Kind of organization: Istituto Istruzione Superiore (Scuola superiore di secondo gr
Nome dell'ente che lo ha realizzato/Organization-institute presenting the project: IIS Marconi Civit
Regione/Region: Lazio
Paese/ Country: Italy
Città/City: Civitavecchia
Descrizione del progetto/Describe the project : Do you want to create a real robot starting from the v
project! Starting from a virtual simulation on the cloud
programming, designing, printing and deploying work
project was supported by Officine Robotiche, a Socia
robotics knowledge, and the virtual simulation is pow
provides an online space. For students to interact wit
learning with applied practice. The project starts with
programming language and its applications on roboti
processing, pathfinding, sensor feedback, and many
The students can join competitions against their peer
courses. Students move to design the real robot, both
deploy the code on real hardware (such as Raspberr
supporting MicroPython), printing 3D components an
Tutorials are provided both in Italian and English lang
the English language, but are not forced to. In this wa
difficulty to entry but at the same time lead them towa
platform provides a forum, where students can ask te
incredibly useful to make students “break the ice”, ov
effectively ask a question to resolve technical issues.
involving more than 60 students coming from differen
In March we had a dissemination event with Officine
students presented the project to a national audience
Schools, a network of schools in Turkey that are also
order to start an eTwinning and an Erasmus+ in the n
from our school participated in an international confe
where presented the project to an international audie
courses on the virtual platform and we started to desi
plan to finish the first batch of this project.

Link al video di presentazione/Link to the presentation video: https://www.youtube.com/watch?v=tR

Categoria del progetto/Project category : Educazione fino ai 18 anni/Up to 18 years

Uso delle tecnologie / Use of technologies: This project gives students a full overview of the process programmed and built. Students will learn how to realize against a steep learning curve and combining state-of-the platform (Riders.ai) helps to get started in a browser envi prerequisites, and courses will guide the learner through Python) and robotics. After this phase, students make an 3D tools, as OnShape or Blender, using 3D printers to se converted into a URDF file that can be integrated into the in action. After this cycle of prototyping, students are read assembling parts as modeled, concentrating only on hard to use Raspberry or ESP32. Please note that Riders.ai si Robot Operating System - ROS) and the physics of the e simulator), in a way that the code written in Riders can be robot. Competences: what is a robot, different kinds of ro a model, what is a 3D printer and how it works, what is a boards can be programmed, read documentation written run a Python program to move a robot in a virtual environ 3D model, print a model with a 3D printer, use a rapid pro tackle practical issues as energy consumption or actual w documentation in English, ask and reply to technical issu

Indicare gli elementi di innovazione del progetto / What are the innovative aspects of the project?: We use a bl prerequisite introduce ne easy to use etc) that can

Con quanti utenti interagisce il progetto?/How many users does the project interact with? : For the first b We participat conference o

Di quali mezzi o canali si avvale il progetto?/Which media or channels does the project use?: The proje ask quest and to the

Il progetto è già stato replicato? /Has the project already been replicated? : Not yet. We plan to rep

Quali sono le aspettative future?/What are future expectations?: We plan to start a new batch in the in touch with Do?a Schools in Turk After the eTwinning (6 months) sh

Durata progetto/project duration: 6-8 months

Risultati ottenuti/Results: At the moment, we have 52 students that finished the first course on Riders that finished the second course. Beside these numbers, the interest in robot dramatically increasing, and students are asking for more advanced courses We also observed a gradual decrease in the English language barrier (from students could start using Italian and then move at self pace toward English saw that the use of forum gradually increased, as students realized that ther asking publicly how to resolve a problem.

Cognome del coordinatore del progetto/project coordinator surname : Capobianco

Nome del coordinatore del progetto/project coordinator name : Claudio

Il Progetto ha contribuito ad affrontare la pandemia da Covid-19? / Has the project helped facing the emergency of Covid-19? : Yes, during the engaging stude Students were

emergency. Through Officine Robotiche, our school discovered the Riders platform at the virtual Maker Faire 2020, in December. In february we started the project, receiving a very good response from students. The participation in national and international online events has been an occasion to help students in engaging themselves in something bigger, despite the limitations.

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