

EDUCATIONAL ROBOTICS ACTIONS IN PUBLIC SCHOOLS IN THE GUARATINGUETÁ REGION

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Abstract: This work presents the results of the development of robotics teaching actions in a school in the city of Guaratinguetá, such as robotics workshops and a robotics club. The actions were developed as a result of a partnership between the E.E Ernesto Quissak school, OSCIP ``*Rever Juntos*`` and UNESP - Universidade Estadual Paulista, with the students involved gaining prominence in the school environment and leaving more prepared for the job market.

Keywords: Engineering, Robotics, Teaching, ODS.

INTRODUCTION

The 2020 School Census indicates a 1.2% reduction in total enrollment in basic education. In total, 47.3 million enrollments were recorded at the basic level, around 579 thousand fewer enrollments compared to 2019. We have practically universal access for ages 6 to 14 with more than 99% attendance at school. But from the age of 15, we begin a decline in frequency, reaching up to 78% in the population up to 17 years old (Agência Brasil, 2021).

To change this situation, it is necessary to implement policies that encourage young people who are completing high school to progress in their studies. One of these policies is curricular diversification, in which the implementation of Robotics activities can help engage and reduce dropout rates among young people in schools.

This work presents the partial result of the project: Sustainability is also learned: tools necessary to solve social problems, established from the partnership between UNESP – Campus de Guaratinguetá and OSCIP in response to the announcement “Connect to Transform – 2020”, from the company BASF. The project’s actions began in 2020, but due to the COVID-19 pandemic, activities were suspended and resumed the following year. In

2020, virtual robotics workshops were held, and in 2021 it was implemented at the E.E Prof. school. Ernesto Quissak in Guaratinguetá-SP a Robotics Club, with actions that meet the proposals in SDG 4, Quality Education (Ipea, 2021).

GOALS

The objectives of this work are: Promote understanding of the 2030 Agenda for sustainable development and develop actions to awaken the interest of public-school students in seeking technical and professional skills, and entrepreneurship, aiming to achieve their first job and working conditions decent.

MATERIAL AND METHODS

This work presents the results of the actions carried out during the years 2020 and 2021, meeting SDG 4, Quality Education, at the E.E Prof. school. Ernesto Quissak in Guaratinguetá -SP, with teenagers aged 16 and over.

In 2020, due to the pandemic, virtual robotics workshops were designed, assembled and taught, where the fundamental concepts of programming logic were taught, focusing on the C language and presenting the Arduino platform with the massive use of a free online simulator. From this base, in 2021, a Robotics Club was created in partnership with the school, in which students used the Arduino platform as a central element in the development of their own projects, with constant supervision from the teachers and monitors involved. Therefore, the club’s activities promote the study of interdisciplinary concepts, such as physics, mathematics, logical reasoning, text interpretation, among others already seen by them in traditional classes.

RESULTS AND DISCUSSION

With the knowledge acquired, the students were able to build the prototype of a smart

home, with each group being responsible for a module of the project, such as controlling lighting, temperature and an alarm system to indicate gas leaks. Furthermore, one of the groups was responsible for developing a sunlight tracking system that must be integrated with a set of solar panels that will be used to power the electronic components needed to assemble the smart home prototype, aiming to demonstrate the use of solar energy generation. of clean and renewable energy in a residential environment.

CONCLUSION

The students who participated in the “Sustainability is also learned” project stood out in the school environment, demonstrating a greater interest in the search for quality education, which is the focus of SDG 4. They all acquired knowledge that is not available in the traditional teaching curriculum medium, and which they would most likely not have access to otherwise, leaving them in a better position to face the challenges of the future in society and the job market.

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