

WIE-R9 JUNIOR RESEARCHER WORKSHOP

SBA13041 - Escuela Tecnológica Instituto Técnico Central, WIE

October 23rd, 2021

The project consisted of conducting a Science and Technology Workshop "Engineers with social commitment" for teenagers between 16 and 18 years old living in a small town called Pauna, Boyacá, located in northeastern Colombia. A Foundation working in the area called "Froilán de Fosses" was our main partner, as they know the population better and helped us with the logistics of the event and the teleconference sessions. The workshop was divided into five sessions: four were conducted remotely by teleconference (webinars) uploaded on the YouTube channel of the student branch and the last one was face-to-face. Each webinar lasted an average of 30 minutes to a maximum of one hour and the face-to-face session lasted 4 hours, with a break.

During the face-to-face activity, 22 volunteers from the student group participated (19 students, 2 teachers, 1 administrative staff of the ETITC, 1 nurse) in addition to having support from the foundation, and the assistance of 36 students from the tenth and eleventh grades of schools in Pauna, Boyacá. The activity began at 2:00 pm in the recreation center with an icebreaker activity led by three volunteers from the student group and in parallel the others. Finally, there was a demonstration of some robots and the projects of the previous sessions were presented, so that the students could physically interact with them.

The topics of each virtual and face-to-face session were as follows [Introduction to renewable energy](#): The students learned about electricity and photovoltaic cells. The children were shown a demonstration of a remote photovoltaic system. [Automatic irrigation system](#): Students were introduced to sensors and actuators through a demonstration project consisting of an automatic irrigation system using Arduino, a water pump, solenoid valves, and humidity sensors.

[Programming in our lives](#): Students received an introduction to computational thinking using Scratch. [Recycling - Green World](#): The students received an introduction on recycling and its importance. The final project of the workshop was also presented. The students used post-consumer waste such as plastic bottles or aluminum cans to build a lamp as a final project. [Humanoid Robotics \(Classroom\)](#): Students learned about the formation and purpose of this project, which focuses on Simulating an artificial vision algorithm to control the Inmoov assistance robot, focused on people with paraplegia and quadriplegia.

[Mobile Robotics Racbots \(Classroom\)](#): Students learned about the construction and function of mobile robots, in which they interacted through a soccer game between these robots.

[Robot Red \(Classroom\)](#): Students learned about a robot that consists of strengthening skills in the area of arithmetic to help students face current challenges, such as computational thinking.

Astrid Daniela Peña Rodríguez

Membership : 97837215

Cell : +57 3213445458

Chair of WIE-ETITC