



GOBIERNO DEL
ESTADO DE MÉXICO



Learn Read+ Project LEEO ROBOT

Abstract

A universal level, are considered three essential learning task for life: reading, writing and logical-mathematical thinking. These skills are important tools for developing increasingly elaborate levels of thinking, communication, and positive interaction with others and the environment, as well as being valuable tools for learning, continuing to learn, and continuing to learn.

In this sense, the tools of VEX Robotics and the Classroom STEAM concepts allowed to develop a project proposal that unifies the Mechatronics technology with a global method for learning the Writing Reader (Minjares Method). These motivate to read and write in preschool children, to acquire the skills together and allow people to have better possibilities of communication, positive coexistence, adaptation, creation, problem solving, autonomy.

Introduction

Mexico has been culturally a country far from reading. A century ago, it registered approximately 82% of illiteracy, and today this figure has decreased to 6.9%. According to UNESCO figures, Mexico is the penultimate place in reading consumption of 108 countries, on average the Mexican consumes less than three books a year and dedicates three hours a week to reading out-of-school, Mexicans read on average 5.3 books at year.

On the other hand, the overwhelming advance of technology in the field of communication and information led, at some point, to argue that the image and the spoken word would advantageously replace reading and writing; however, reality shows that reading ability and written production are more effective in the globalized world. Where access to information is through the internet and written in the first place.

But it is not enough to read mechanically, more important is to develop the skills to understand, select, organize, process and use information; It follows that the use of computer systems requires the application of reading skills, writing skills and logical thinking, these are increasingly developed.

Problem Statement

Education is facing criticism of its quality, this as a result of a low level of retention of reading-writing process in students in the first grades, This causes dropouts, grade repetition or promoting students with serious shortcomings in Learning in Mexico.

Objective

Design, build and adapt the VEX platform to a mobile mechatronic system (LEEO ROBOT) that generates affective experiences to help the process of acquiring reading-writing skills in children between 5 and 7 years of age.



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Justification

Based on the importance of reading and writing skills in the day-to-day activities and in the communication process, it is necessary to implement technology with the support of STEM and VEX ROBOTICS.

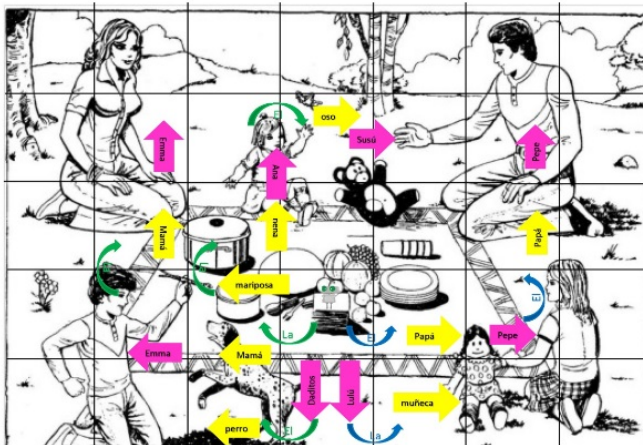
This technology will allow the improvement of the education of children of initial school age, in terms of the appropriation of reading and writing skills as a foundation in the learning process. It is in this way that we will be working on training men and women with better skills in analysis, expression and communication.

Hypothesis

With the help of the LEO Robot, in children between 5 and 7 years of age will increase the acquisition of reading and writing skills, they that will be developed in an effective way, Because the children are presented with activities that they must solve as group challenges, providing solutions developed among all members.

Experimentation

A game was designed as a floorboard; a story will be told with the help of the LEO robot will form simple sentences that take you to the characters promoting learning.



The story is "A Country Day with the Family".

Papa Pepe plays with the babe Ana and her Susú bear. Tito throws a stick at Daditos the dog. Lola plays with Lulu her wrist, while her mother Ema watches them.

* The activity was developed for the Spanish language.

* The story in Spanish contains the first syllables used to learn to read and write.

The Spanish translation is:

El papá Pepe juega con la nena Ana y su oso Susú. Tito lanza un palo a Daditos el perro. Lola juega con Lulú su muñeca, mientras su mamá Ema los observa.

The LEO robot has 4 push buttons, each with a blue, green, yellow, pink color.



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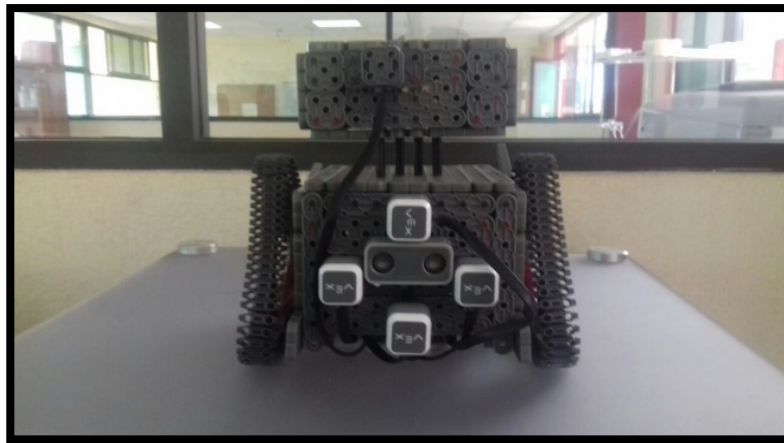
With the following functions:

El – left

La – right

Subjet Own name forward

A Button - Last instruction



The robot has to follow the following sentences, depending on what the child indicates with the buttons.

El papá Pepe El papá Pepe	
La mamá Ema La mamá Ema	
Lulú la muñeca	
La mariposa y la nena Ana juegan con El oso Susú	
Daditos el perro	

* The sentences are in Spanish, the table shows the colored words with the direction.



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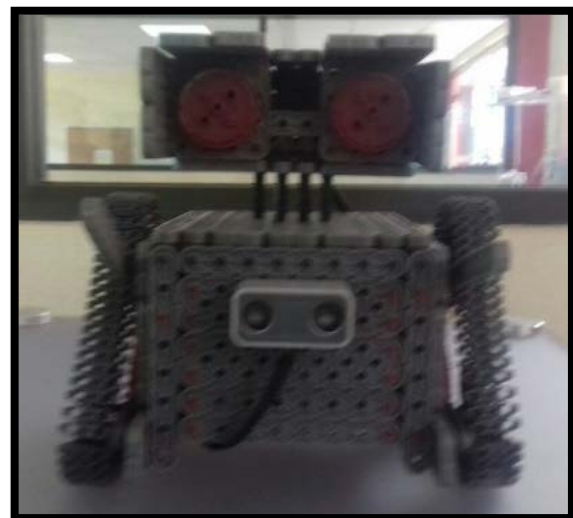
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Results

The game is explained to a group of 15 children between 5 and 6 years of age, preschool, they play with the game and the robot LEELO. In this sample the following data are obtained

Words Learned	Girls	Boys
papá Pepe	8	7
mamá Ema	9	6
nena Ana	10	5
muñeca Lulú	7	8
perro Daditos	11	4
oso Susú	6	9
mariposa	7	8



Note: The robot was assembled with VEXIQ pieces, resulting more interesting for preschoolers. The LEELO robot could be armed with the VEXEDR components for other grades, this allows to explore more functionalities of the STEM.

Each group of students could create their own version of LEELO, to solve other tasks like adding, subtracting, dividing, etc ...



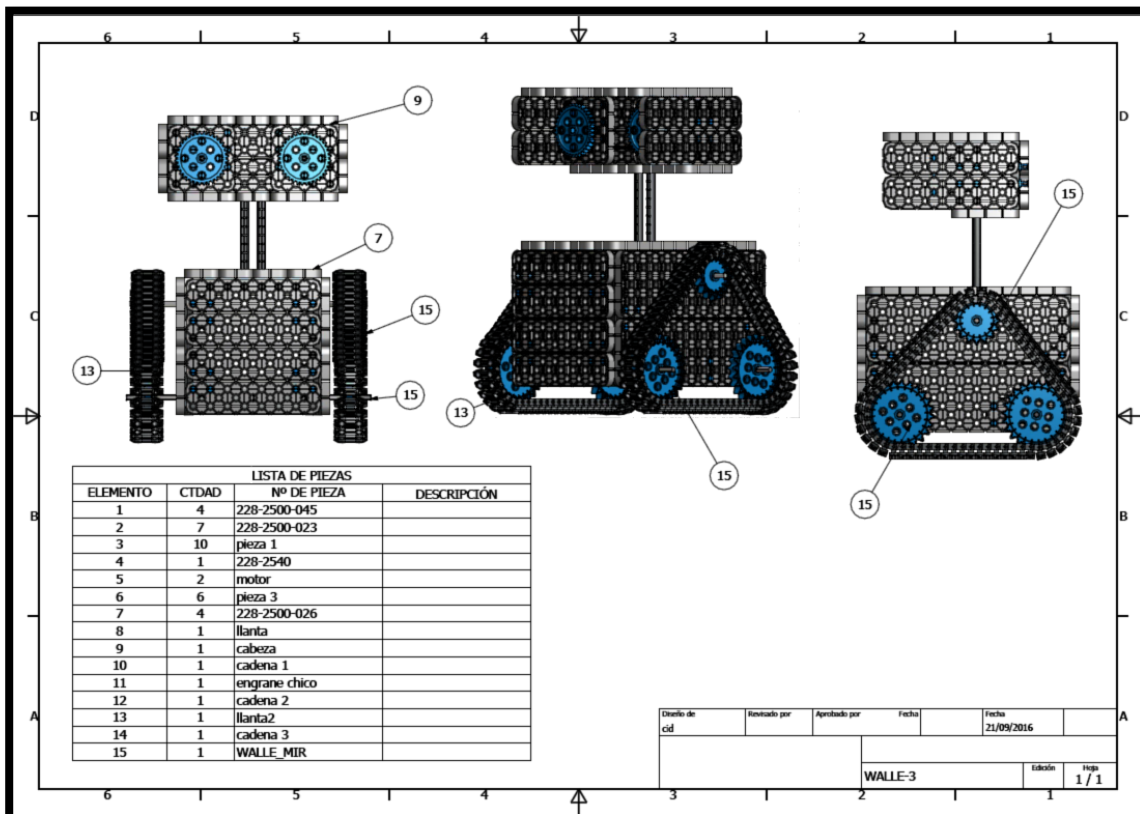
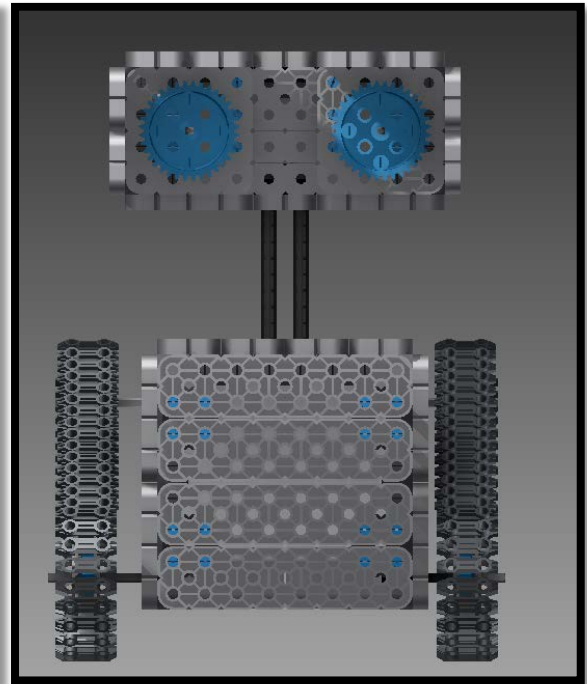
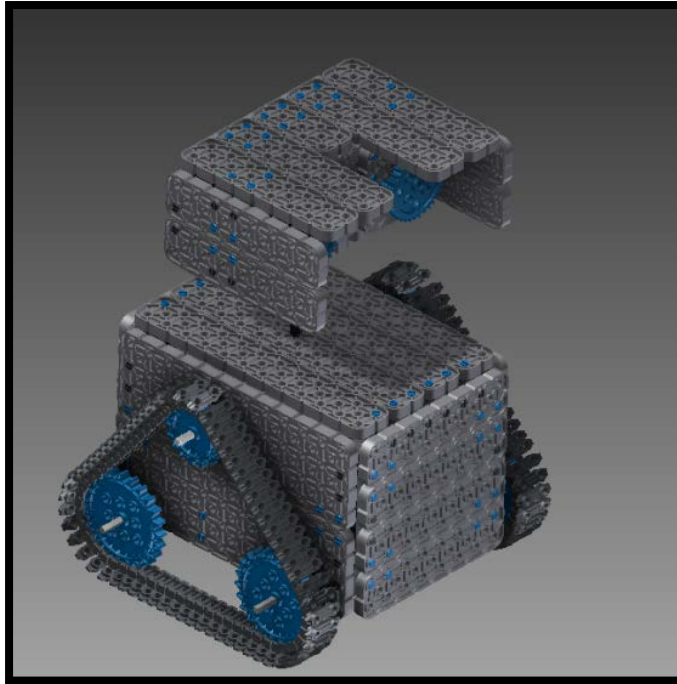
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Design





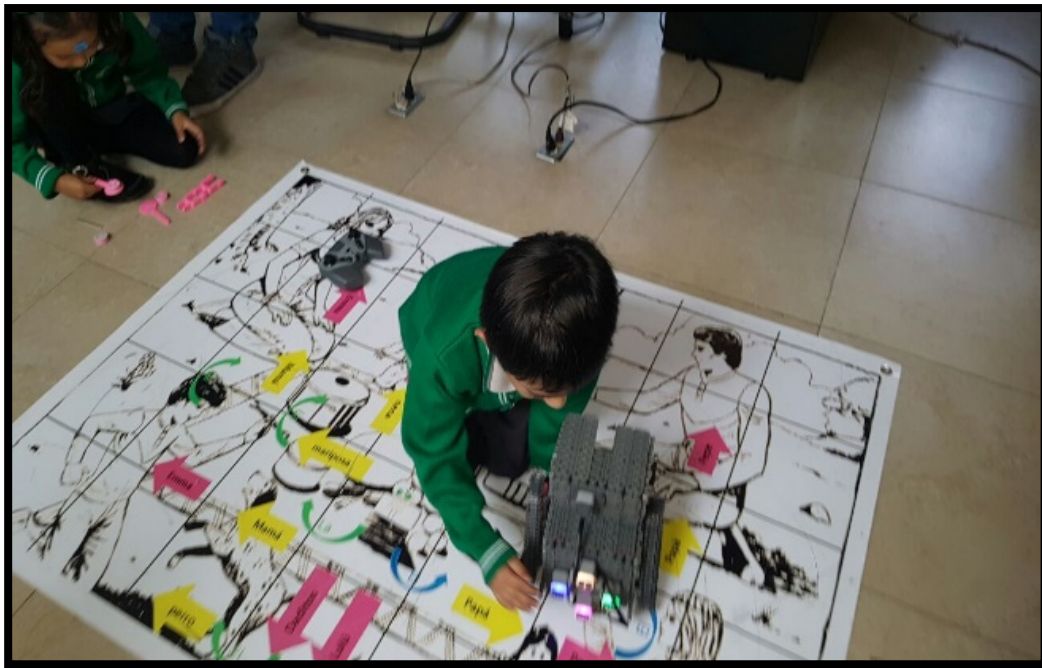
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Work in the Classroom





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CONCLUSION

The project described demonstrated how robotics applied to education facilitates and motivates teaching-learning not only in science and technology but also in literacy. Children acquire meaningful learning based on games with STEM.

This project also can be implemented to learn about science and technological, from learning the numbers to know the solar system.

It was important to clarify that VEXIQ material was used, so that preschool children participated when the robot suffered damage and was friendlier.

These designs can be easily implemented with VEX EDR components and could be a day-to-day assistant of children in home at the moment of learning.