BIOSBOT Robotics Foundation

BREAKING DOWN BARRIERS TO SOCIAL INCLUSION THROUGH ROBOTICS

Fundacion Biosbot Robotica ... our project ....

IN detail ...

Our project, which is already 4 years old, consists of promoting social inclusion (Barriers to inclusion, a social opportunity, BIOS); We work with girls, boys and young people diagnosed with Asperger syndrome, Autism. Our inclusion program is to "include" these special children from society, to understand that we all learn from our differences and to break the paradigms of traditional education that "tells us" that these children should be included in society. We do it differently, that inclusion comes from society to them.

With STEM methodology, the development of 21st century skills, the empowerment of girls in science and technology, we want to develop and promote spaces and scenarios of group acceptance, teamwork, competition, scientific research and robotics programming.

In parallel to the process of social inclusion, we design strategies and skills in programming and mechanics of robots, under the model of LEGO ROBOTICS. This learning program is aimed at children and adolescents from 3 to 18 years old.

The TOTAL inclusion and integration process is carried out through robotics clubs, where girls, boys and young people diagnosed with Asperger's Syndrome, Autism and children from regular or neurotypical classrooms meet. These spaces allow the development of the aforementioned strategies, in addition to strengthening social interactions, allowing all club members to improve their self-confidence, increase their frustration threshold and finally give them the opportunity to participate in national and international robotics tournaments.

While it is true that bullying and school and social harassment is still present in our society, these educational strategies and competition in robotics tournaments, help "special" children and young people to improve 100% their personal and social life conditions and feel more self-confident, as they begin to realize their abilities and potentials.

4

4 YEARS

Bringing our robotics and inclusion program to the community

JUSTIFICATION

According to the dictionary of the Real Academia de la Lengua, the definitions of inclusion and integration are as follows:

Inclusion:
Action and effect of including.
Connection or friendship of someone with another person.
Integration:
Action and effect of integrating or integrating.

To include, therefore, would be to place something or someone within a thing or a whole, or within its limits; and to integrate, said of diverse persons or things, means to constitute a whole; to complete a whole with the parts that were missing, to make someone or something become part of a whole, to understand, and to unite, to merge two or more divergent concepts, currents, etc., into a single one that synthesizes them.

There are two versions of what is inclusion and what is integration: on the one hand, there are those who consider that to include would be to bring another or others into the group, but simply to be there, without interaction or real effect on the persons included other than that of being in a group (for example, to include a person with a disability in an ordinary school would be to allow him to enroll in it and attend classes there, nothing more). To integrate, however, would be to ensure that the person or persons who have been included in the group participate in the group's activities and actions not only on an equal footing but also with equity (this would be the case of a child with a disability who attends a regular school where all the support he or she needs is provided so that participation in each and every one of the educational and leisure activities is possible on an equal footing with the others).

We particularly understand that to include someone (in the school) is to put him/her in the group (to let him/her enroll and go to class) and that, however, to integrate someone means to enable all the possible means for his/her inclusion to be effective, i.e. to get that person to participate fully in the school, to ensure that this person fully participates in everything that the group does (enabling the necessary aids so that a person with deafness can understand the explanations of his teachers, a child with reduced mobility can play in the playground or a person with autism can attend an ordinary class socializing normally with the rest of his classmates).

Whatever the case may be, the conscious and deliberate option for heterogeneity in the school constitutes one of the central pillars of the inclusive approach, regardless of the terminology used; the important thing is to eliminate segregative educational systems and promote the search for strategies, methodologies and spaces seeking to make the right to education for all a reality. For the school to become inclusive, barriers to participation must be identified and eliminated. Only in this way will students be able to acquire the intended learning.

1

SOCIAL INCLUSION

Through robotics we include children and adolescents with disabilities and diverse abilities.

2

ROBOTICS CLUB

Team BIOSBOT robótica: club and robotic workshops.

3

ROBOTICS TOURNAMENT

Competition teams in national and international tournaments

JUSTIFICATION

The inclusion process aims to minimize barriers so that everyone can participate regardless of their physical, mental, social, cultural, etc. characteristics. From this point of view, integration models based on the use of separate spaces and times for working with certain students with problems can be criticized for their exclusionary nature. On the other hand, educational and didactic practices that not only welcome diversity, but also take advantage of it, are favored.

Social integration is understood as a dynamic and multifactorial process that enables people who, for whatever reason, find themselves in a marginalized system to participate in the minimum level of social and vital well-being achieved in a given place. Social integration is also known as the process or way of helping people to become part of a social group.

Social inclusion is a concept that emerged in the 1990s with the intention of replacing social integration: it is a dynamic, multifactorial process that enables people immersed in a marginal system to participate fully in the level of social and vital well-being achieved in a given place.

Traditional educational systems only work on the inclusion process but not on the integration process. Children and young people diagnosed with Asperger's Syndrome or Autism are characterized by deficiencies in social interaction, communication and flexibility, which causes them to be segregated, excluded and ignored from educational and social activities, even generating bullying towards them.

¿WHAT ARE AUTISM SPECTRUM DISORDERS?

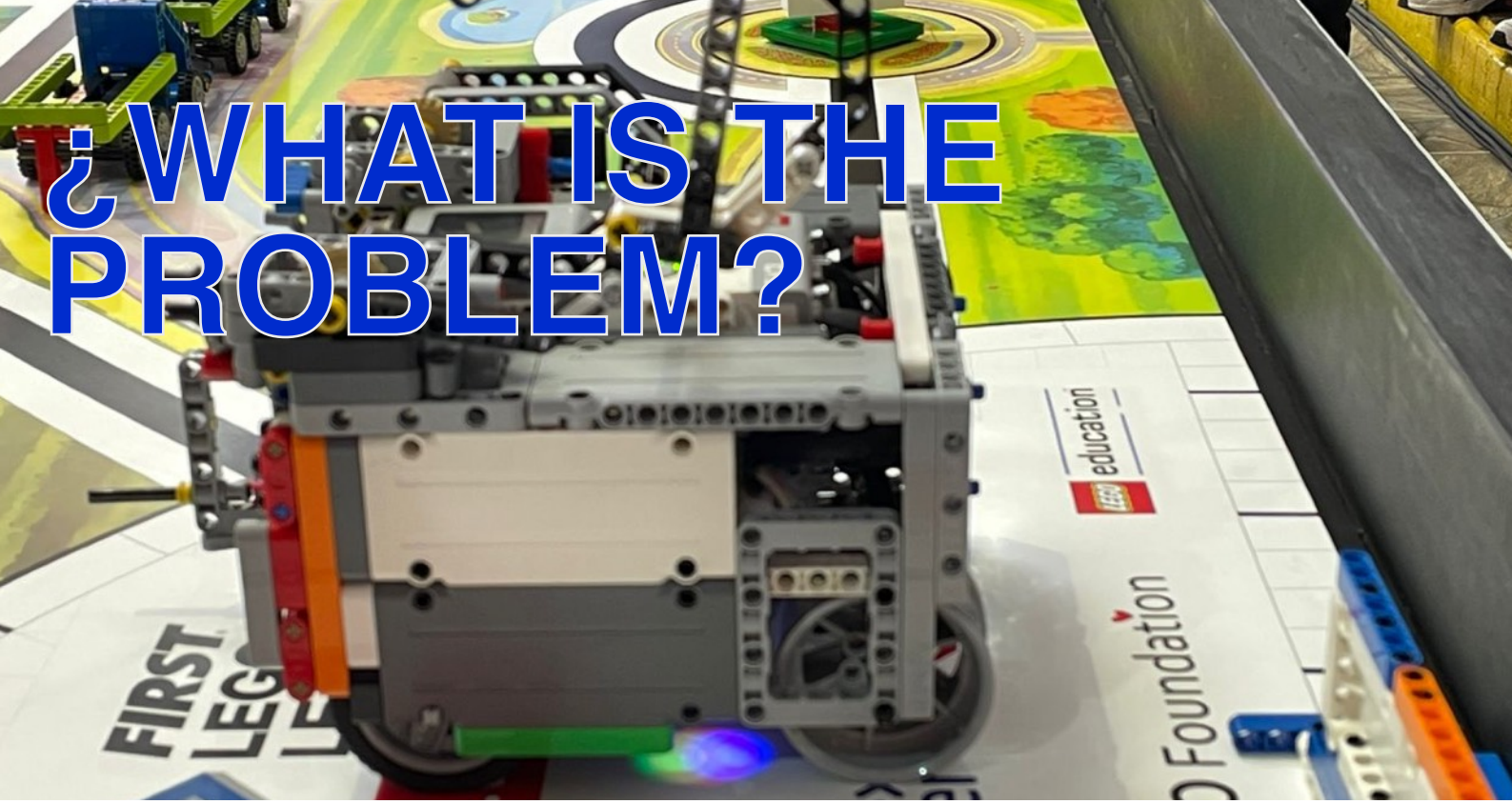
Autism spectrum disorders (ASD) are developmental disabilities caused by differences in the brain. Some people with ASD have a known difference, such as a genetic condition. Other causes are not yet known. Scientists believe that ASDs have multiple causes that, acting together, change the most common ways people develop. We still have much to learn about these causes and how they affect people with ASD.

People with ASD may behave, communicate, interact and learn in ways that are different from most people. Often there is nothing about their appearance that distinguishes them from others. The abilities of people with ASD can vary significantly. For example, some people with ASD may have advanced conversational skills, while others may not express themselves verbally. Some people with ASD need a lot of help in their daily lives; others can work and live with little or no help.

BULLYING AND AUTISM

Bullying is defined as any form of psychological, verbal or physical mistreatment produced between schoolchildren repeatedly over a certain period of time both in the classroom and through social networks or cell phones, with the specific name of cyberbullying. The group of people with autism, due to their characteristics, are more likely to be victims of this bullying.

Children with ASD are bullied by their peers at a rate three to four times higher than their peers without disabilities, with negative impacts on academic functioning and mental health symptoms, including an increased risk of suicide. (Adverse Childhood Experiences in Children with Autism Spectrum Disorder, Daniel W Hoover and Joan Kaufman, 2018.



¿WHAT IS THE PROBLEM?

Children and young people diagnosed with Asperger syndrome, Autism are characterized by difficulties in social interaction, strange speech patterns, few facial expressions, difficulty in understanding other people's body language. This makes them "targets" of bullying.

Bullying is an English word that means intimidation. Unfortunately, this word is 'fashionable' due to the countless cases of persecution and aggression that are being detected in schools and colleges, and that are leading many schoolchildren to live truly terrifying situations.

Bullying refers to all forms of aggressive attitudes, intentional and repeated, occurring without obvious motivation, adopted by one or more students against one or more others.

World Health Organization (WHO) estimates indicate that one in every 160 children in the world is diagnosed with Autism.

In Colombia, according to DANE, the estimated number of cases in the whole country is 273,405. **For Bogota, according to DANE statistics, the number of cases is 52,549.**

Of these cases, it is estimated that 90% have suffered bullying.

B

BULLYING AND SOCIAL EXCLUSION OF POPULATION WITH SPECIAL EDUCATION NEEDS

¿WHY TO INTERVENE?

Throughout history, people with characteristics that are out of the ordinary are treated by society based on their "differences", they are filled with connotations that segregate them as "not normal" or "poor" and are generally excluded from various activities in multiple sectors.

It is true that the culture of "acceptance and coexistence" to call it somehow, has evolved, we have gone from total exclusion to integration where we seek to change some issues of the environment to facilitate that people with different living conditions can "access".

However, it is not enough to adapt facilities, we must foster real inclusion by transforming the way disability and neurodiversity conditions are socially conceived and start to see that we are all different and unique. We all deserve equal opportunities and respect for our rights.

Through our robotics teams, children develop different types of skills, from the process of learning how to speak in public, to presenting their research to evaluation juries, to learning how to program (usually in Python language).

All these new hard and soft skills allow them to raise their frustration threshold and ostensibly improve their self-esteem, allowing them to handle bullying and/or harassment scenarios in a different way.

D

BREAKING DOWN BARRIERS TO SOCIAL INCLUSION THROUGH ROBOTICS !!

¿WHAT TO DO?

The goal is to promote ROBOTICS CLUBS (TEAM BIOSBOT), within the framework of an inclusive culture, creativity, research and technological innovation talent of children between the ages of 3 and 18 years old. In conjunction with kindergartens and schools in all localities of Bogota, robotics competition teams will be formed, in ages from 3 to 18 years, with the ultimate goal of generating participation in FIRST LEGO LEAGUE and WRO tournaments.

To allow spaces for the development of technological projects related to robotics, providing tools and basic knowledge that promote the creativity of its members.

Consolidate our robotics clubs, integrating the STEM methodology and the process of social inclusion, to achieve recognition for their progress, innovation and contribution to technology.

Design and develop robotics innovation projects for national and international tournaments.

Integrate different areas of knowledge, creating playful and heuristic learning environments that promote creativity and team research.

Develop and enhance 21st century skills.

To develop social and interaction skills in children with special educational needs.

To enhance the development of social skills of children and young people through experimentation with technology.

1

DISCOVERY CATEGORY

made up of children between 3 and 6 years old

2

EXPLORE CATEGORY

made up of children between 7 and 9 years old

3

CHALLENGE CATEGORY

made up of children between 9 and 16 years old

OUR ROBOTICS CLUBS ...BIOSBOT

MISSION

To promote, within the framework of an inclusive culture, creativity, research and technological innovation talent of children and adolescents, based on a pedagogical model of learning robot design and programming in a playful way through technology, engineering and mathematics.

To be a robotics club recognized worldwide for the ability to link, within learning processes and development of robotic technology, children and young people from Bogota, diagnosed with Autism or Asperger syndrome, forming a group that designs research projects, in a united and competitive manner.

VISION

MORE THEN ROBOTS ...

Robots are a vehicle for students to learn important life skills. Our robotics workshops and tournaments help inspire young people to become science and technology leaders and innovators by participating in STEM-based programs that build science, engineering and technology skills, inspire innovation and life skills that foster and enhance self-confidence and communication.

¿HOW TO DO IT?

Through workshops with experts we aim to develop and/or enhance the skills of the 21st century:

Professional	Personals	Socials
Creativity	Flexibility	Social inclusion
Innovation	Adaptability	Empathy
Critical thinking	Determination	Communication
Problem solving	Emotional intelligence	Intercultural skills
Collaboration	Decision making	Ethics
Quantitative reasoning	Autonomy	Leadership
Metacognition	Impulse control	Responsibility
Initiative	Stress management	Respect
	Self-discipline	Teamwork
	Self-confidence	

Workshops with experts cover the following topics:

- Leadership
- Teamwork
- Social inclusion
- Logical and creative thinking
- Project planning and development

The technology workshops include:

- Python and scratch language
- Algorithms
- Robot mechanics and design
- Robot construction

In the field work we will carry out:

- Robotics workshops to underprivileged communities.
- Robotics workshops in schools
- Support activities to foundations and schools in entrepreneurial and technology fairs.

WHIT WHOM WE WORK ...

2

COACHES

One robotics and programming trainer and one 21st century skills expert

2

MENTORS

Made by children who have already participated in our clubs and have wanted to continue being part of the process, teaching what they have learned to new members.

6

PROFESSIONALS IN MANAGEMENT AND PSYCHOLOGY

Professionals in giving educational workshops on public speaking, leadership, teamwork, social inclusion, etc.

OUR ACHIEVEMENTS

1 Team Biosbot

Bogotá

2018

5TH PLACE IN REGIONAL BOGOTA FIRST LEGO LEAGUE TOURNAMENT WITH SANTA MARIANA DE JESUS SCHOOL.

2019

NATIONAL CHAMPION FIRST LEGO LEGAUE TOURNAMENT WITH SANTA MARIANA DE JESUS COLLEGE

2019

28TH PLACE IN HOUSTON , TEXAS , IN FIRST LEGO LEAGUE TOURNAMENT

2021

3RD PLACE IN NATIONAL WRO TOURNAMENT

2022

10TH PLACE IN BOGOTA REGIONAL FIRST LEGO LEAGUE TOURNAMENT

2022

NATIONAL CHAMPION FIRST LEGO LEGAUE TOURNAMENT

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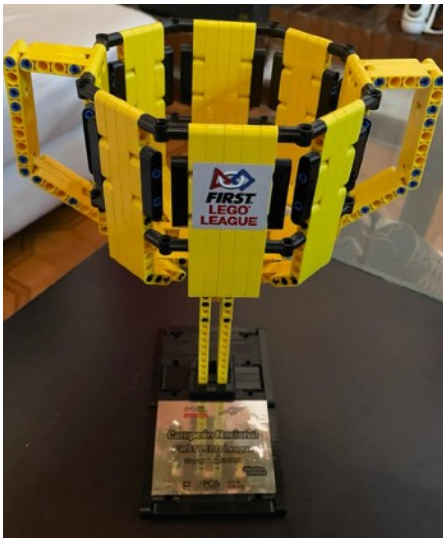
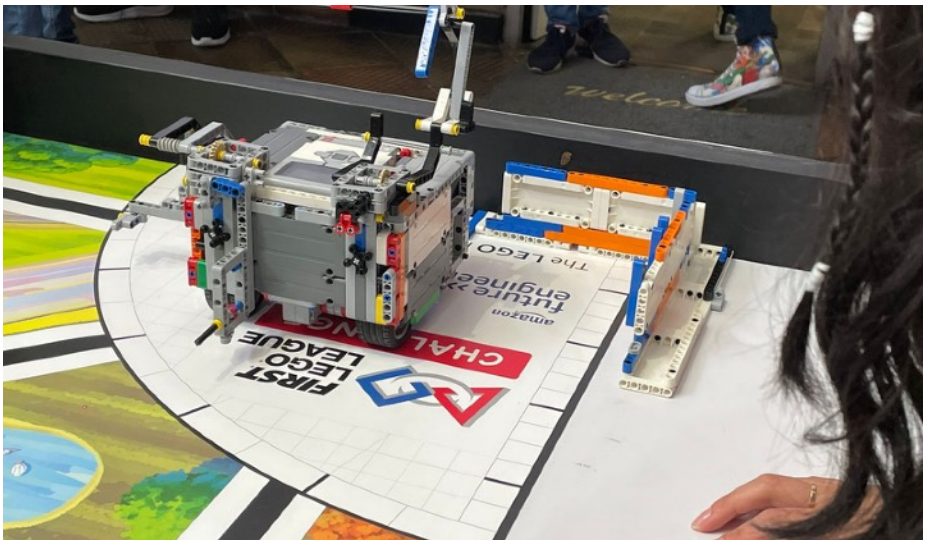
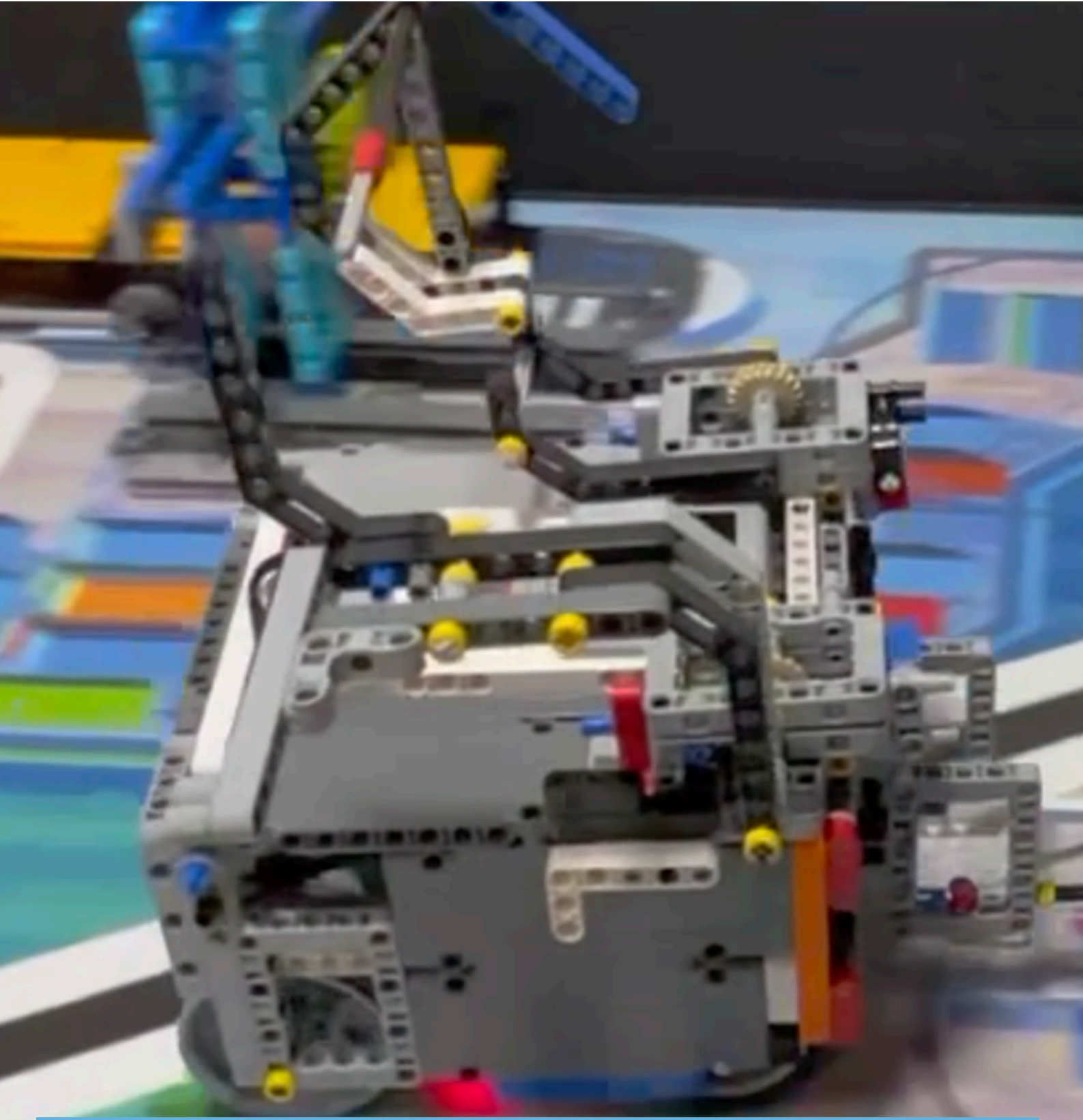




OUR VALUES :

INCLUSION
Empathy
Happiness
Humanism
Overcoming
Sensitivity
Respect
Responsibility



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Instagram: **https://www.instagram.com/fundacionbiosbot/**

Our Team: **https://youtu.be/C06f184NRdQ**

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