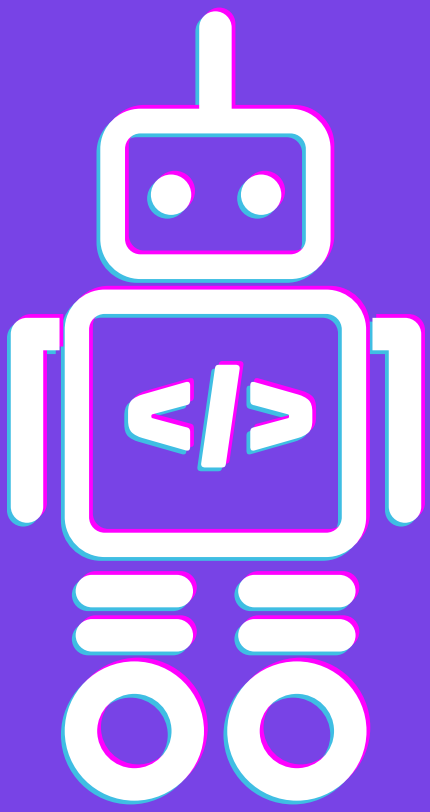

IN THE SAME CODE

FUNDACIÓN SERGIO ALONSO

Gerda Stetter Stiftung
Technik *macht* Spaß!

Cofinanciado por
la Unión Europea

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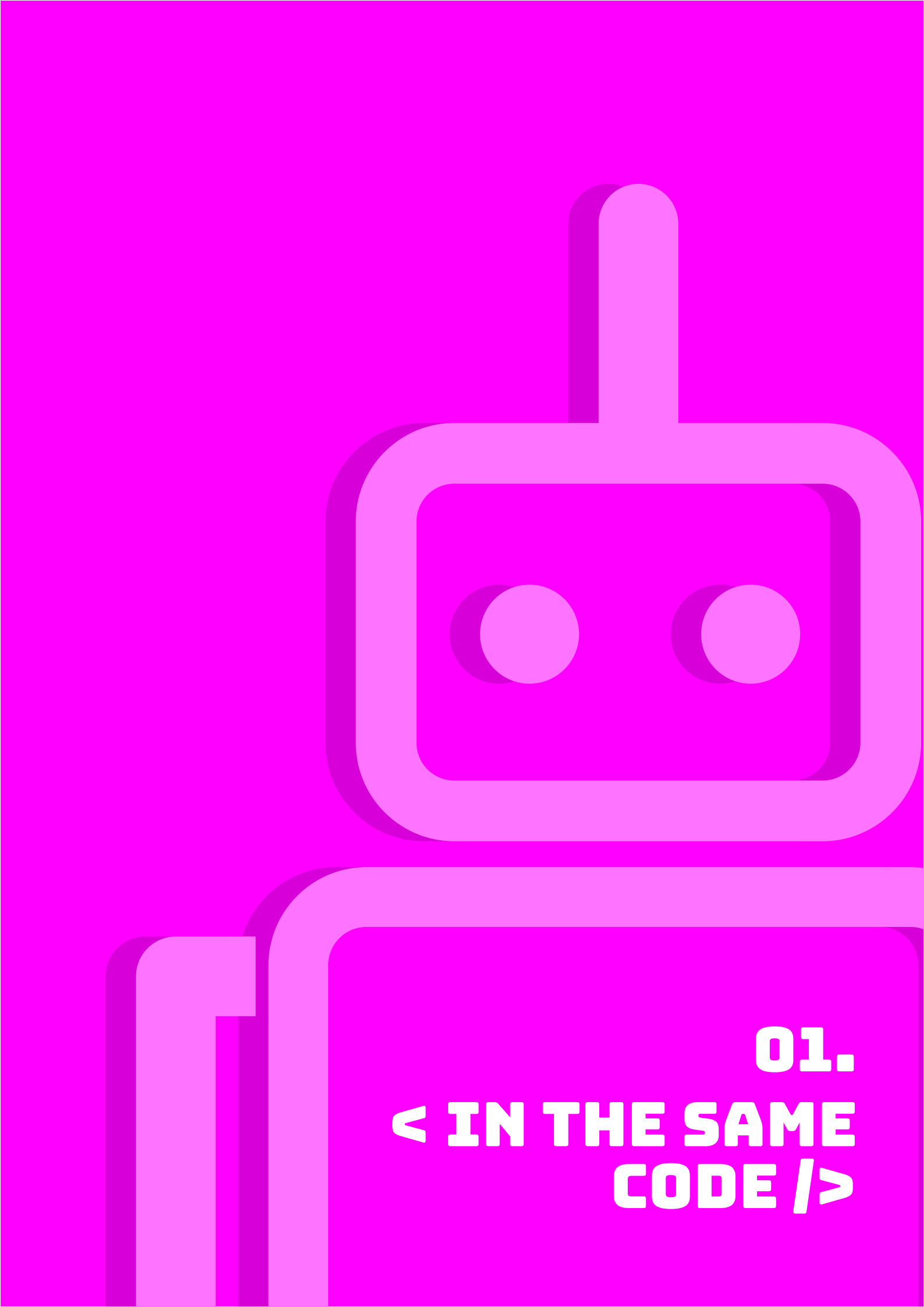


01.
< IN THE SAME CODE />

01

<WHY DOES THE PROJECT ARISE />

Modern societies live in a constantly evolving world. An accelerated and profound transformation is changing many aspects of their lives. Technological changes set the agenda, and of course, the labor market is not immune to this situation. Undoubtedly, after the COVID-19 pandemic, where digital replaced in-person interactions, the demand for technical profiles has increased considerably.

> *In **2018**, the **European Commission** already estimated that the demand for profiles related to digitalization would increase by up to 200,000 jobs in Spain and up to 900,000 in the European Union in the coming years.*

However, the educational system operates at a different pace and often fails to respond to the needs or demands of the current labor market.

> *According to the results of a study conducted in **2023 by Eurostat**, the statistical office of the European Union, **only 56% of the European population aged 16 to 74 had basic digital skills.***

> *In **2021**, approximately **180,000** students graduated in fields related to the **ICT sector** in the European Union. This number represents **only 4% of the total graduates** that year.*

These figures make more sense when we consider the fact that approaches to the subject have been mainly theoretical and that the training received by teachers to teach programming and computational thinking in classrooms is still insufficient.

> ***A study** by the OECD in **2018** revealed that **less than 40% of educators** in the European Union **feel prepared to use digital technologies in teaching.***

These data illustrate the situation of the educational system. There is a significant gap between what formal training programs, especially in areas like technology or digitalization, cover and the speed at which the world is moving. If we want to address the global challenges ahead, education must be central, as it is the only way to achieve true social transformations.

This reality is even more pronounced in outermost regions, such as the Canary Islands. In the vast majority of educational centers in the Archipelago, these digital subjects are not offered as part of compulsory education, so only those who can afford the cost of extracurricular or private classes have access to them.

01. <WHY DOES THE PROJECT ARISE />

The combination of these events leads to different gaps: the intergenerational digital gap between young people and adults; the digital gap within youth itself – those who have access to specialized training and those who do not – and, undoubtedly, a gender gap since women have traditionally been underrepresented in studies related to technology, digitalization, or engineering.

All of this paints a scenario that is far from achieving one of the goals of the Digital Decade, specifically ensuring that 80% of the European population aged 16 to 74 has basic digital skills by the year 2030. In this context, 'In the Same Code' was born, a project aimed at boosting the digital competencies of 2,000 young boys and girls in Gran Canaria by introducing them to programming and robotics in a fun way. It aims to inspire and guide them in acquiring the necessary knowledge to tackle the challenges ahead.

Recognizing the need and the response provided, the Sergio Alonso Foundation (Spain) and the Gerda Stetter Foundation (Germany) have worked together for almost two years, from September 2022 to July 2024, to achieve all the goals they had set.

01

< OBJECTIVES />

< OBJECTIVE 1 />

Bring digital skills closer to students in Gran Canaria by introducing programming and robotics, impacting four educational levels: University, Vocational Training, Secondary Education, and Primary Education.

During the project's development, priority is given to actions in educational centers located in particularly vulnerable areas. This way, one of the main challenges is addressed: the digital divide in access to and use of new technologies.

<OBJECTIVE 2/>

Implement a peer education-based methodology to generate a "snowball effect," creating new innovative educational models that allow for a wide reach and impact.

In this way, we build a teaching chain; by teaching one group, we create potential future coaches or technological trainers.

<OBJECTIVE 3/>

Implement the initiative with a gender perspective throughout the different phases of the project.

- First, by trying to achieve balanced groups of coaches.
- Second, by creating groups of trainers that must mandatorily include female representation so that when they go to classrooms, they act as 'role models' for their peers.
- Third, by focusing intensely on Primary Education (where girls have not yet chosen their field of study, and we find the most gender-balanced groups compared to other educational levels).
- And fourth, by giving voice and image to women in all communications about the project.

<OBJECTIVE 4/>

Build and establish synergies between educational centers from different fields, thus creating spaces and channels that foster and contribute to the exchange of knowledge and ideas.

LOOKING TO THE FUTURE

The entities that have developed this project ensure its sustainability, extending the impact and reach of the initiative throughout Europe.

Their vision is for 100,000 young people, boys and girls, to have access to training in programming and robotics, providing them with the necessary skills to respond to European and global challenges. To achieve this, we will continue to grow the snowball we have already created by promoting peer education in other regions.

02.
< WHO ARE WE />

02.

< WHO ARE WE />

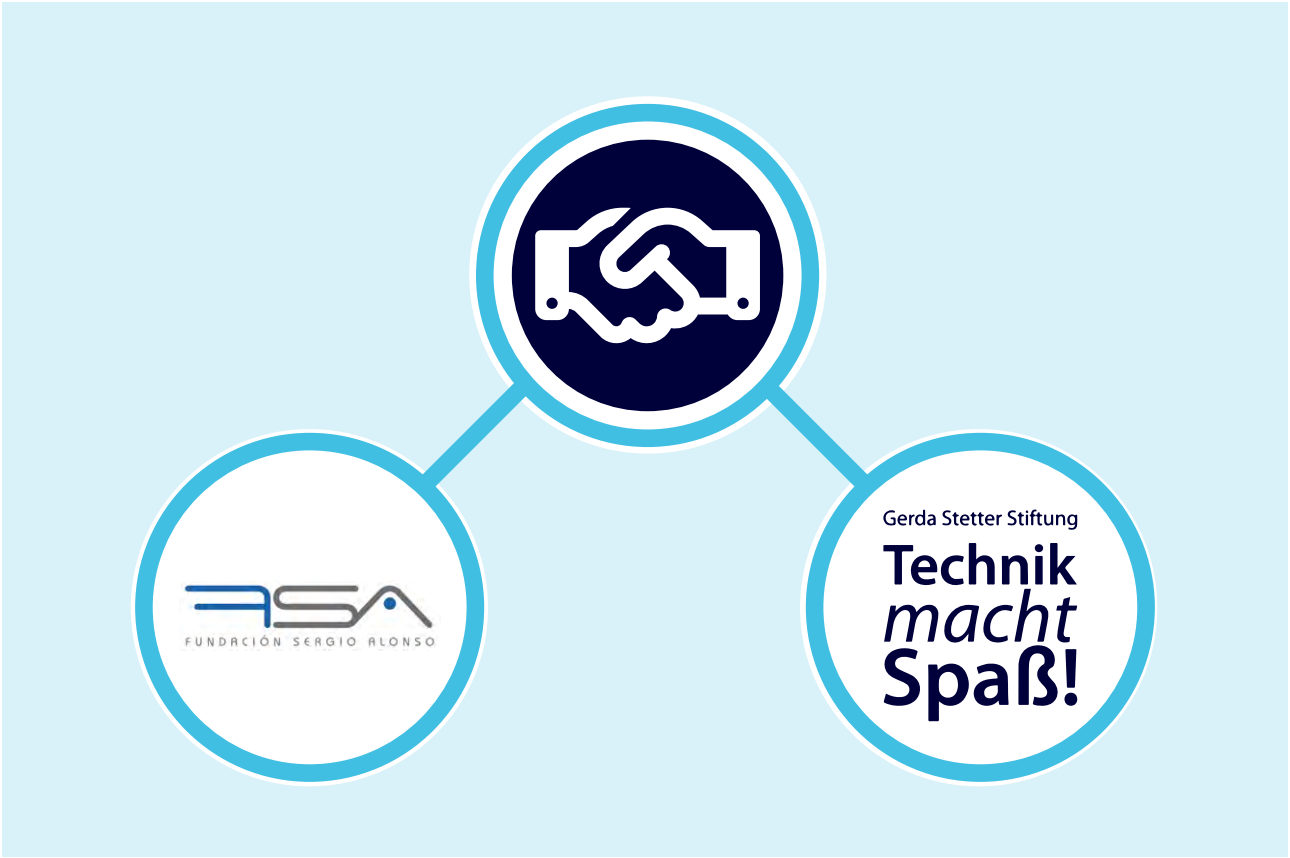
“In the Same Code” is a project co-financed by the Erasmus+ program, specifically under the 2022 call in the KA210 category. It has emerged from the collaboration and joint efforts of two organizations: the Sergio Alonso Foundation (Spain) and the Gerda Stetter Foundation (Germany).

United by the common goal of bringing digital skills to students in Gran Canaria in an innovative way, an alliance was formed to achieve this goal. Each entity contributed its vision, experience, and knowledge in developing other projects and initiatives.

On one hand, the Sergio Alonso Foundation contributed its knowledge of the territory and its capacity to promote educational projects, especially in the field of Vocational Training. On the other hand, the Gerda Stetter Foundation provided a tested methodology with successful results in its country, as well as its know-how in all the more technical and technological aspects, offering the initiative the expertise of professionals specialized in the sector.

The project would not have been possible without the partnership of both entities. This union allowed the execution of a project with an international vision that brought knowledge and methodologies of greater excellence to a geographically distant outermost region like the Canary Islands.

The initiative has also strengthened the participating entities by enabling them to carry out a project with a significant impact on the island of Gran Canaria, expand their collaboration networks, and learn about aspects of managing educational projects at the European level.



< SERGIO ALONSO FOUNDATION />

Since its establishment in 2017, the Sergio Alonso Foundation (FSA) has developed and implemented various educational programs in the Canary Islands, with a special focus on Vocational Training. For FSA, education is a crucial and unique tool capable of transforming society. The projects promoted by FSA are committed to educational innovation and excellence.

< FUNCTIONS IN THE PROJECT />

As the leading organization of **'In the Same Code,'** the Sergio Alonso Foundation was responsible for directing and coordinating the project. It oversaw the proper execution of planned activities, the communication and collaboration process with the partner, project monitoring, and adherence to budgets, outcomes, goals, and deadlines.

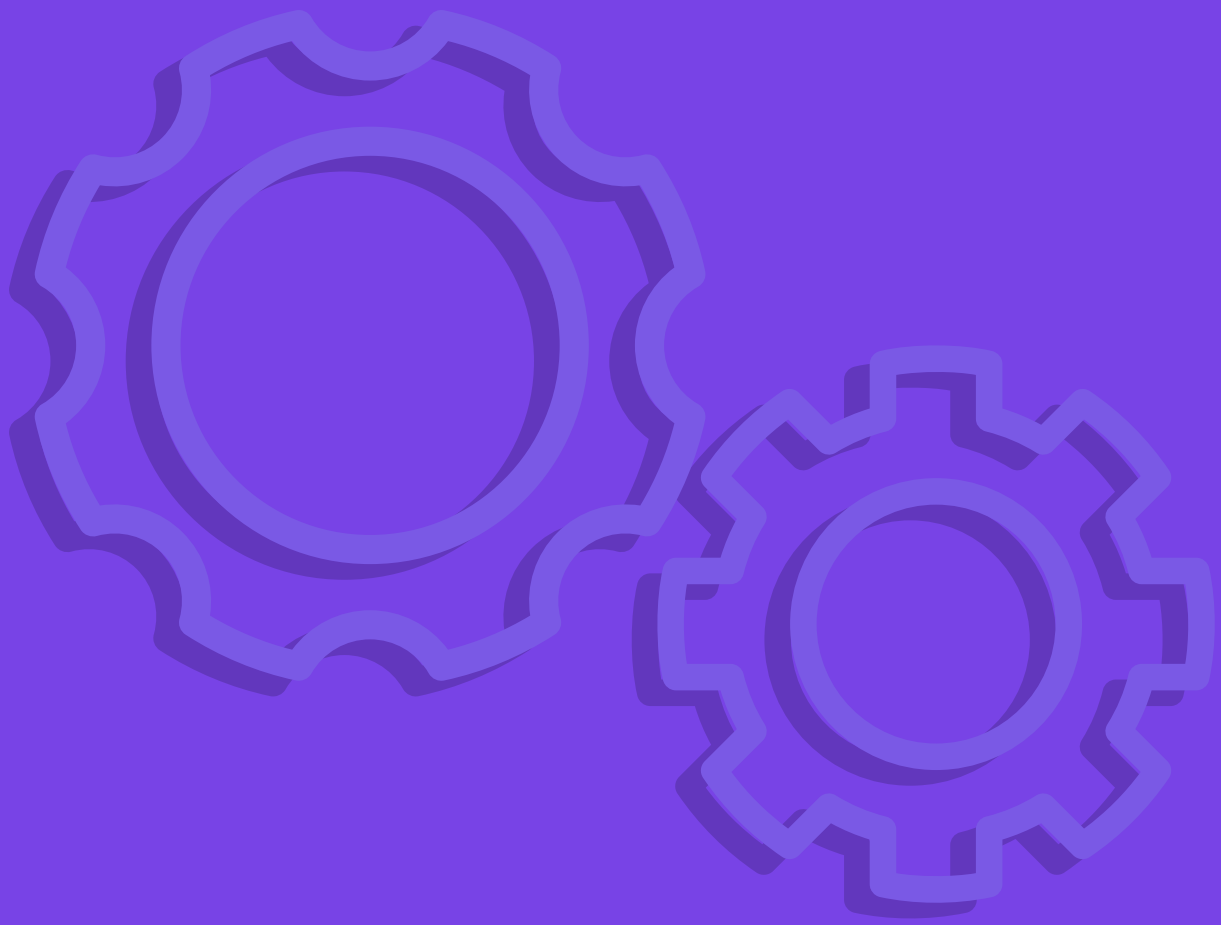
Its responsibilities also included recruiting young participants for each phase of the project and coordinating with educational centers participating in the program: universities, vocational training centers, secondary schools, and primary schools.

< GERDA STETTER FOUNDATION />

For over 10 years, the Gerda Stetter Foundation, part of the German group ITQ GmbH, has worked under the motto "Technology is fun!" with a clear objective: to ensure that children and young people enjoy and have fun with everything related to digital technology. To this end, it has promoted training programs aimed at introducing technology from an early age. It has also collaborated with various educational centers to integrate all children, ensuring equal opportunities in technical training. Notably, the Gerda Stetter Foundation has been incorporating a gender perspective in its initiatives for years to increase the number of women choosing technological professions. Additionally, Gerda Stetter promotes the training of specialists to become qualified workers who meet the current labor market needs. This is achieved by proposing different and innovative educational models and through international training activities.

< FUNCTIONS IN THE PROJECT />

The Gerda Stetter Foundation was responsible for coordinating the training workshops, educating and preparing the young people who later became coaches or trainers, and providing the respective participant tutoring. They were also responsible for creating the training content and managing and maintaining the technical equipment used in the project. Furthermore, they participated in the project's dissemination, as well as in the analysis and transmission of the final results.



03.
< PROJECT DEVELOPMENT />

03

<PROJECT DEVELOPMENT: ACTIVITIES />

“In the Same Code” was organized around three phases or activities.

01. *Introduction to Programming and Robotics: Workshops were developed using LEGO Mindstorms Education EV3 as a learning tool to introduce participants to programming and robotics.*

03. *Knowledge Dissemination and Final Event: After successfully spreading the acquired knowledge about programming and robotics among university, vocational training, secondary education, and primary education centers, a final event was held. This event was divided into two parts and a final report was drafted, analyzing the results obtained from this project.*

02. *Transition to Technological Coaches: Once participants had absorbed and internalized what they learned about programming and robotics, they moved to the next level: former learners became technological coaches for their peers. They received training not only in digital tools and competencies but also in soft skills and classroom intervention techniques to equip them for public speaking and teaching others.*

03. < PROJECT DEVELOPMENT />

< INTRODUCTION TO PROGRAMMING AND ROBOTICS />

This first phase began with introductory training for university students, delivered by **three specialized engineering professionals** from the **Gerda Stetter Foundation**. A total of 73 students from the U**niversity of Las Palmas de Gran Canaria (ULPGC)** received the training, surpassing the initial target of 60 students.

The participating students came from the following degrees: **Computer Engineering, Telecommunications**, all **Industrial and Civil Engineering**, **and Education**. It is important to note that female participation was encouraged, giving them priority in the student selection process. Additionally, by including the Education degree alongside technical degrees, the gender ratio in the group was balanced to almost 50/50.

The sessions lasted two and a half hours, which was also the average duration for lessons throughout the project.

< CONTENT />

The training began with an introduction to mechatronics, highlighting the importance of technological activities in developing crucial future skills. Students were introduced to the LEGO Mindstorms system, with examples of its use to show how these tools stimulate creativity and problem-solving. Next, the training delved into the LEGO Mindstorms software, with practical demonstrations on using motors, sensors, and loops, as well as other basic programming concepts. Students became familiar with the EV3 block interface, the programming environment, and block-based programming. They then had the opportunity to experiment directly with the software and LEGO components to apply the concepts learned and develop their own ideas and projects.

At the end of the training, a group of 22 university student volunteers was formed to become technological coaches. These young people received intensive training, not only on the content they would teach but also in pedagogical techniques to “learn to teach.”

When they were ready to become trainers, they were organized into teams of three members, ensuring that at least one girl was part of each group. This guaranteed the participation of women in the project and promoted their visibility in the field of new technologies.

In this first phase of the project, the technological coaches focused their efforts on training Vocational Training students, but Secondary and High School centers were also incorporated.

03. < PROJECT DEVELOPMENT />

< TECHNOLOGICAL COACHES PROGRAM />

The second phase of 'In the Same Code' continued with the training of Vocational Training students, aiming to incorporate 50 technological coaches from this educational level. To ensure the quantitative objectives were met, a small group of university coaches (comprising six students) remained active and contributed to the intensive training of Vocational Training students, as well as achieving the initially described results.

Finally, we succeeded in adding 40 more coaches from Vocational Training to the initial group of 22 university coaches. With the training provided by all of them, they managed to educate 1,962 primary school boys and girls, significantly surpassing the initial estimate.

< TRANSFER OF RESULTS AND FINAL EVENTS />

The final phase of the project focused on analyzing and transferring results, as well as ensuring the project's sustainability. This activity also included the celebration of final events to share outcomes among all involved parties.

The first event took place in March 2024, leveraging the synergy with the Smart Green Island Makeathon, an innovation festival that brings together stakeholders (universities, training centers, and companies from across Europe). Our project reached a total of 323 participants at this event. Among them were primary and secondary school students, some Vocational Training students, and educators at this level. Additionally, six students from Enclave Classrooms (Aulas Enclave, AE) participated, supported by the technological coaches, demonstrating the inclusive nature of our workshops.

The second event took place in Munich, Germany, where 4 university technology coaches from Gran Canaria conducted family workshops at the Zukunft Festival in the Deutschen Museum (June 29th and 30th). During this festival, workshops were held with the participation of approximately 400 boys and girls. Additionally, beforehand, the youth received specialized training from the Gerda Stetter Foundation. All these activities were conducted in English, enhancing the students' language skills.

04.
< ANALYSIS OF THE METHODOLOGY EMPLOYED AND GENDER PERSPECTIVE />

04

< ANALYSIS OF THE METHODOLOGY EMPLOYED AND GENDER PERSPECTIVE />

The project's methodology was primarily based on the combination and implementation of four approaches:

01. PEER EDUCATION

This approach was one of the guiding principles of the project. It is a highly valued interactive learning method because it creates a positive environment for work and coexistence. Through this technique, learning scenarios were created where both instructors and students mutually benefited from the exchange of knowledge and ideas. Additionally, the fact that the training was conducted among peers facilitated understanding between coaches and students.

02. THE SNOWBALL EFFECT

The 'In the Same Code' project aimed to create a cascading teaching system, where training would be passed from one group to another, generating a "snowball effect". To achieve this, the following modus operandi was established: professionals from the Gerda Stetter Foundation would train university students, who would then train Vocational Training students to incorporate them as technology coaches. We also included students from Secondary and High School levels, although this was not initially planned in the project. Subsequently, all of them would train students from Secondary Education and Primary Education.

03. WORKSHOPS

The workshops conducted in the 'In the Same Code' project were based on a fundamental principle: "learning by doing." This technique involved students in challenges that introduced them to programming and robotics in a playful way, generating interest through proposed technological challenges. Educational kits like LEGO Mindstorms Education EV3 were used, challenging students to program robots to perform specific movements, such as turns or straight-line movements, and to use sensors creatively. This way, students developed their problem-solving ability, teamwork skills, and analytical thinking.

The coaches organized these workshops in teams of 2 to 3 people, always ensuring the inclusion of female trainers to provide a gender perspective. The coaches themselves also "learned by doing" since preparing and leading the workshops allowed them to refine their soft skills, leadership, communication techniques, and teaching methods.

04. < ANALYSIS OF THE METHODOLOGY EMPLOYED AND GENDER PERSPECTIVE />

04. ENVIRONMENTAL CONSIDERATIONS

> *La metodología utilizada en nuestro proyecto se basa en un sistema educativo previamente implementado por la Fundación Gerda Stetter y su empresa matriz ITQ GmbH en Alemania. Esto permite comprobar la viabilidad del enfoque en otros países, ya que está siendo exitoso en Gran Canaria. A raíz de este logro, ahora se aspira a expandir el proyecto al resto de Europa, con el objetivo de formar a 100,000 jóvenes, niños y niñas.*

05. EVALUATION

> *The evaluation and monitoring system was employed as a key methodology to measure the achievement of objectives both during the project and after its completion. This method was implemented through questionnaires and interviews conducted with participants and involved organizations.*

One of the evaluation tools was a survey to measure the satisfaction level of 361 students who participated in the project between September 2022 and February 2024. The results indicated that 96.45% enjoyed the experience, while only 3.55% did not. Additionally, 91.5% of respondents considered the training workshop to be very useful in other areas, while the remaining 8.5% disagreed.

DID YOU ENJOY THE EXPERIENCE?

96.45 %
3.55 %

DO YOU THINK THAT THE WORKSHOP YOU HAVE RECEIVED CAN BE OF USE TO YOU IN OTHER AREAS?

91.5 %
8.5 %

Regarding the familiarity of respondents with similar workshops, 58.85% had never participated in anything like 'In the Same Code,' compared to 41.15% who had. Additionally, 50.3% expressed interest in becoming a coach to train primary school children, while 49.7% did not consider it.

HAVE YOU DONE A WORKSHOP SIMILAR TO THIS ONE?

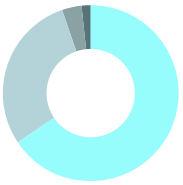
58.85 %
41.15 %

WOULD YOU LIKE TO TEACH A WORKSHOP LIKE THIS TO PRIMARY SCHOOL STUDENTS AS A TEACHER?

50.3 %
49.7 %

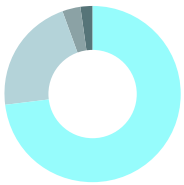
In the workshop evaluation, 65.6% rated it as "excellent," 29.3% as "good," 3.6% as "average," and 1.5% as "poor." Regarding the performance of the coaches, 73.2% rated them as "excellent," 21.5% as "good," 3.3% as "average," and 2% as "poor."

EVALUATES THE EXPERIENCE OF THE WORKSHOP



EXCELENTE 65.6 %
BUENO 29.3 %
REGULAR 3.6 %
MALO 1.5 %

EVALUATES THE COACHES WHO HAVE DELIVERED THE WORKSHOP



EXCELENTE 73.2 %
BUENO 21.5 %
REGULAR 3.3 %
MALO 2 %

As for the frequency with which respondents had programmed before the workshop, 37.5% had never programmed, 25% did so occasionally, and 12.5% stated they had always programmed. Finally, the majority of the sample had worked with LEGO before the workshop, while 12.5% had no prior experience.

HAVE YOU DONE PROGRAMMING BEFORE?

NUNCA 37.5 %
ALGUNA VEZ 25 %
SIEMPRE 12.5 %

HAVE YOU WORKED WITH LEGO BEFORE?

87.5 %
12.5 %

06. GENDER PERSPECTIVE

One of the main objectives of the project was to introduce a gender perspective in the field of new technologies from an early age. Both foundations identified the low presence of women in the digital environment, which was concerning not only for its immediate impact but also for its long-term implications, as future generations might lack female role models in these fields for inspiration.

Additionally, the lack of specific content addressing these topics from an inclusive perspective was noted. This led to the creation of an innovative educational model that facilitated women's access to an area previously marked by unequal opportunities, allowing for equal representation in digital studies and technical professions.

From 'In the Same Code,' the goal was to promote female presence in robotics and programming, as well as to foster gender equality in STEM. To achieve this, a selection process favoring female students with a 40-60% ratio was designed. Teams of technological coaches, formed by 2-3 people, always had to include a woman. This ensured that women were prioritized both for introductory training at universities and for intensive and primary level training.

Of the 73 students from ULPGC who received training from ITQ, 51% were women, the majority from degrees in Computer Engineering, Telecommunications, Industrial and Civil Engineering, and Education. Of the 22 university coaches selected to educate over 2,000 young people, 14 were women and 8 were men.

Regarding the students who received training in educational centers, only 13.29% of Vocational Training students were girls. Workshops were primarily conducted in the fields of Computing, Electricity, and Machine Electromechanics, indicating a very low female presence in these programs. In High School (Bachillerato) and Secondary Education, 41% of the students were girls, while 59% were boys, a significant difference attributed to workshops being held in classes where students had already chosen science or technology paths. In Primary Education, 58% of those who received training were girls.

Furthermore, it was established that Vocational Training groups responsible for teaching robotics and programming in schools should include female trainers whenever possible, ensuring a gender perspective in the teams of technological coaches.

STUDENTS

Female **51 %**
Male **49 %**
73 Students

COACHES

Female **14**
Male **8**
22 Coaches

VET STUDENTS

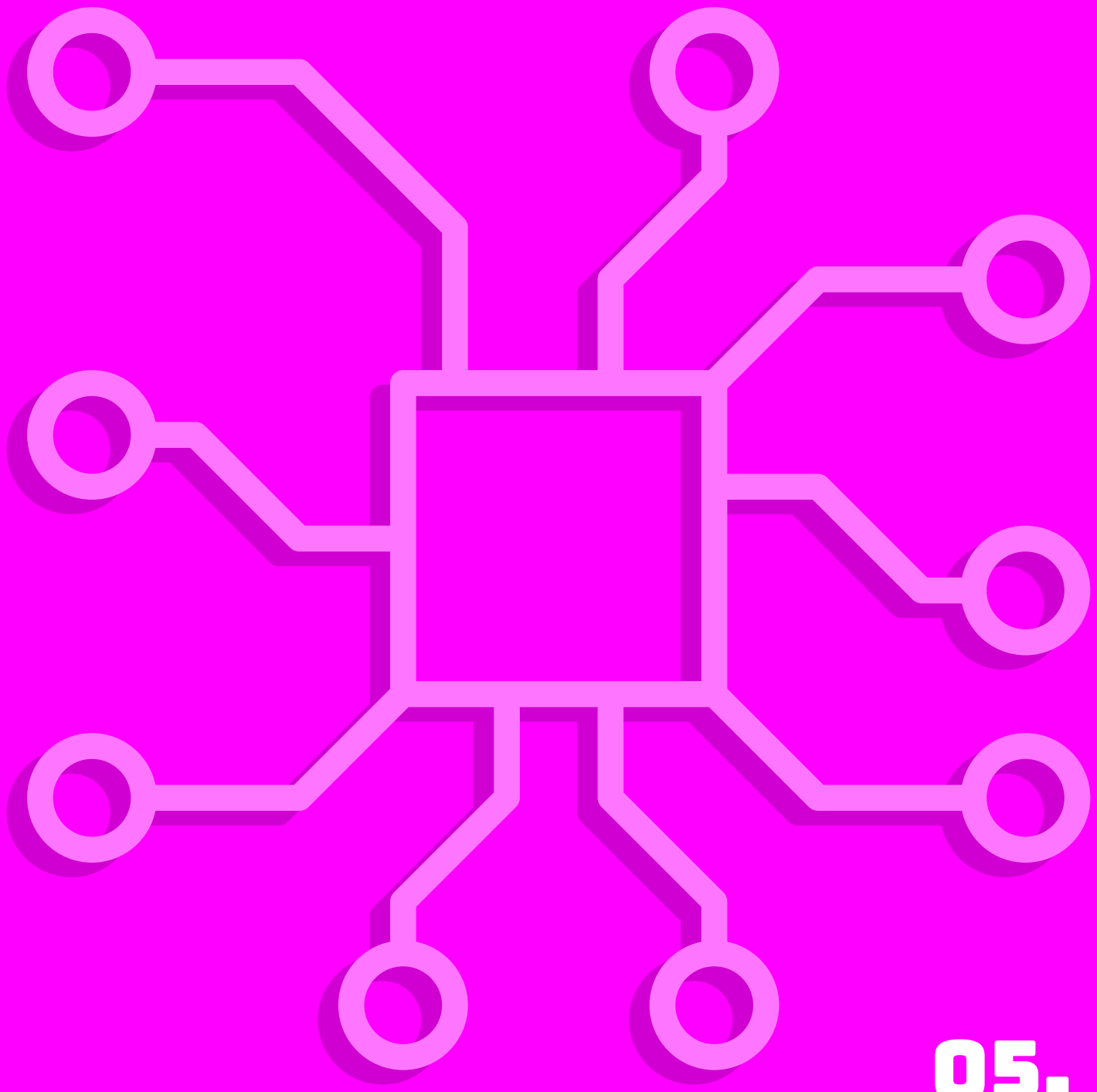
Female **13.29 %**
Male **86.71 %**

STUDENTS

Female **41 %**
Male **59%**

PUPILS

Female **58 %**
Male **42 %**



05.
< IMPACT AND DISSEMINATION />

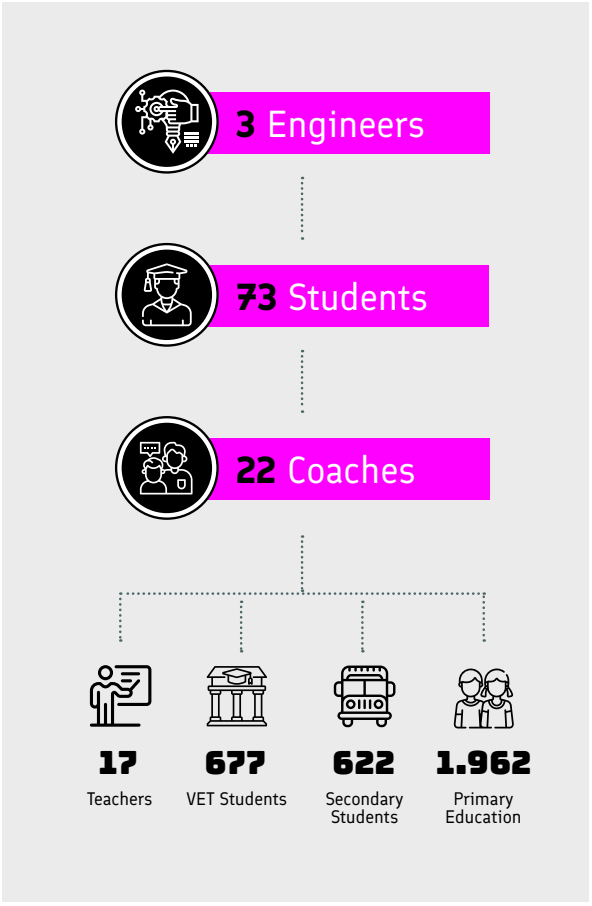
05

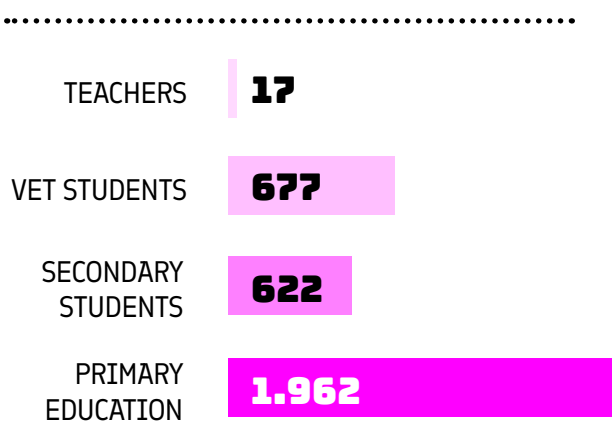
< IMPACT AND DISSEMINATION />

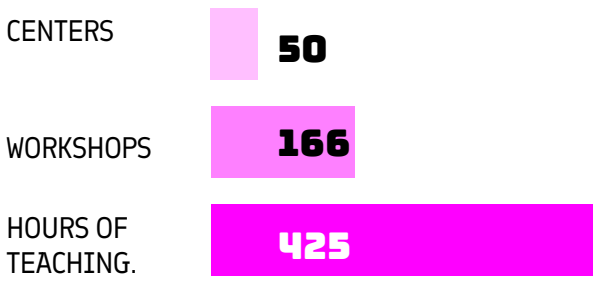
At the beginning of the project, we set a series of impact and outreach objectives to be achieved by July 2024. We aimed to reach 2,000 young boys and girls in Gran Canaria, and we achieved this goal even before the end, reaching it by late March. Therefore, we set out to go further and decided to increase the number to 3,000 students trained by the end of July 2024.

***3 engineers** from the **Gerda Stetter Foundation** provided training in programming and robotics to approximately **73 students** from the University of Las Palmas de Gran Canaria (**ULPGC**). Among the students who received the training, **22 young individuals** were selected and recruited to be prepared for teaching students at various levels afterwards.*

As of July 1, 2024, the coaches had taught programming and robotics to the following groups: 17 teachers, 677 Vocational Training students, 120 high school students , 502 secondary school students, 1,962 primary school boys and girls. In total, workshops were conducted in 50 educational centers, reaching a total of 3,351 young individuals through 166 workshops. The teaching sessions amounted to approximately 425 hours in duration.





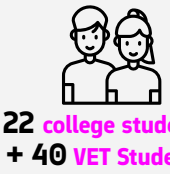


05. < IMPACT AND DISSEMINATION />

Next, in the second phase, 40 students from the 677 Vocational Training students reached were selected to become co-technology coaches. The chosen ones also underwent intensive preparation, which was structured as follows: technical training in programming and robotics, training in communication skills, and training in teaching techniques.

40 vocational school students would become technology co-coaches

After finishing the intensive course, the 40 young people were reorganized to also teach extracurricular classes to Primary Education students. These teams were distributed across 25 schools, where they taught a total of 206.5 hours and reached approximately 1,562 fifth and sixth-grade children.



22 college students
+ 40 VET Students

25 schools

206 hours
of teaching

1.562
children

CASE STUDY AND FINAL EVENT

To conclude, we conducted a case study of the project which involved approximately 3,351 individuals, 23 Vocational Training and secondary education centers, 25 primary schools, and 2 organizations (Up2u Foundation and Scout Group Wañak 130). Additionally, through the final meeting held in two phases, we were able to gather approximately 700 people.

2.951 people

25 schools

23 centers
FP y IES

2 entities

05. < IMPACT AND DISSEMINATION />

NOMINATION FOR THE EUROPEAN DIGITAL SKILLS AWARDS 2024

The joint efforts and work carried out by 'In the Same Code' for digital transformation have led to its nomination for the European Digital Skills Awards 2024 (EDSA24). One of the main goals of this initiative was to enhance the digital skills of around 2,000 young people, boys and girls in Gran Canaria, thus addressing one of the major current challenges: the digital divide in terms of the use and access to ICT.

This objective, rooted in the inherent nature of the project, aligns perfectly with the goal of these awards, which focus on recognizing European initiatives aimed at enhancing e-skills. Among the five categories included in the EDSA2024 awards are the following: digital updating in the workplace, digital skills for education, inclusion in the digital world, women in ICT careers, and cybersecurity skills.

'In the Same Code' has become one of the 5 finalists vying for the "Digital Skills for Education" award. This category was created to value initiatives that have worked to equip students and teachers across Europe with digital tools, as well as to train them in the field of new technologies. This mission aligns with the actions that have brought this proposal to life, characterized by bringing robotics and programming closer to Primary Education, Secondary Education, and Vocational Training students.

05. < IMPACT AND DISSEMINATION />

< DISSEMINATION />

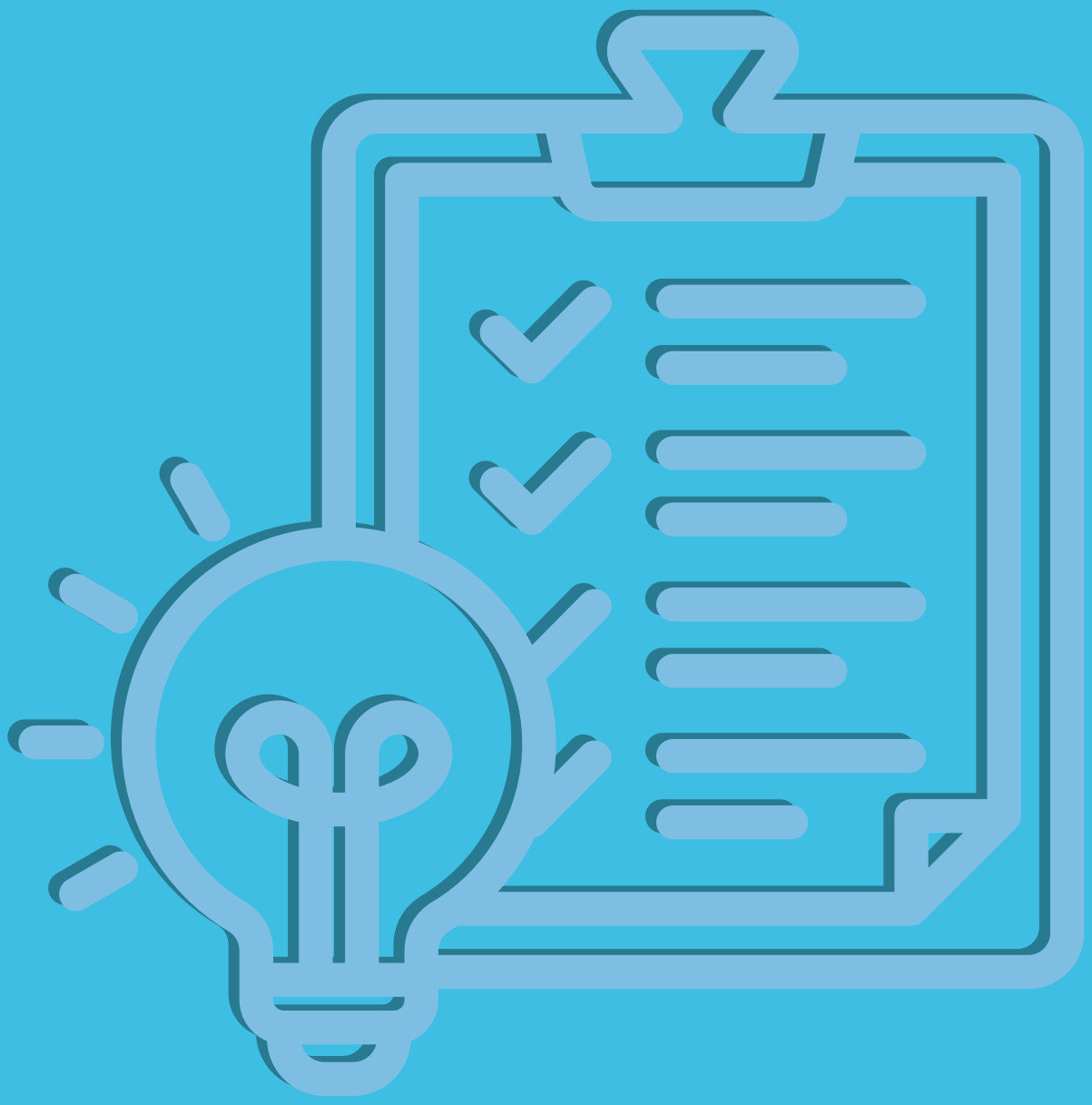
Regarding the dissemination activities carried out, both online and offline actions were implemented. Online activities focused on creating engaging videos as key content for our social media strategy and regularly publishing updates to foster user engagement. Additionally, a section was added to the Sergio Alonso Foundation website, where all information about 'In the Same Code' was uploaded.

As for offline measures, there were three key events for spreading our project.

Smart Green Island Makeathon: The first phase of the final meeting of 'En el Mismo Código', reaching over 300 participants with various workshops focused on different educational levels, from Primary to High School, Vocational Training, and teachers. Additionally, the project was presented at the opening ceremony of Makeathon 2024 in front of approximately 600 people.

Science and Innovation Week in the Canary Islands: Workshops held in 8 educational centers reaching 347 students and 25 teachers.

VII Workshop on Educational Innovation: Presentation of the project during this workshop organized by the School of Industrial and Civil Engineering (EIIC) of the ULPGC.



06.
< CONCLUSIONS />

06.

< CONCLUSIONS />

Achievement of Primary Goal: 'In the Same Code' has successfully reached its primary and most cherished goal: to create a vast network of young boys and girls in Gran Canaria who are enthusiastic about technology from an early age and are equally trained in digital competencies. This initiative has laid the groundwork for their integration into the future, competitive job market.

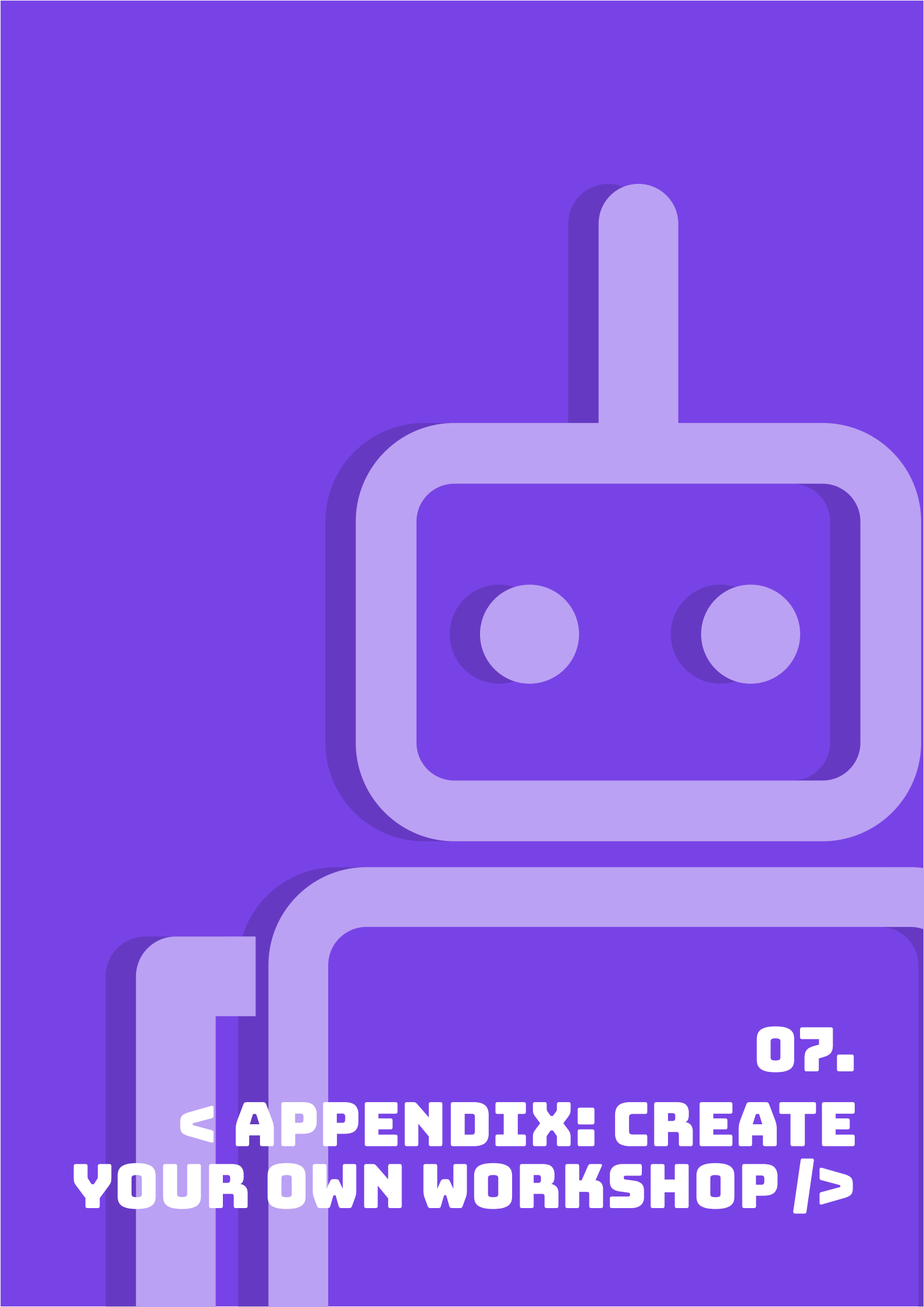
- The implementation of peer education and the "snowball effect" have been highly effective. Through these methodologies, the project reached over 2,500 future talents and more than 40 centers through 130+ workshops and 360 hours of training in just a year and a half.

- This project has not only educated students in digital skills but has also trained students in other valuable competencies. Through intensive training, 22 university coaches and 40 Vocational Training coaches have worked on their soft skills, improving their communication abilities and developing the necessary competencies to teach others. Therefore, the teaching has not been solely technical; it has also covered a wide spectrum of knowledge within the project.

- The exceptional results of this pilot project have confirmed the replicability of the model previously tested by the Gerda Stetter Foundation in Germany, proving its viability in Gran Canaria. This model and methodology have shown adaptability to all types of educational centers: Primary Education (6-10 years), Secondary Education (11-18 years), and Vocational Training (16-20 years). This lays the foundation for extending this innovative educational proposal to the rest of the Canary Islands and other European countries, demonstrating that it is an easily reproducible model with affordable costs.

- Promotion of Gender Perspective: 'In the Same Code' has successfully promoted a gender perspective in young generations' access to technology. The project encouraged the involvement of girls in robotics and programming, creating dynamics that favored their participation. As a result, their presence was prominent in several phases: 14 of the 22 coaches were women, 51% of the university students who received training were female, and in the schools where workshops were conducted, 58% of the participants were girls.

- Empowered Youth: A significant part of the youth in Gran Canaria now possesses the tools they need to be equipped and ready to actively contribute to the digital transformation of our society. This project has empowered them with the skills and confidence necessary to thrive in a digital world.



07.
< APPENDIX: CREATE YOUR OWN WORKSHOP />

07

<CREATE YOUR OWN WORKSHOP />

MINDSTORM EV3

IN THE SAME CODE

WHAT ARE WE GOING TO DO?

LEGO education

WHAT ARE WE GOING TO USE?

FUNDACIÓN SERGIO ALONSO

SMART GREEN ISLAND

DR. STETTER ITQ smart green innovative

WHAT ARE WE GOING TO USE?

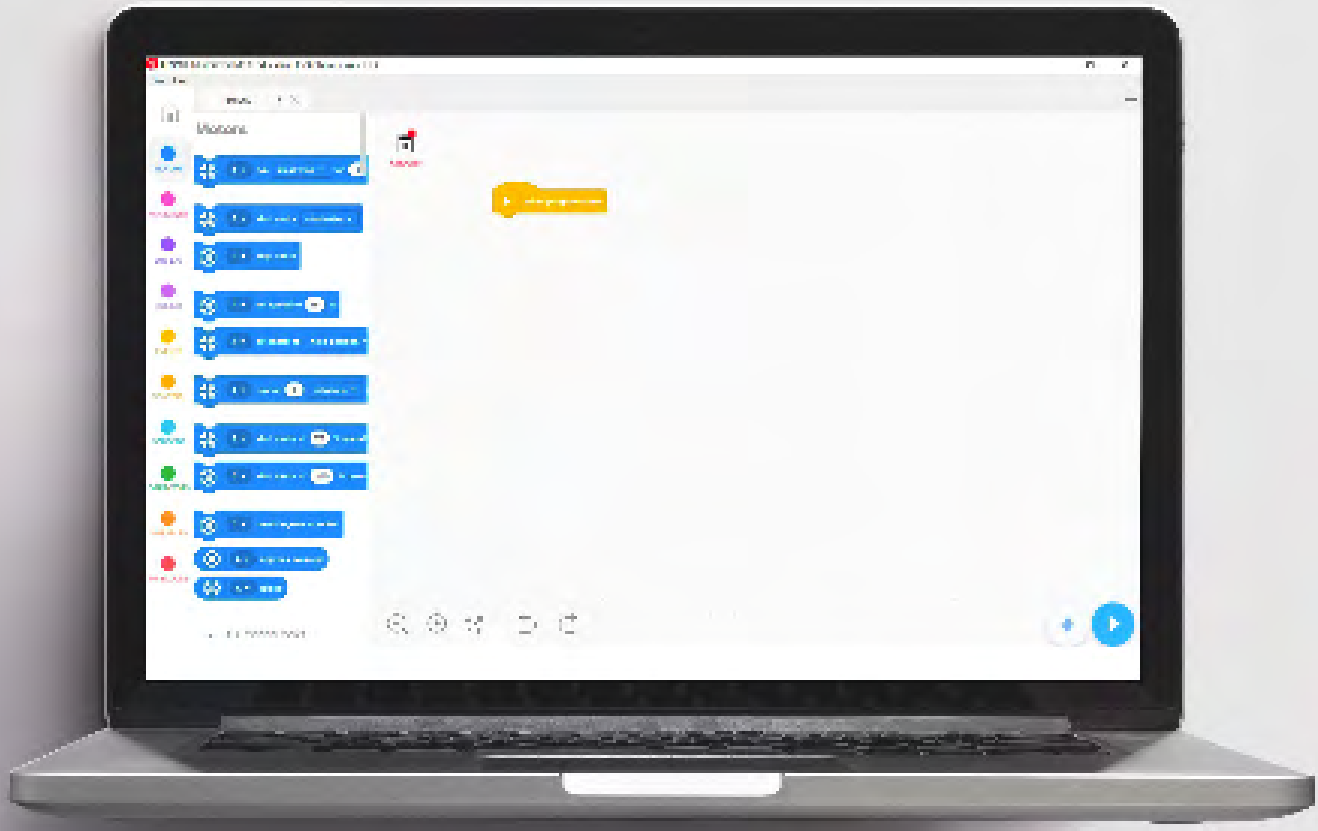
MOTORS

EV3 BLOCK

SENSORS

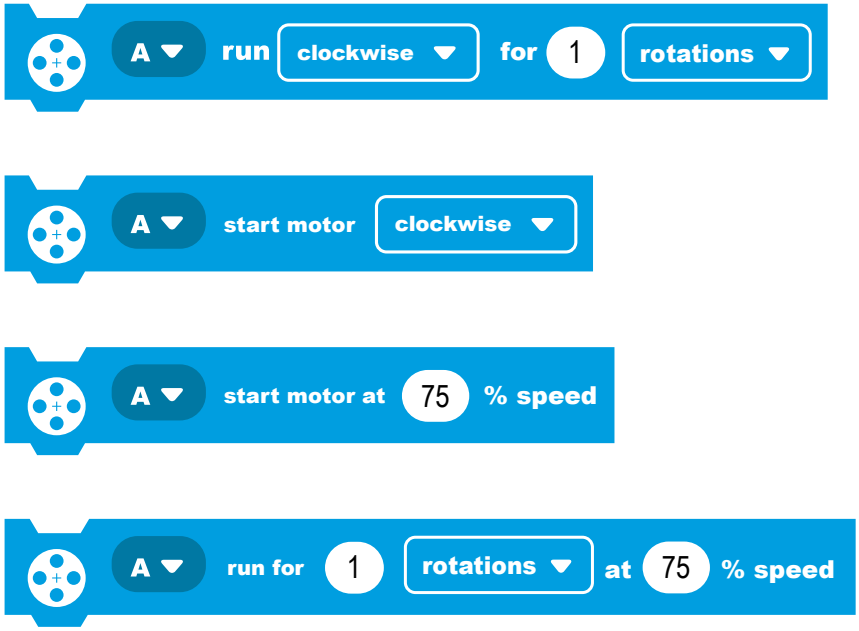
WHAT ARE WE GOING TO USE?

INTERFACE



WHAT ARE WE GOING TO USE?

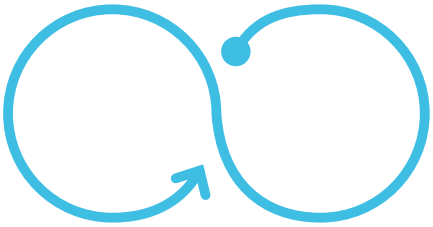
MOTORS



< FIRST CHALLENGE />

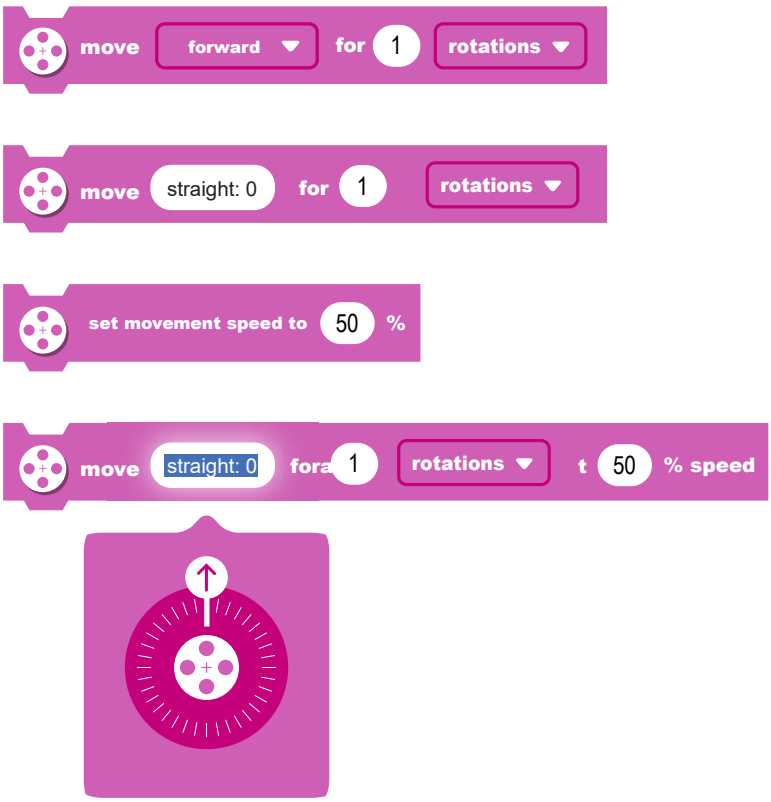
PROGRAM THE ROBOT TO MAKE IT DO A ZIGZAG

MAKE THE ROBOT MOVE IN AN INFINITE SYMBOL



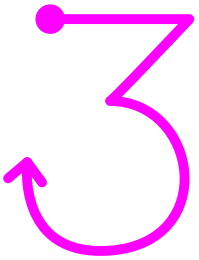
WHAT ARE WE GOING TO USE?

MOVEMENT



< SECOND CHALLENGE />

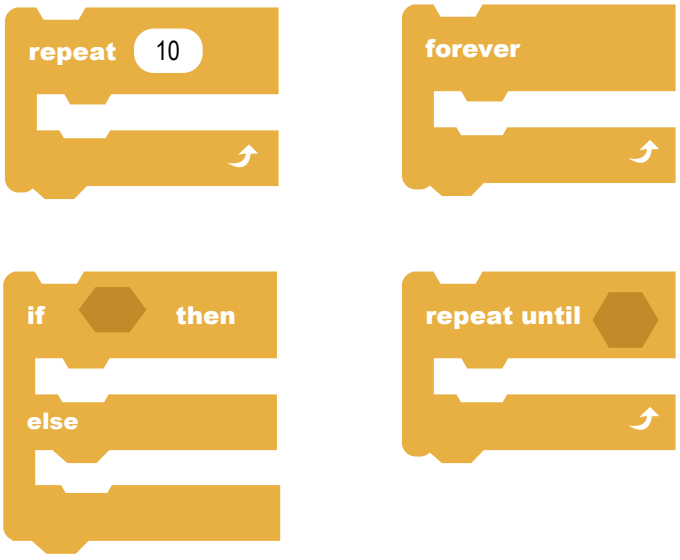
PROGRAM THE ROBOT TO MAKE A LETTER OR SHAPE WITH ITS MOVEMENT



PROGRAM THE ROBOT TO MOVE ALONG A IMPROVISED CIRCUIT

WHAT ARE WE GOING TO USE?

CONTROL



< THIRD CHALLENGE />

USING THE CONTROL BLOCKS, MAKE THE ROBOT CREATE A SHAPE WITH THE LEAST AMOUNT OF CODE POSIBLE

IMPROVE THE CODE OF THE CIRCUIT WITH CONTROL BLOCKS

WHAT ARE WE GOING TO USE?

SENSORS

< FOURTH CHALLENGE />

PROGRAM THE ROBOT SO WHEN IT DETECTS AN SPECIFIC COLOR IT WOULD MAKE AN SPECIFIC ACTION CODED JUST FOR THAT COLOR

ONCE REACHED THE STEP BEFORE, DO THE SAME WITH MORE THAN ONE COLOR IN A ROW

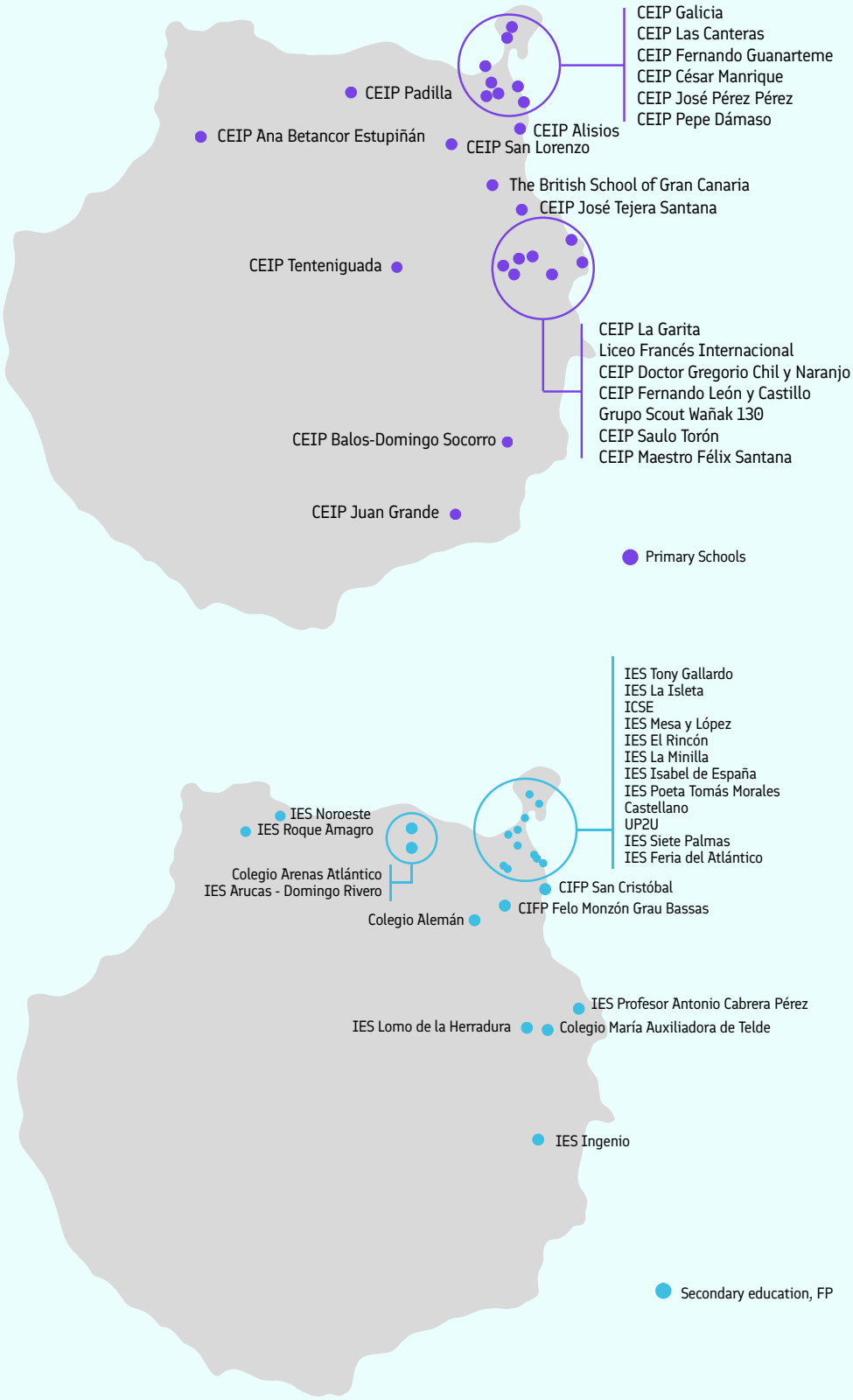
< RETO FINAL />

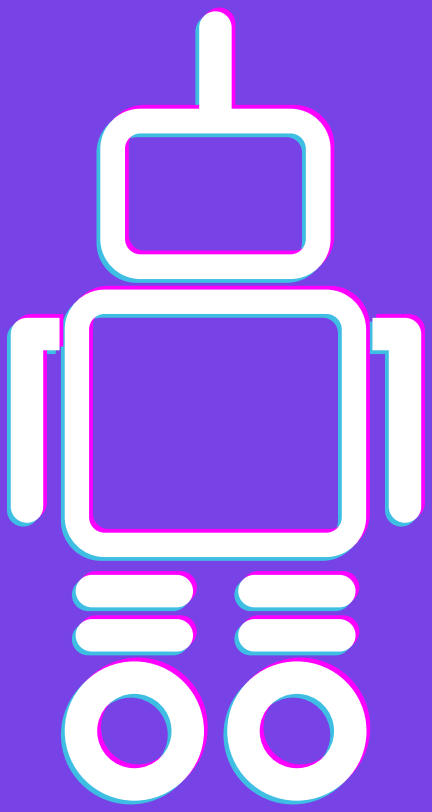
MAKE THE ROBOT MOVE INSIDE A SHAPE WITHOUT TRESPASSING THE LINE

MAKE THE ROBOT COMPLETE A SHAPE BY FOLLOWING A LINE

08.
< APPENDIX II: CENTERS LOCATION />

08. < CENTERS LOCATION />





FUNDACIÓN SERGIO ALONSO

Gerda Stetter Stiftung

Technik *macht* Spaß!

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