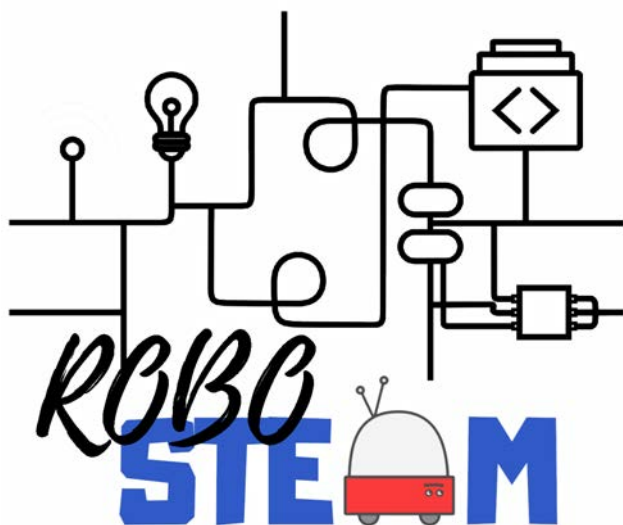

RoboSTEAM C1 – Training Week



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Project Number: 2018-1-ES01-KA201-050939

Version History

Version	Date	Comments
0.1	10/01/2021	Inclusion of Agenda
0.2	12/01/2021	Description
1.0	18/01/2021	First version of the report
1.1	29/05/2021	Final version
1.2	30/05/2021	Errata correction

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1. C1. Training Week

This document describes C1-Training Week carried out online in the context of RoboSTEAM project [1-8] at 13th, 14th and 15th of January of 2021. This document includes the description, the context and the main results.

2. Description

This activity consists of an intensive training for teaching staff belonging to the project's partner institutions and was originally planned to be held in Karlsruhe (Germany). Due to the situation generated by the COVID-19 pandemic [9-21], it was finally held virtually.

The structure and learning design of this training action will be carried out considering the products and results of the pilots in A3 and A4.

This activity implies the compilation of good and bad practices and lesson learned from the information gathered in O1, O2, A3 and A4. With this information new guides for STEAM integrating and computation thinking development should be defined.

This section describes how the activity was carried out and the context of such activity.

2.1. Context

The objective of this activity is to test the products developed by the participants in this project in the project outputs (O1, O2, O3 and O4) with teachers or other personnel related to school education.

Another objective is the training of these users in the use of the RoboSTEAM environment portal and its resources (repository, social environment, diagnostic and evaluation tools...) and of the PD&R kits so that they can, in turn, teach it to the teachers involved in each of the local multiplier events.

This activity is based on a challenge-based learning methodology so that the teachers involved can experience a learning approach similar to the one described in the guides.

2.2. People involved

As described above, this activity involves the participation of teachers and educators from the various partner schools of the project.

The instructors of the activity have been the higher education institutions that are partners of the project and in charge of the training of the resources generated in the project outputs.

2.3. Webinars delivered

As we were forced to carry out this activity virtually, several seminars and workshop were organized during the three days of the activity, as detailed in the agenda. Some of these seminars are described in more detail in the results section.

3. Signatures and Agenda

3.1. RoboSTEAM Training Week Agenda

13th,14th and 15th of January 2021

Date: 13/01/2021 (<https://meet.google.com/khk-zneb-ywx>)

1. Training Week Opening (13:50 CET)
2. Hummingbird Robots in STEAM Education Webminar (14:00 – 15:00 CET)
3. Educational Robots Workshop (15:00 – 16:00 CET)
4. Hardware in the Loop Workshop (16:00 – 17:00 CET)

Date: 14/01/2021 (<https://meet.google.com/nxq-rbfi-pgs>)

Challenge Based Learning Workshop (9:30 CET – 13:00 CET)

- Theoretical concepts (9:30 – 11:00 CET)
- Coffee break (11:00 – 11:30 CET)
- Samples for applying the method (11:30 – 13:00 CET)
- Lunch time (13:00 – 15:00 CET)
- Working on ChBL at home (15:00 – 18:30 CET)

Date: 15/01/2021 (<https://kit-lecture.zoom.us/j/68360922582?pwd=TyszVkhtVDNNMDY1bDRkdnJoeVRVQT09>) Meeting-ID: 683 6092 2582. Kenncode: 978050

1. Suffer workshop (10:00 – 11:00 CET)
2. Smart Textile prototyping projects (11:00 – 12:30 CET)
3. Variobot (12:30 – 13:00 CET)
4. Training Week Closing (13:00 CET)

Attendance Report for class-list: 2021-01-13

Names	
Jonny Filipe Alves	Evaristo Moreira
Covadonga Gonzalez Barrientos	Vicente Matellán Olivera
Caio Dias	Juha Paavilainen
Mara Dias	Joaquim Paulino
Luisa Fernandes	Francisco José García Peñalvo
Alexis Gutiérrez Fernández	Maria Clotilde De Carvalho Fernandes Pires
Cristina Folgado	Daniela Reimann
Miguel Ángel Conde González	Arlinda Rodrigues
José Gonçalves	Francisco Jesús Rodríguez Sedano
Manuel Domingos Jesus	Tiago Soares
José Lima	Ella Suortti
Manuel Castejón Limas	Susana Celis Tena
Camino Fernández Llamas	Pedro Victor
João Martins	Laura Ylönen

Attendance Report for class-list: 2021-01-14

Names	
Jonny Filipe Alves	João Martins
Covadonga Gonzalez Barrientos	Evaristo Moreira
Emílio Couto	Vicente Matellán Olivera
Alexis Gutiérrez Fernández	Joaquim Paulino
Cristina Folgado	Francisco José García Peñalvo
Lidia Sánchez González	Maria Clotilde De Carvalho Fernandes Pires
Miguel Ángel Conde González	Daniela Reimann
José Gonçalves	Laura Fernández Robles
Manuel Domingos Jesus	Arlinda Rodrigues
José Lima	Raquel Rodrigues

Francisco Jesús Rodríguez Sedano
Rita Silva
Tiago Soares
Inês Sumares
Ella Suortti


Susana Celis Tena
Adrian Campazas Vega
Pedro Victor
Tino Werner
Laura Ylönen


Attendance Report for class-list: 2021-01-15

Names
Cristina Ferreira
Luisa Fernades
Clotilde Pires
Joaquim Paulino
Arlinda Rodrigues
Jonny Filipe Alves
Manuel Domingos Jesus
João Martins
Tiago Soares
Evaristo Moreira
João Direito
Susana Celis Tena
Covadonga Gonzalez Barrientos
Daniela Reimann
Markus Müller

José Alexandre de Carvalho Gonçalves
José Luís Sousa de Magalhães Lima
Francisco José García Peñalvo
Alicia García Holgado
Lucía García Holgado
Andrea Vázquez Ingelmo
Adrian Campazas Vega
Alexis Gutiérrez Fernández
Camino Fernández Llamas
Francisco Javier Rodríguez Lera
Francisco Jesús Rodríguez Sedano
Laura Fernández Robles
Luis Vicente Calderita Estévez
Manuel Castejón Limas
Miguel Ángel Conde González
Vicente Matellán Olivera

3.2. Signature lists





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Training Week
13th of January 2021
Online

Participant List

	Name and Surname	Institution	Country	Email	Signature
1	Arlinda Rodrigues	ESEG	Portugal	arlindarodrigues@sapo.pt	<i>Arlinda Rodrigues</i>
2	Cristina Ferreira	ESEG	Portugal	cris.folgado@gmail.com	<i>Cristina</i>
3	Lúisa Fernandes	ESEG	Portugal	asilulmf@gmail.com	<i>Luisa Fernandes</i>
4	Clotilde Pires	ESEG	Portugal	mccpires@gmail.com	<i>Clotilde Pires</i>
5	Mara Dias	ESEG	Portugal	mepsousadias@gmail.com	<i>Mara Dias</i>
6	Joaquim Paulino	ESEG	Portugal	jjcpaulino@gmail.com	<i>Joaquim Paulino</i>

Add more rows if needed

Signed by: Daniela Reimann (Training Week Responsible)
2018-1-ES01-KA201-050939





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Participant List

	Name and Surname	Institution	Country	Email	Signature
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4	Inês Sumares	ESEG	Portugal	inessumares@gmail.com	<i>Inês Sumares</i>
5	Clotilde Pires	ESEG	Portugal	mccpires@gmail.com	<i>Clotilde Pires</i>
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Add more rows if needed

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	Name and Surname	Institution	Country	Email	Signature
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3	Clotilde Pires	ESEG	Portugal	mccpires@gmail.com	
4	Joaquim Paulino	ESEG	Portugal	jjcpaulino@gmail.com	

Add more rows if needed
5 *Arline de Rodriguez* ESEG Portugal

Signed by: Daniela Reimann (Training Week Responsible)

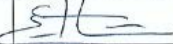

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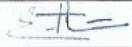

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Add more rows if needed

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Participant List

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1	Francisco José García Peñalvo	University of Salamanca	Spain	fgarcia@usal.es	 <small>Firmado digitalmente por GARCIA PEÑALVO FRANCISCO JOSE - 05849516. Fecha: 2021.01.21 20:00:39 +01'00'</small>
2	Alicia García Holgado	University of Salamanca	Spain	aliciagh@usal.es	<small>GARCIA HOLGADO ALICIA - 70893684W. Firmado digitalmente por GARCIA HOLGADO ALICIA. Fecha: 2021.01.21 21:38:28 +01'00'</small>
3	Lucía García Holgado	University of Salamanca	Spain	luciagh@usal.es	<small>GARCIA HOLGADO LUCIA - 70893683R. Firmado digitalmente por GARCIA HOLGADO LUCIA. Fecha: 2021.01.21 21:28:53 +01'00'</small>
4	Andrea Vázquez Ingelmo	University of Salamanca	Spain	andreamvazquez@usal.es	<small>VAZQUEZ INGELMO ANDREA - 70918831X. Firmado digitalmente por VAZQUEZ INGELMO ANDREA. Fecha: 2021.01.21 20:45:48 +01'00'</small>

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1	Francisco José García Peñalvo	University of Salamanca	Spain	fgarcia@usal.es	
2	Alicia García Holgado	University of Salamanca	Spain	aliciagh@usal.es	GARCIA HOLGADO ALICIA 70893684W Fecha: 2021.01.21 21:38:42 +0100
3	Lucía García Holgado	University of Salamanca	Spain	luciagh@usal.es	GARCIA HOLGADO LUCIA 70893683R Fecha: 2021.01.21 21:29:11 +0100
4	Andrea Vázquez Ingelmo	University of Salamanca	Spain	andreamvazquez@usal.es	VAZQUEZ INGELMO ANDREA 709118831X Fecha: 2021.01.21 20:43:17 +0100

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3	Lucía García Holgado	University of Salamanca	Spain	luciagh@usal.es	GARCIA HOLGADO LUCIA 70893683R Fecha: 2021.01.21 21:29:27 +0100
4	Andrea Vázquez Ingelmo	University of Salamanca	Spain	andreamvazquez@usal.es	VAZQUEZ INGELMO ANDREA 709118831X Fecha: 2021.01.21 20:43:17 +0100

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
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7	Evaristo Moreira	CIC	Portugal	evaristo.moreira@cic.pt	

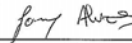



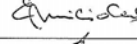


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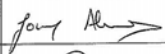



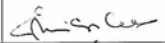

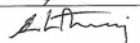
	Name and Surname	Institution	Country	Email	Signature
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8	Luis Vicente Calderita Estévez	ULE	Spain	lv.calderita@unileon.es	
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Add more rows if needed

Claudia Alvarez Aparicio

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Add more rows if needed

Claudia Álvarez Aparicio

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calva@unileon.es 

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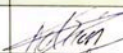



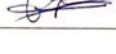
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Signed by: Daniela Reimann (Training Week Responsible)

2018-1-ES01-KA201-050939

Training Week
13th of January 2021
Online

Participant List

	Name and Surname	Institution	Country	Email	Signature
1	Daniela Reimann	KIT	Germany	Daniela.Reimann@kit.edu	
2	Markus Müller	KIT	Germany	marcus.mueller@kit.edu	

Add more rows if needed



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2	Markus Müller	KIT	Germany	marcus.mueller@kit.edu	

Add more rows if needed



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Training Week
13th of January 2021
Online

Participant List

	Name and Surname	Institution	Country	Email	Signature
1	Juha Paavilainen	University of Eastern Finland	Finland	juha.paavilainen@uef.fi	
2	Laura Ylönen	University of Eastern Finland	Finland	laura.ylonen@uef.fi	

Add more rows if needed

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	Name and Surname	Institution	Country	Email	Signature
1	Laura Ylönen	University of Eastern Finland	Finland	laura.ylonen@uef.fi	
2	Ella Suortti	University of Eastern Finland	Finland	ella.suortti@uef.fi	

Add more rows if needed

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	Name and Surname	Institution	Country	Email	Signature
1	Laura Ylönen	University of Eastern Finland	Finland	laura.ylonen@uef.fi	
2	Ilkka Jormanainen	University of Eastern Finland	Finland	ilkka.jormanainen@uef.fi	

Add more rows if needed

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4. Results

Analog Robots



- Robot Kits for plugging or for soldering
- Controlled by light sensors and only two transistors or operational amplifiers



This workshop describes some of the projects carried out by the KIT (Karlsruher Institut für Technologie) with the VARIOBOT[®] kit and the results obtained in the experiments.

This workshop describes the assembly and experiments performed on the KIT (Karlsruher Institut für Technologie). Simple electronic components are used, which are assembled and programmed with Arduino using block development environments to facilitate students' understanding.



Introduction Robot Prototype Sensors and Actuators Mobile Robotics Experiment Conclusions
Robot Prototype Description

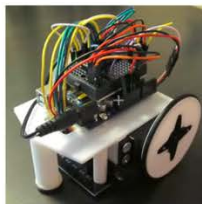


Figure: Robot Prototype.

- The prototyped mobile robot consists in a 3D printed small prototype.
- It uses inexpensive hardware, such as servo motors, an Arduino Uno platform and an infra-red detector array.

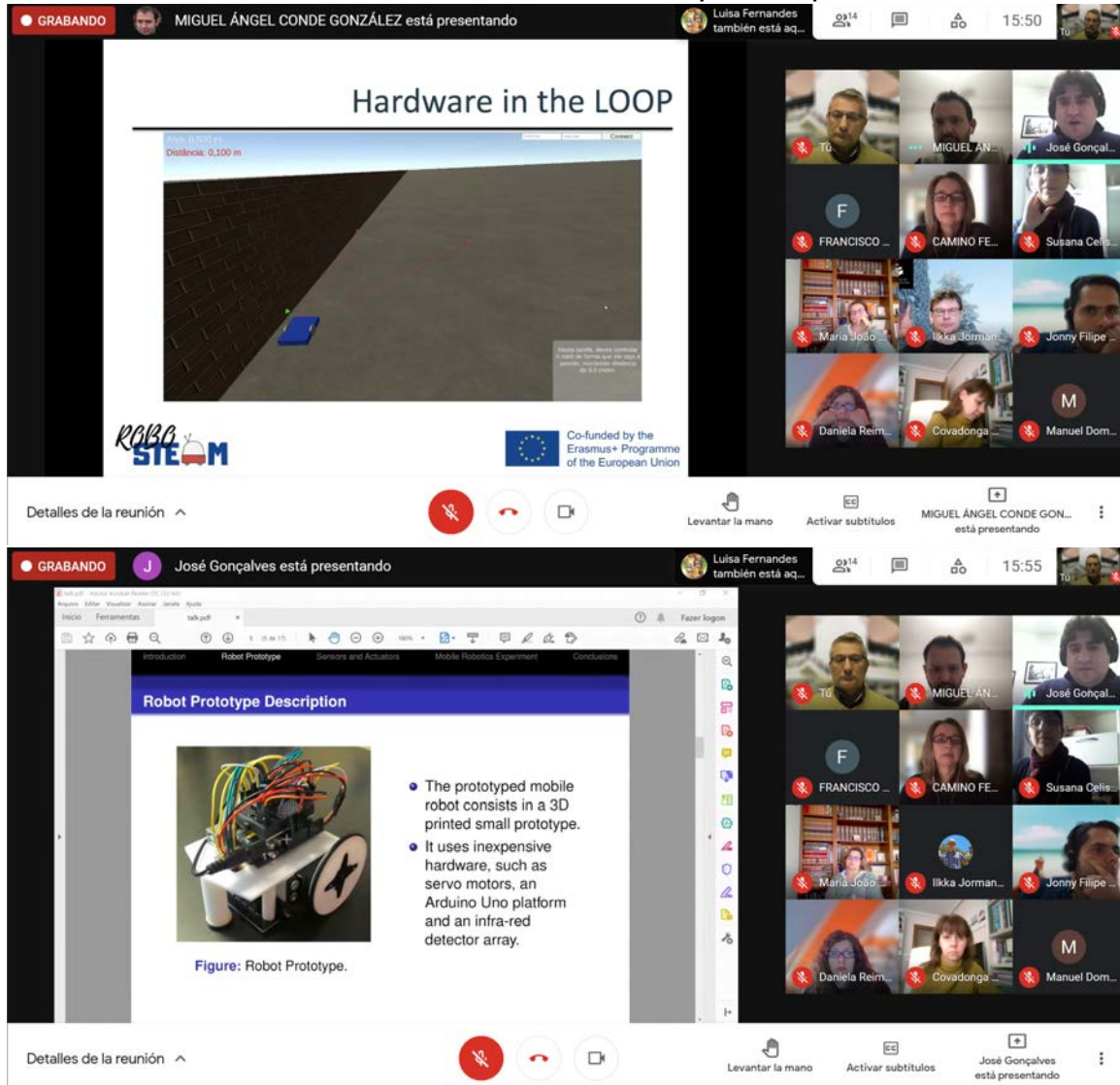
In this workshop titled *Hardware in the Loop*, a prototype robot developed by the IPB (Instituto Politécnico de Bragança) is described. The different sensors and actuators used in the assembly of the prototype are detailed and the results of the experiment carried out in the pilot tests

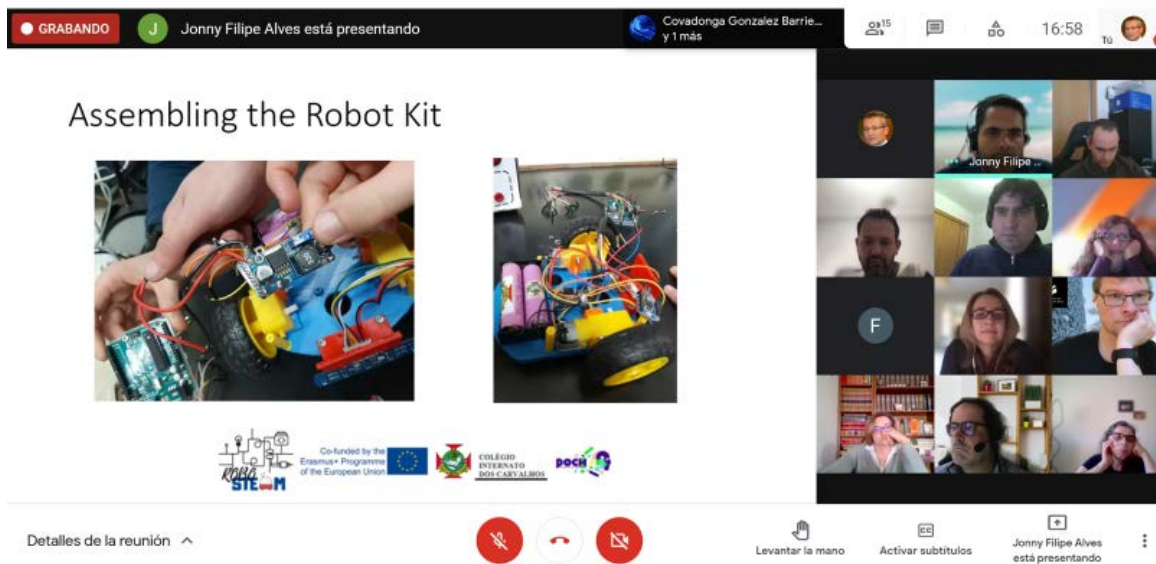
are presented. In this seminar, Prof. Miguel Angel Conde from the University of León, gives a workshop on challenge-based learning. This methodology has been used in the project as a methodological framework to address integrating STEAM and computational thinking development.



5. Photos

This section shows some screenshots of the activity developed.





Smart Textile as a creative learning environment



RoboSTEM training week,
15 January 21

Dr. Daniela Reimann, Markus Müller, Philip Martin
Eckerle, Marco Ezzy, Samuel Frescher,
Achim Pelster, KIT, and Tino Werner, Variobot

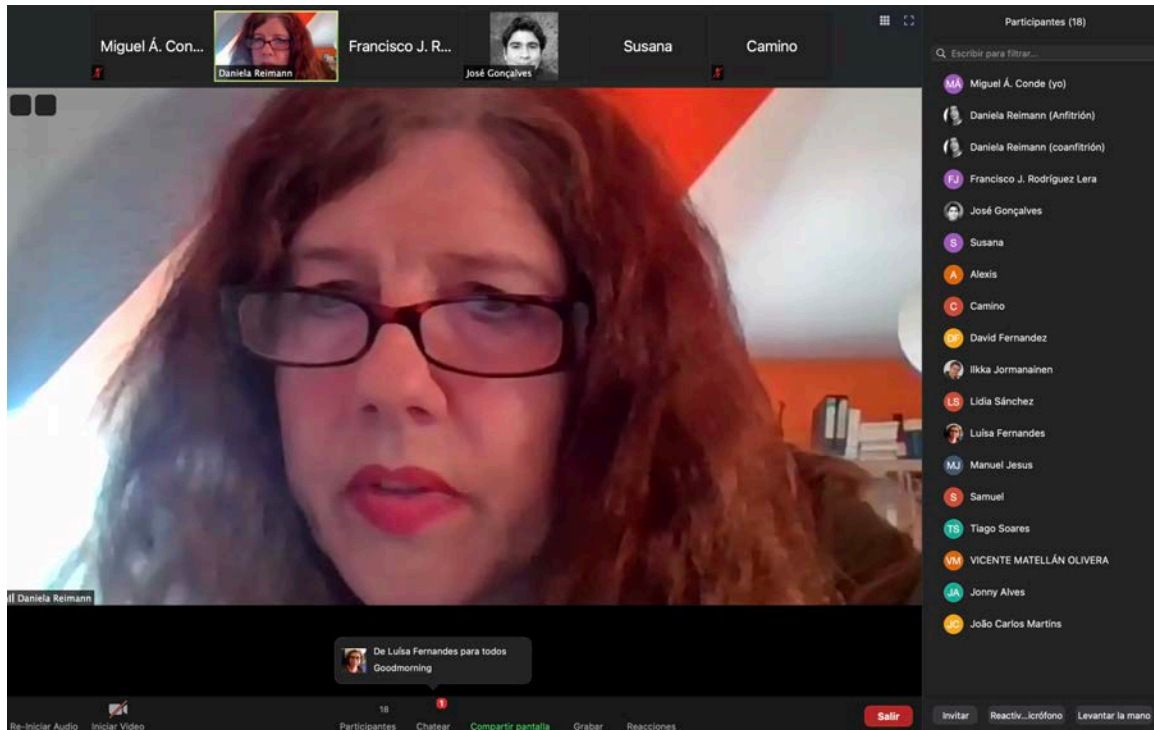
The image shows a Zoom meeting interface. The main window displays a presentation slide with the following text:

Programming Educational Robots with Scratch

Caio Camargo & José Gonçalves
January 2021
Instituto Politécnico de Bragança

Below the slide, a row of five participant thumbnails is visible: Caio Dias, José Gonçalves, Evaristo Moreira, João Martins, and Juha Paavilainen. The bottom of the screen shows the Zoom control bar with icons for mute, video, chat, and other functions.

On the right side, there are two participant lists. The top list is for 'RoboSTEAM Training Week (day 1)' and contains 34 participants, including Joaquim Paulino, Jonny Filipe Alves, José Gonçalves, José Lima, Juha Paavilainen, LAURA FERNÁNDEZ RO..., Laura Ylönen, LIDIA SÁNCHEZ GONZ..., Lucía García Holgado, Luisa Fernandes, MANUEL CASTEJÓN L..., Manuel Domingos Jesus, Mara Dias, and Maria Clotilde de Carval... The bottom list is for 'TEAM Training Week (day 1)' and contains 25 participants, including João Martins, Joaquim Paulino, Jonny Filipe Alves, José Gonçalves, José Lima, Juha Paavilainen, LAURA FERNÁNDEZ RO..., Laura Ylönen, LIDIA SÁNCHEZ GONZ..., Lucía García Holgado, Luisa Fernandes, MANUEL CASTEJÓN L..., Manuel Domingos Jesus, and Mara Dias.



6. Acknowledgements

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