



Medal Submission Document

LxUs | Version August
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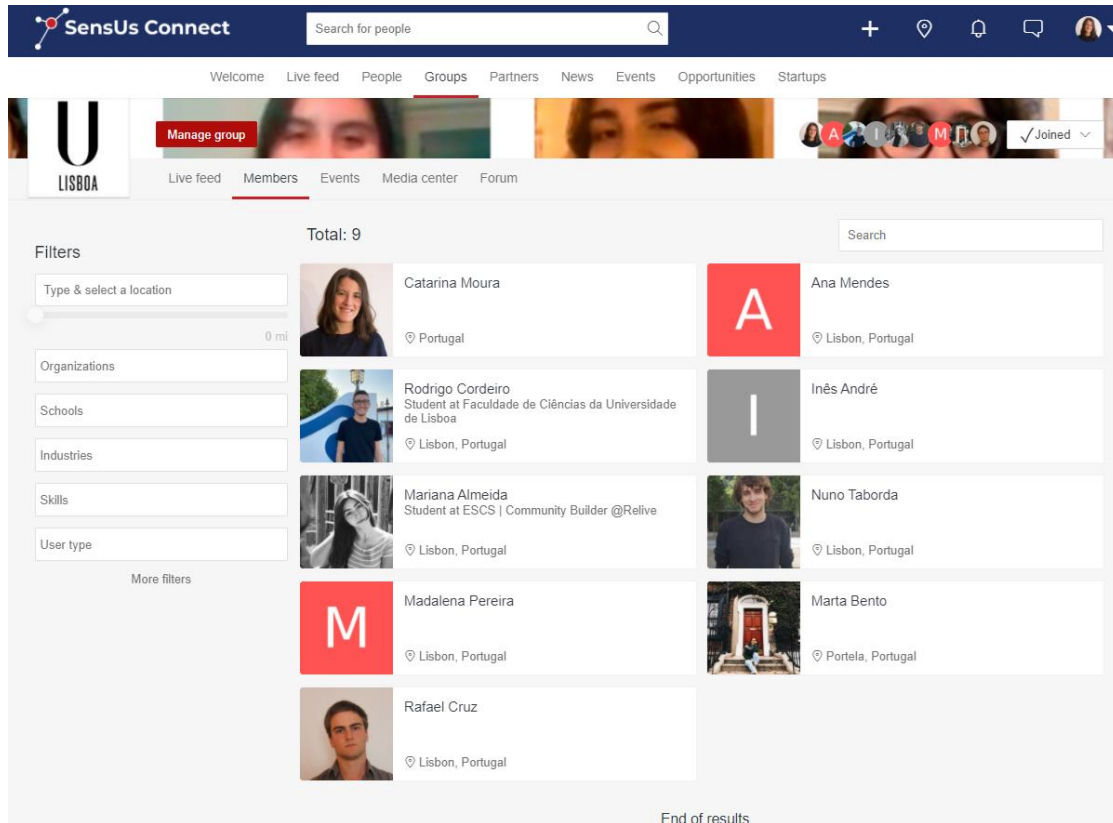
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January

1. Bronze

1.1 Register on SensUs Connect;

Make sure that the whole Team is registered on SensUs Connect and part of your own group on SensUs Connect.



Uploaded in SensUs Connect: Media Center > SensUs 2021 > Medals Deliverables > Bronze in January.

March

1. Bronze

1.1 Motivation;

Write a motivation describing what the main reason is for taking part in the SensUs Competition. Also, describe what your Team's goal(s) are and how you are planning on achieving these goal(s). The motivation should be around 100-150 words and will be posted on your Team Page on SensUs Digital; the website that is used during the Event for voting and results.

Five years ago, Bill Gates warned us about humanity's unpreparedness for a pandemic. Now, the danger involving a pandemic is real and visible than ever before with two viruses in play. These two viruses are quite different and yet show similar symptoms. When feeling sick our biggest fear is to test positive for the SARS-CoV-2, so we go to a health facility just to find out we have the flu, wasting resources and walking into a dangerous zone.

For that, we put together a multidisciplinary team of students from Biomedical Engineering, Physics Engineering, Biochemistry and Marketing ready to develop a device that enables the detection of the flu. Our aim is to not only develop scientific skills but also entrepreneurial skills that for most of us are out of our comfort zone.

Furthermore, we want to place our medical device at the intersection of advanced technology and user-centered design, by making it intuitive and practical to everyone.

April

1. Bronze

1.1 Register for the SensUs Innovation Days

Make sure that the whole Team is registered for the SensUs Innovation Days before the deadline.

The team is registered in SensUs Innovation Days. We will be joining online.

May Update: one member did not fill the form. Thus, we will be posting two times per month in SensUs Connect.

May

1. Silver

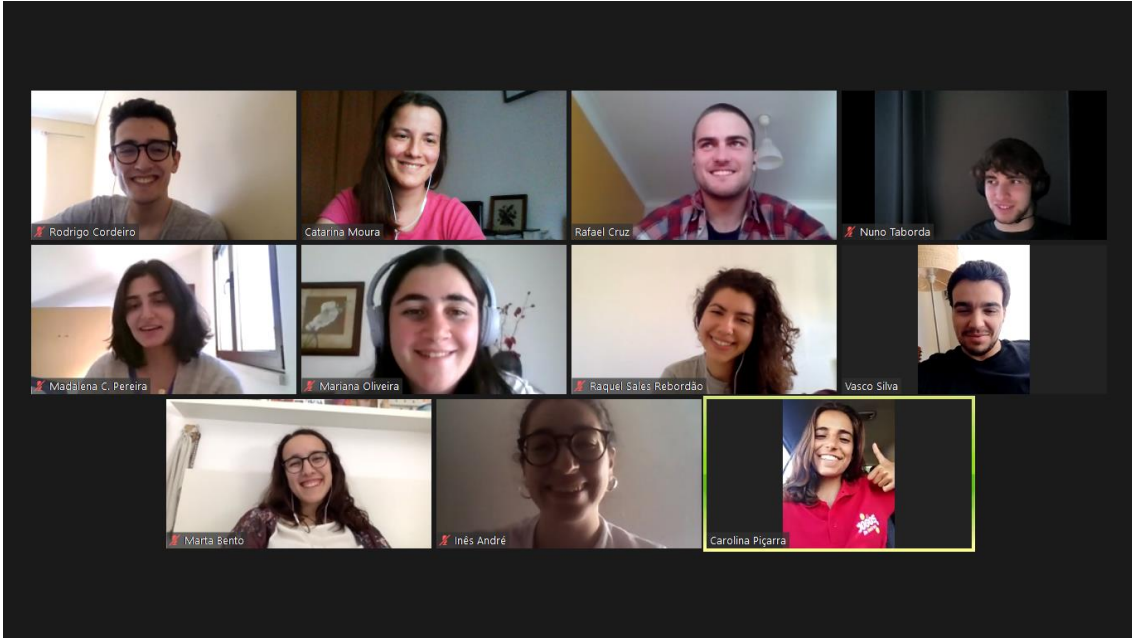
1.1 Meet with Alumni

Organize a meeting with at least 3 Alumni from your Team and/or another Team. In this meeting, you will discuss your progress and receive feedback on the chosen designs. The meeting can take place online and the template below should be filled in.

Note: organizing an Event (Gold Medal criteria) and meeting with Alumni are 2 different criteria.

Attendees	From LxUs team 2021:	Catarina Moura Inês André Madalena Pereira Mariana Oliveira Marta Bento Nuno Taborda Rafael Cruz Rodrigo Cordeiro
	From LxUs team 2020:	Carolina Piçarra Vasco Silva Raquel Sales Rebordão
Goal of the Meeting	Understand the biggest difficulties in last year's team and how to deal with the lack of budget for this year's project	
Date	09/05/2021	
Preparation time	30 minutes	
Duration	1 hour	
Summary	<p>The last year's team gave us encouragement and advice given the difficulties we are facing this year with the budget to build our biosensor. They told us about possible partners and how to improve our approach to them.</p> <p>The team arranged some questions for the three members, including about the competition and biosensor prototyping.</p>	
Evaluation	They believe we should improve our biosensor concept with simulations. Additionally, they told us to focus on the validation of our business models.	

The picture of the meeting can be found below.



June

1. Silver

1.1 Interviews with medical professionals

Show that your Team did research on the impact of respiratory viral diseases by means of interviewing medical professionals. The interview can take place online and the results should be filled in below.

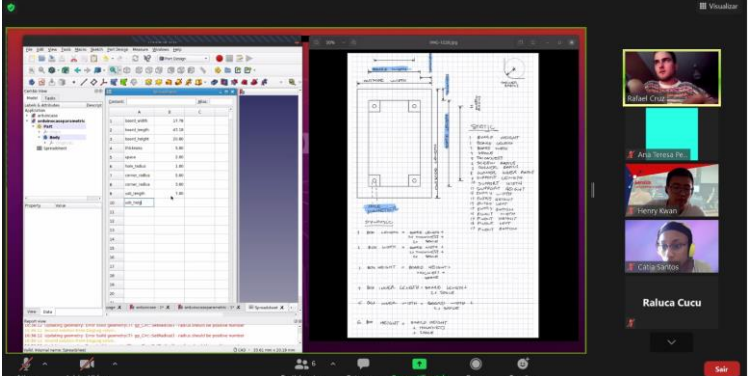
Professional Name	Paulo Paixão (Research Profile)
Short description about professional	Paulo is a professor and researcher at NOVA Medical School and a doctor specialized in Clinical Pathology in Hospital da Luz. His research is focused on Infections and Viruses. Recently, he has been in the Portuguese media discussing issues related to the pandemic and vaccination.
Conducted by	Catarina Moura, Madalena Pereira, Marta Bento and Rafael Cruz
Date	27/05/2021
Preparation time	20 minutes
Duration	45 minutes
Summary	The meeting took place in Clinical Diagnostic Laboratories of Hospital de Luz. We started by presenting the SensUs competition as well as our biosensor concept and business plan. Firstly, Dr. Paixão brought up some limitations that our main business target (pharmacies) may have. Secondly, we discussed the various techniques for diagnostic tests in the market, such as PCR and Rapid Tests. Lastly, Dr. Paixão gave us tips about how to handle saliva as well as how to test our immobilized surface (given our budget problems).
Evaluation	It was a very enriching meeting. Given the doctor's experience we were able to identify issues related with the collection of saliva and immobilized surface that we were not identifying before. We also received a different perspective related with our main business target.

Professional Name	Gilberto Batista (LinkedIn)
Short description about professional	Gilberto is a pharmacist in Lisbon. He has been involved in a Startup Project to develop an app to track down the cases of Influenza. Before the pandemic, he participated in STEM4Health Lisbon powered by Bayer Portugal with this project.
Conducted by	Catarina Moura, Madalena Pereira, Mariana Oliveira, Nuno Taborda and Rodrigo Cordeiro
Date	04/06/2021
Preparation time	20 minutes
Duration	30 minutes
Summary	The meeting was online. Gilberto explained his background as well as the project he was involved. We spoke about the importance of tracking down the Influenza virus across the population to prevent an epidemic or pandemic. He gave his perspective on rapid tests for SARS-CoV-2 in pharmacies, especially given his experience with it. Finally, we discussed the new Influenza virus H10N3 and the importance of vaccination.
Evaluation	This meeting was fundamental to validate our business model related with pharmacies. Gilberto's perspective shed light on the obstacles our business model will face and now we can start considering possible solutions or alternatives.

2. Gold

2.1 Organize online Event

Organize an online event for the SensUs community via SensUs Connect. This can be a get to know each other event, a workshop, conference etc. The event should at least take 1 hour and more than 10 people should be present (outside your own Team). Please fill in the template of this criterium below and provide screenshots of your posts to organize the event to fulfill the criteria.

Title of Event	FreeCAD Workshop
Date	27 June 2021
Preparation time	1 day
Type of event	Workshop
Abstract	Learn the basics of FreeCAD software by creating a modular Arduino/RPi case that can be easily changed to different scenarios
Objective of activity	Introduce the SensUs community and students at our University to a free CAD software
Promotion	SensUs Connect and Instagram
Partners	Not applicable
Contact person	Rafael Cruz (rafaelmaiscruz@gmail.com)
Evaluation method	Ask the participants to create a modular Arduino/RPi case in FreeCAD
Evaluation (fill in after the event)	
Number of participants	10 participants (9 registered through our Forms and SensUs Connect + 1 people that showed up in the Event – Sylvia Zijlstra)
Lessons learnt	Unfortunately, not everyone who registered for the workshop came and some people had troubles installing FreeCAD. However, with a small number of people, Rafael was able to help more. The good part of Zoom is that people can share their screen and you can see together where the error is being made.
Recommendations	In this type of activities it is good to encourage people to participate by asking them to share their screen or to express their expectations for the workshop.
Picture	

July

1. Silver

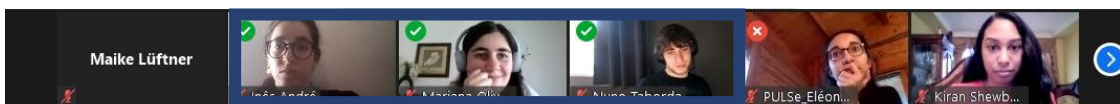
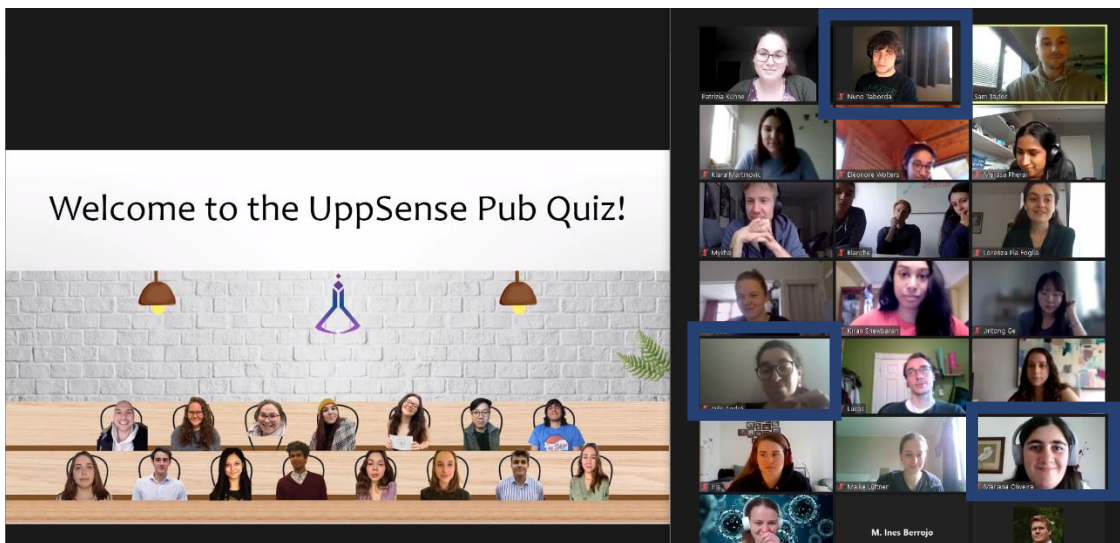
1.1 Be present at two online events

Make sure that at least 50% of your Team is present at 2 online events organized by one of the other SensUs Teams (e.g. with 12 members, 5 at the first event and 1 at the second event is enough to fulfill the criteria). Being present at your own organized SensUs event is also allowed to fulfill this criteria. Provide us, for both events separately, with a short description of what you achieved from the event and a screenshot of you being present at the event to fulfill the criteria.

UppSense Pub Quiz (May 5, 2021)

Inês André, Mariana Oliveira and Nuno Taborda were present.

Member	Description
Inês André	“Last 5th May I joined UpSense's Quiz Event, for SensUs competition. I was able to get to know UpSense's team members and a lot of the other members of the different teams. At the beginning, the UpSense team introduced themselves and to "break the ice" they conducted a quiz concerning facts about biosensors, which was very enriching. After this, all the participants were divided into 3 groups; firstly, we presented each other, saying our names, from where we were and from which team we belong. By then, we all as a team, were asked to point out which facts, presented to us, belonged to which country and then present our answers to all of the participants. Secondly, we had to do the same but from a set of "usual sayings". Overall, I think this was a clever, fun and well-organised event, having the UpSense team been able to get into every country intricacies and bringing together all of the different cultures participating in the SensUs competition! ”
Mariana Oliveira	“On May 5th the Sweden team was the one organizing a really fun Zoom event, the Uppsense Pub Quizz. In this event we made a few games about curious things about the team's countries. We were divided in breakout rooms on Zoom, so everyone could talk and share opinions more easily. It was a chill event where we could learn more and just relax a little. As the newest member of our team, it was my first event with the other teams and I thought it was a great opportunity to meet everyone! ”
Nuno Taborda	“On May 5th we had the Pub Quizz organized by UpSense. It was really fun and I got the chance to meet some of the elements from the other teams. Due to the way the event was organized, I got to talk to a smaller group, it was more similar to a real-world event, which made for a really pleasant experience overall. ”



BIOSENSORS (?)

Early developed oxygen concentration

Fill container up with air from your lungs
Light the candle and seal the container

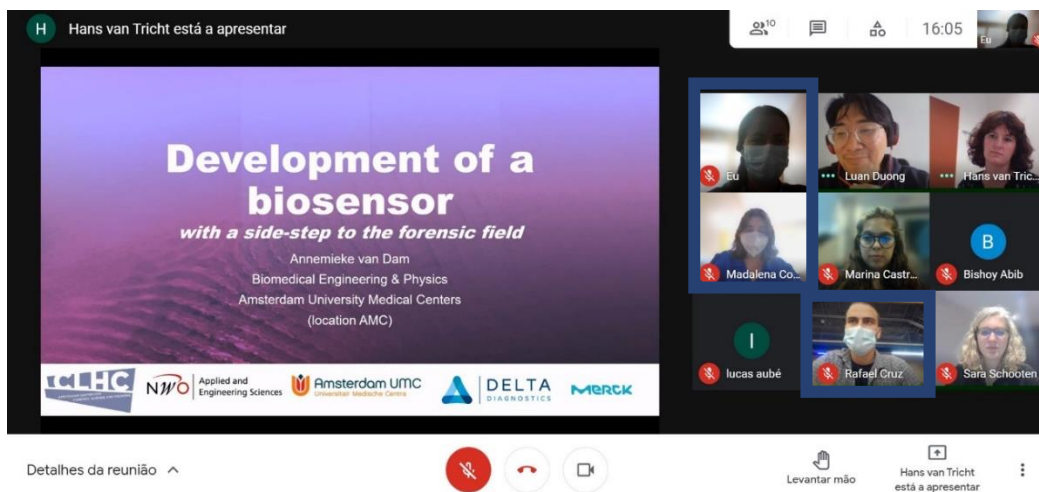
Measure how long the candle burns for
Compare the atmospheric

Development history of Biosensors by Dr. Annemieke van Dam (May 27, 2021)

Catarina Moura, Madalena Pereira and Rafael Cruz were present.

Member	Description
Catarina Moura	“The UT+ team organized a lecture on the development history of Biosensors with Dr. Annemieke van Dam from Amsterdam UMC. Dr. Annemieke van Dam started by giving the most important points to develop a biosensor and then she showed us her research on the forensic field using biosensors. I found it very interesting, because I have always been curious about forensics and seeing it being applicated with biosensors was motivating. I think the UT+ team did a great job organizing this lecture

	because it gives a more boarder view of what can be done with biosensors instigating the will to explore this line of field in the future. ”
Madalena Pereira	“On the past 27th of May I had the pleasure to take part in the "Development of a biosensor - with a side-step to the forensic field" lecture organized by the UT+ Team from the University of Twente. This lecture elucidated me even more about the development of a biosensor, the steps and requirements involved. Since the researcher who gave the lecture dedicates her investigation to the forensic field, she introduced the technology she has been using, which is SPR imaging. It was very helpful to hear about that since my team is using SPR for the development of our biosensor. Furthermore, it was very nice to see how biomedical engineering can relate to the forensic field and how it is growing in the sense of developing biosensors that can be applied directly in crime scenes. Congratulations to the UT+ team for this fantastic event!”
Rafael Cruz	“The talk was really interesting. We got to know a more practical use for SPRi technology, which further motivated us as our biosensor is based on similar technology. Not only that but we also learn a bit about the role of biomedical engineering in forensic research and the different ways in which the police can identify criminals. I'll definitely remember this class the next time I rob a bank.”



A GRAVAR H Hans van Tricht está a apresentar 16:39

Information from chemical fingerprint

- ✓ Improving current visualization techniques
- ✓ Specific detection
- ✓ Detecting donor specific components
- ✓ Follow degradation of chemical products over time

Eu Luan Duong Hans van Tric...

B Bishoy Abib M Madalena Co... Marina Castr...

Rafael Cruz S Sara Schooten I lucas aubé

Detalhes da reunião ^

Levantar mão Hans van Tricht está a apresentar

August

1. Bronze

1.1 Tips for subsequent SensUs Teams

Add at least 3 new Tips & Tricks to the Tips & Tricks document which are useful for Teams of later editions. Furthermore, indicate in the Medal Submission Document which tips of previous year you found very useful.

Our tips:

- **Tip 1:** In your weekly meetings ask some team members to present what they have been working on or their doubts. This will help to keep track of your team's progress as well as encourage collaboration within the team, because people will try to help each other by solving the problems at hand.
- **Tip 2:** Focus the communication with the team in **two** channels. One which works as an agenda (for instance Google Calendars) and other to announce important information/dates/events (for instance a Discord server or a WhatsApp Group).
- **Tip 3:** More important than knowing when to speak is listening to others. Embrace civil and healthy discussion within the team, that is how better ideas are born.
- **Tip 4:** Find out if the team will have budget as soon as possible. If there is no information regarding budget start working on possible approaches to ask for financial support.

Tips from previous years that we found useful:

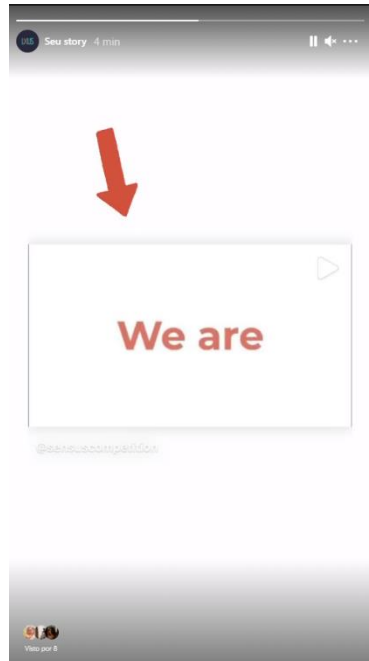
- Promote positive curiosity, even to outside your Team and mentors. Share your findings. This can be done through social media but also through your progress meetings and direct communications.
- One very effective way of making sure everyone is progressing in a healthy environment is by having internal feedback and (auto-)evaluation sessions.
- Recognize everyone's contribution, accept and respect differences.
- Do not forget to take some pictures and record some videos of the Team activities (e.g. experiments, discussions, gathering)
- Always check whether the information has reached your Teammates, sometimes information is not clear or there are troubles with the tool you are using for communication.
- Do not hesitate to follow up and have reminders often when a deadline and/or event is approaching.
- Do not be afraid to ask teachers that are specialized in a particular domain if they think a certain method is likely to work.
- Make sure all involved students know what to expect from the project. Moreover, let them know that things can change and people might not work on the things they first envisioned working on.

2. Silver

2.1 Reposts on social media

Repost at least 3 posts from the public SensUs social media channels (i.e. Facebook, Instagram, LinkedIn, YouTube) on your Team's social media by choice. A repost on SensUs Connect does not count, as it is not a public platform. You need to provide screenshots of the repost in order to meet this criterion.

On Instagram (Account: @lxus_ul)



Shared on March 1st



Shared on March 21st



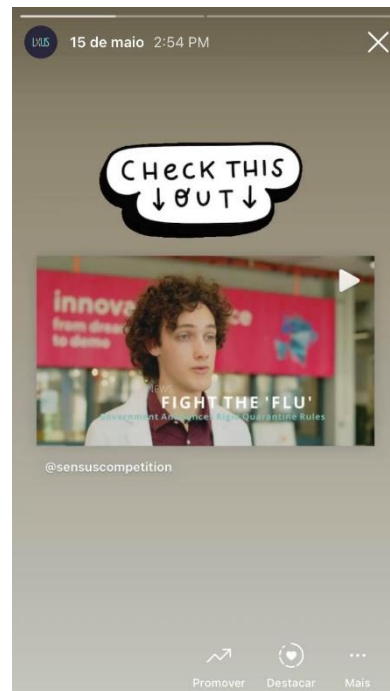
Shared on March 28th



Shared on April 9th



Shared on April 19th



Shared on May 15th



Shared on May 23rd

On LinkedIn (Account: ./company/71562543/)



Não percam esta palestra! // Don't miss out this lecture!

[Visualizar tradução](#)

SensUs Student Competition
759 seguidores
2 m. ago

Today, more than ever, we experience the consequences of the worldwide spread of a deadly virus. This pandemic is not the first one, and definitely won't be the last. The current situation shows we are in need of solutions to...ver mais

[Visualizar tradução](#)



Shared on March 28th



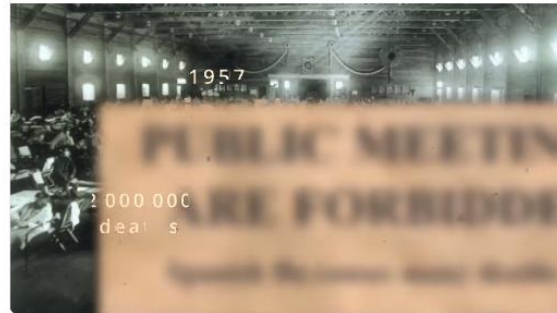
Check this out!

[Visualizar tradução](#)

SensUs Student Competition
759 seguidores
1 sem. ago

"Today, more than ever, we experience the worldwide spread of a deadly virus. The current situation shows we are in dire need of solutions to be ready to face the next pandemic!"...ver mais

[Visualizar tradução](#)



Shared on May 15th

3. Gold

3.1 Post on SensUs Connect every month

Post once per month on the live feed of the SensUs Connect platform. The content of your post is free of choice (e.g. an article, movie, interview, event). Posting on SensUs Connect should start from March up to August.

Month	Team Member	Content	Link
March	Mariana Almeida	Team Introduction	05/03/2021
	Marta Bento	Video	07/03/2021
	Filipa Neves	Article	09/03/2021
	Nuno Taborda	Company/Academia	10/03/2021
	Catarina Moura	Off-Topic	13/03/2021
	Rodrigo Cordeiro	Article	19/03/2021
April	Rafael Cruz	Article	05/04/2021
	Madalena Pereira	Off-Topic	22/04/2021
	Inês André	Book	24/04/2021
May	Filipa Neves	Biosensor team	10/05/2021
	Marta Bento	Biochemistry team	24/05/2021
June	Catarina Moura	Event	02/06/2021
	Rafael Cruz	SensUs Connect Event	12/06/2021
	Catarina Moura	SensUs Connect Event	25/06/2021
July	Madalena Pereira	Event/Article	03/07/2021
	Mariana Almeida	Update	21/07/2021
August	Mariana Oliveira	Video	07/08/2021
	Mariana Almeida	Photo	23/08/2021