

Medal
Submission Document

T.E.S.T., 2021
24-08

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<http://tuetest.nl/>

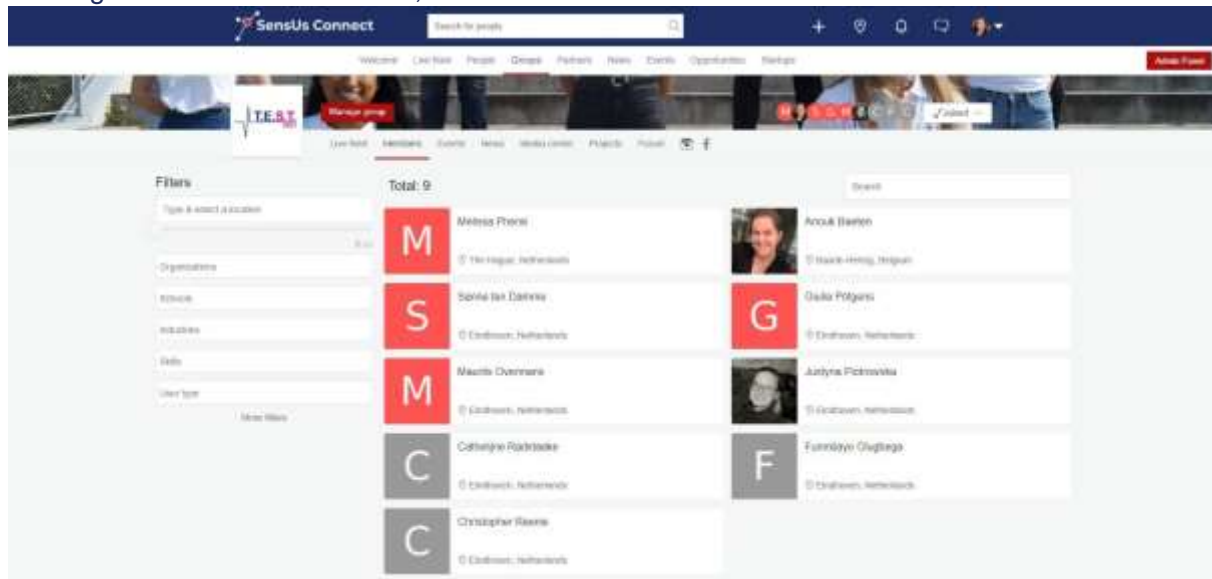
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January

1. Bronze

1.1 Register on SensUs Connect;



March

1. Bronze

1.1 Motivation;

The main reason that we, team T.E.S.T, decided to take part in the SensUs competition was the fact that this would allow us to contribute to the real-life challenge - detecting Influenza A, by developing a biosensor. We think that this could prevent a next world pandemic. Moreover, the competition is a great opportunity for each team member to translate their theoretical knowledge into a practical application and get hands-on experience in the laboratory. Our main goal is to develop the best possible biosensor for detection of very small concentrations of Influenza A hemagglutinin particles in saliva within 5 minutes.

We plan to achieve this by developing a device that combines biosensing by particle mobility (BPM) technique, a pair of antibodies for sandwich ELISA or aptamers and a simple camera. In order to optimize our idea we plan to collaborate with many specialists in the field.

May

1. Silver

June

1. Silver

1.1 Interviews with medical professionals;

2. Gold

2.1 Organize online Event;

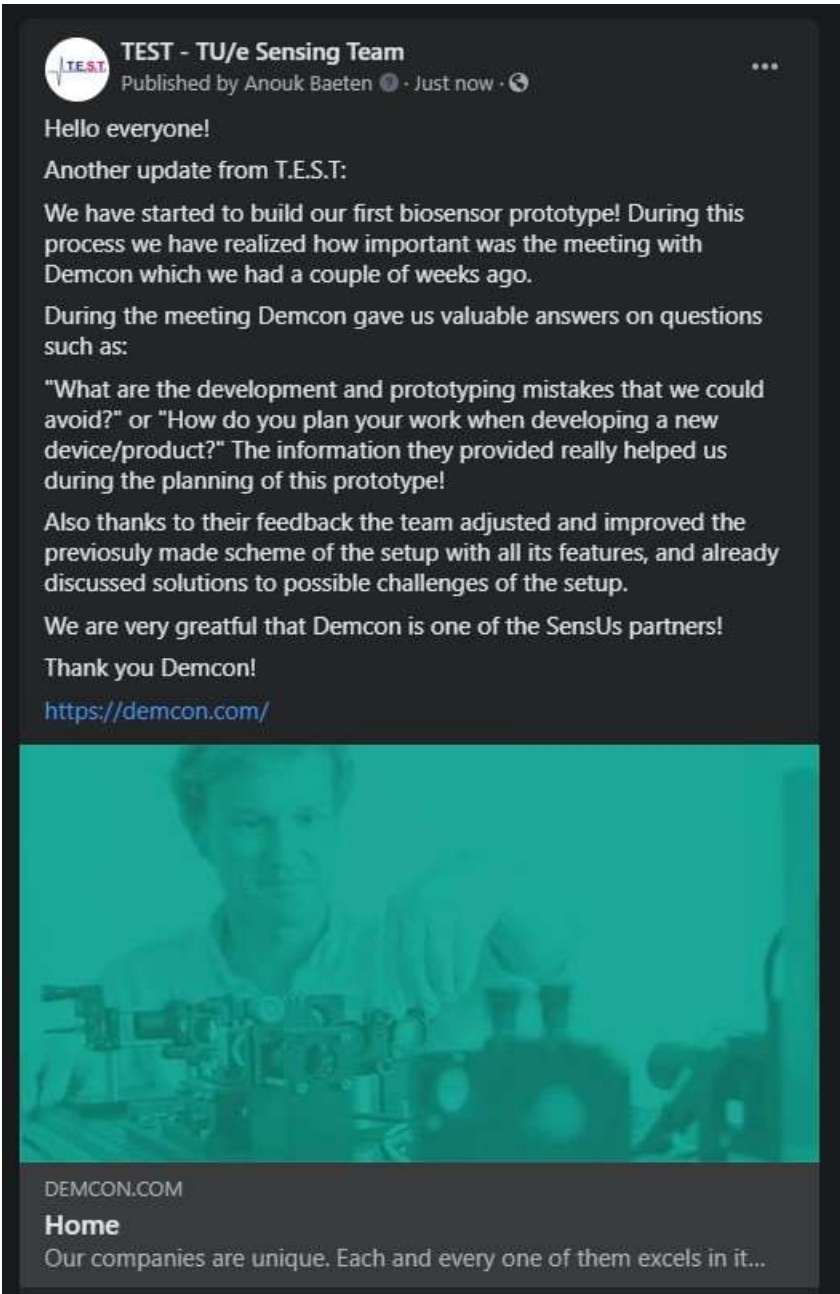
July

1. Silver

1.1 Meetings with a SensUs Partner;

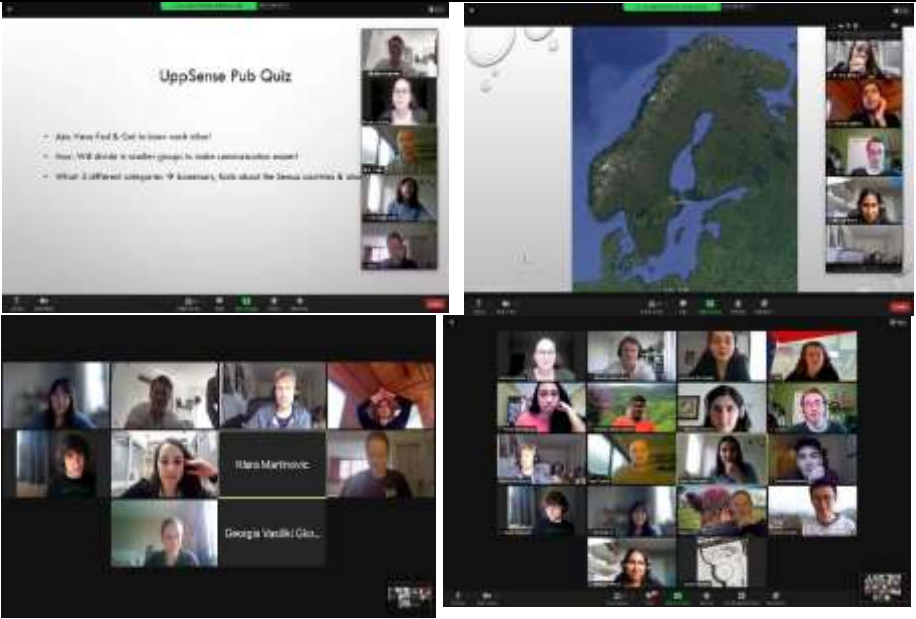
Partner	Demcon
Attendees	Thorlabs: Edwin Beckers TEST: Paul Thur, Melissa Pherai, Anouk Baeten and Cathelijne Radstaake
Goal of the Meeting	The goal of the meeting was to get some feedback on our design process and get some tips about the largest struggles one encounters when making a prototype.
Date	17-3-2021
Preparation time	30 minutes
Agenda	<p>Feedback / asking for tips on planning / 10 min</p> <ol style="list-style-type: none"> What are the development and prototyping mistakes that we could avoid? (based on your entrepreneurial experience) How do you plan your work when developing a new device/product? Do you have any tips for how to develop the most successful device/biosensor/technology? <p>Discussion about the business plan / 20 min</p> <ol style="list-style-type: none"> Once we decide on the specific biosensing approach (BPM) how to decide on what to do next? <ul style="list-style-type: none"> What are your initial thoughts on the sensing technique (BPM) we chose for the competition? What should be done first? Planning of the experiments, materials needed, ordering of reagents etc.? How can we make sure that our plan is doable and feasible to achieve? How can we plan the best budget? Do you have any experience with detection of Influenza A? If yes, what would be the most important thing you learned? Do you have any experience with designing/developing a biosensor? Could you give us some tips for the biosensor prototyping? Do you have experience with nanoparticles? Could you give us advice for the choice of particles and their properties? In your opinion, what obstacles could we face in our project?
Duration	45 minutes
Summary	The most valuable information was that we needed to make a scheme with all the features the setup needs to have and all the solutions for these features.

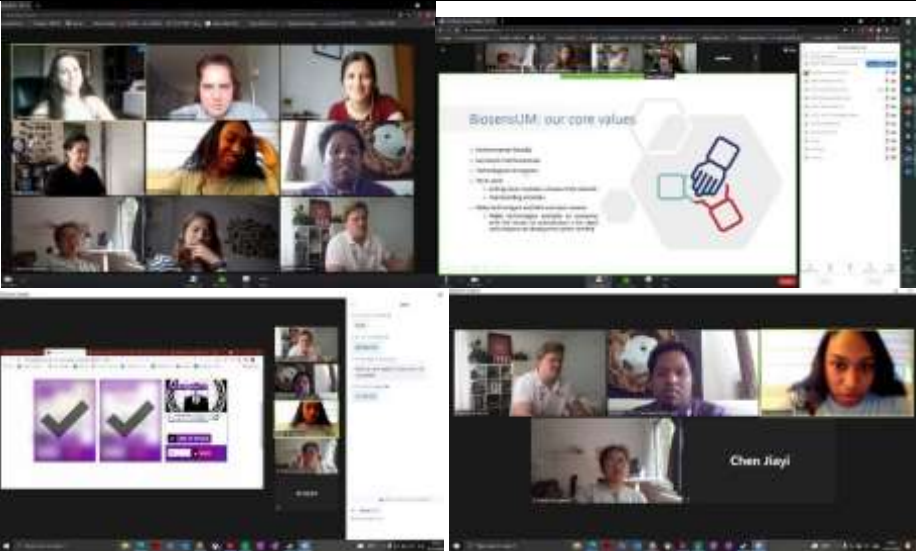
Evaluation	We evaluated that he gave us useful information and that we have to take into account what the effects of different parts of the setup have on each other.
Minutes	<p>Design bottlenecks</p> <ul style="list-style-type: none"> Investigate our biggest concern about the setup → Feasability study Find the biggest risks and stick to the plan! Fishbone diagram! → our idea doesnt work? → what 4 causes does it have and what causes those in the end? What solutions do we have? Not sure about requirements? Buy (more expensive) equipment that has more options to cover every possible wish that we have

Social Media Post	
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1.2 Be present at two online events;

Title of activity 1	UppSense Pub Quiz
Organized by	Uppsala University - Team (https://connect.sensus.org/topics/16048/members)
Date	05-05-2021
Type of activity	Pub Quiz / socializing https://connect.sensus.org/events/p/43254
Abstract	UppSense is coming up with an in-house Pub Quiz for a fun interaction. We hope to have an exciting evening and bond over a panel game. Starting from general biosensor-based questions to idioms from participating countries, this event will unleash fascinating facts.
Objective of activity	Socializing with all teams participating in the SensUs 2021 competition. In addition, you learn new things about the different countries, fun facts, etc.
Lessons learnt	We mostly learned interesting things about the other teams and general facts in the pub quiz. This was very engaging!

Recommendations	We do not have recommendations for other local communities
Screensho	
	We were present with 2 members of our team !

Title of activity 2	The Mystery Event by BiosensUM
Organized by	BiosensUM
Date	21-06-2021
Type of activity	Networking / relaxing
Abstract	We got hacked during the activity and needed to solve it so we could get our data back.
Objective of activity	Socializing with all teams participating in the SensUs 2021 competition.
Lessons learnt	The students participating had a common goal, in that way you learned to work with people you don't know that good, because you just met them.
Recommendations	We do not have recommendations for other local communities
Screensho	
	We were present with 5 members of our team !

2. Gold

2.1 Present at a professional Event;

August

1. Bronze

1.1 Tips for subsequent SensUs Teams

- Tip 1: Be aware that ordering of laboratory reagents and physical components of the setup (such as camera or a motor) takes time (for example delivery time from the U.S). Therefore, try to organize and specify the design and lab work as soon as possible, to be able to order as soon as possible. In this way the lab work and working on the setup can be started much earlier! *Hint: Sometimes it is already enough to have a rough idea on what needs to be done in the lab to be able to order earlier and then still when waiting for the delivery the things in the plan can be optimized.*
- Tip 2: Good communication in the team is the key to good organization of tasks! Be clear about each other's availability and other commitments so in the moments when you are less available the other team members can cover for you :) Also communicate tasks very clearly, so there cannot be confusion on who has to do what.
- Tip 3: Make sure to do enough fun activities every now and then (for example once in two weeks) so the team can work even better together! Fun activities are important to get to know each other! Do a personality test (DISC) at one of the first fun activities meetings (in January) to understand each other's personality types better. This will help with organizing each other's roles and tasks in the team!

Valuable tips in the document:

- Don't wait too long to start building the prototype. You will always run into problems during building, so don't try to think out every problem beforehand but just begin!
- As treasurer, keep your supervisor (Leo Ijzendoorn) ALWAYS updated. Put him in the cc on every order email with your contactperson of Tu/E (Claudia) and if there are big spendings discuss with him first.

2. Silver

2.1 Reposts on social media;

3. Gold

3.1 Post on SensUs Connect every month;

March

post 1:

https://connect.sensus.org/feed_posts/1109269 post

2: https://connect.sensus.org/feed_posts/1113276



Giulia Pötgens

10 days ago



Hi everyone!

We are happy to introduce you to the new T.E.S.T. team, which represents Eindhoven during the 2021 SensUs competition. Our team consists of nine TU/e students, including first-, second- and third-year bachelor Medical Science and Technology and Biomedical Technology students, and first-year master Biomedical Engineering students. We all come from different backgrounds, with our own interests and goals, and we will make sure to be a synergistic team ready to compete and contribute to an improvement of people's quality of life. This competition allows us to put our theoretical knowledge to the test and apply it to real-life societal problems, engineering an efficient, affordable and easy-to-use biosensor with translational potential for the commercial market. We are very excited, we hope you too!

View comments

[Read more](#)



Justyna Piotrowska

a few seconds ago



Hello everyone!

Team T.E.S.T has been busy in the past few weeks, but it seems like we have finally established a project design and hopefully next month we will start working in the lab! We are so excited for that.

Additionally, two of our team members have written articles on biorecognition and biosensors and you can find them on LinkedIn! Links below!

Article by Maurits:

<https://www.linkedin.com/pulse/biorecognition-elements-why-does-facilitate-getting-closer-overmans/?trackingId=KuqDWpuISp%2BsSw3yOurGaQ%3D%3D>

[Read more](#)



April

post 1:

https://connect.sensus.org/feed_posts/1119195 post

2: https://connect.sensus.org/feed_posts/1124133



Giulia Pötgens
a month ago



We made a video where you can already meet some of our team members and learn about our plans for this year. Check it out if you're interested!

[Team T.E.S.T. 2021](#)



Team T.E.S.T. 2021

[YOUTUBE.COM](#)

In this video we explain our team, goal and vision. Any enquiries: info@tuetest.nl

14 Likes · 2 comments



Justyna Piotrowska
16 days ago



Hey there!

Hope you all are doing alright with your projects!

An update from T.E.S.T.

We have recently ordered antibodies for our biochemical assay! Yaaaay!

Also we have made pictures for our website :) You can check the website by clicking here -> [TUE](#)

[T.E.S.T](#)

Tot ziens!!



15 Likes

May

post 1:

https://connect.sensus.org/feed_posts/1129148 post

2: https://connect.sensus.org/feed_posts/1133936



Justyna Piotrowska
2 days ago



Hello there lovely SensUs community! We hope you're all enjoying the process of developing a biosensor!

The update from T.E.S.T:

Last week we have received the antibodies and other products that we have ordered. This means that this coming Wednesday, we start working in the lab! It is really exciting for us to be finally able to check our ideas in practise!

Moreover, every two weeks we have been organising a team building activities for our team and the last one involved solving riddles in an escape room online! This was great fun!

Click on the image to see the full post

[Read more](#)



♥ 4 Likes



Giulia Potgens
2 days ago



2 weeks ago Team TEST had a meeting with ThermoFischer, a partner from the TU/e contest (an internal competition between student teams) at the TU Eindhoven, to receive feedback on our detection setup and coaching on how to develop the product. It taught us there was still a lot of work to do! We are also currently meeting with companies where we want to order items. Are any of you also meeting with partners (maybe acquired through the SensUs competition?) to receive coaching or sponsoring?



♥ 3 Likes

June post 1:

https://connect.sensus.org/feed_posts/1138488 post

2: https://connect.sensus.org/feed_posts/1145158



Justyna Piotrowska

10 days ago



Hello everyone! It is team T.E.S.T again!

An update for June:

A couple of days ago the detection subdivision of our team had a very important meeting with Thorlabs. This company specializes in the building blocks for laser and fiber optic systems, thus we decided it will be the most valuable for us to ask them about the optomechanical components that potentially could be used in our sensor device.

The goal of the meeting was to find out which parts of the sensor setup should be ordered and to get advice which design (from the ones that the team have prepared) would work best.

[Read more](#)

Thorlabs, Inc. - Your Source for Fiber Optics, Laser Diodes, Optical Instrumentation and Polarization Measurement & Control

THORLABS.DE

Thorlabs specializes in the building blocks for laser and fiber optic systems. From optomechanical components to telecom test instrumentation ...

7 Likes



Anouk Baeten

5 minutes ago



Hi all!

Today we will show you a bit of what we are working on with team TEST at the moment. We are currently divided into two subgroups: Biochemical recognition and Detection. Currently the biochemical group spends most of their time in the lab, testing our BPM (biosensing based on particle motion) assay in different conditions. In the picture we see Sanne working in the lab! Besides the lab work, protocols have to be made in advance and data have to be processed.

The detection group is currently busy building the biosensor set-up in parallel. Since we all don't have that much experience with building things, we sometimes need help. Fortunately there's Innovation Space at our university. It is a place where students learn to deal with societal and industrial challenges, create prototypes and develop innovations in collaboration with researchers.

[Read more](#)



July

post 1: https://connect.sensus.org/feed_posts/1150722

post 2: https://connect.sensus.org/feed_posts/1156602



Giulia Pötgens
a few seconds ago



Hello everyone,

We made a video where Justyna gives a small tour around our campus in Eindhoven! Maybe it's nice to watch this so you guys can already get excited about coming to our campus in September and you already know your way around. ;)

[TEST campus tour](#)



TU/e Sensing Team campus tour

YOUTUBE.COM

Our team member Justyna gives a small tour around our campus of Technische Universiteit Eindhoven.

Like Comment



Giulia Pötgens
3 days ago



Hi there! It's time for a little update of what we have been doing the past time. 😊 Since the beginning of the summer holidays, we have our own office and have been working there fulltime! We are now doing experiments with our first finished prototype! Obviously still a lot of experiments need to be done and a lot of adjustments need to be made on the prototype before the SensUs competition in september, but we are happy with the progress so far and the speed of progress (since we are working fulltime now).



2 Likes

Like Comment

August

post 1: https://connect.sensus.org/feed_posts/1162088

post 2: https://connect.sensus.org/feed_posts/1164509



Anouk Baeten
a few seconds ago



Hi everyone! It is team T.E.S.T. again!

We are happy to introduce a new sponsor: antibodies-online! 🍷

Antibodies-online is the leading vendor-independent marketplace for research reagents, especially antibodies, proteins and ELISA kits. The company was founded in 2006 as a spin-off from RWTH Aachen University (Germany). Today they operate from Aachen (Germany) and Philadelphia (USA) and serve the research community in over 65 different countries all around the globe. They are excited to support our team in our research on Influenza A and feel the SensUs competition tackles an important scientific issue.

We see great results in the lab and are ready to compete in the SensUs competition with the antibodies-online antibodies.

<https://lnkd.in/dW7SjpS>

[Read less](#)

ELISA Kits - Antibodies - Research Products

ANTIBODIES-ONLINE.COM

antibodies-online.com - Providing the best ELISA Kits - Antibodies - Proteins for Research Use out there



Like



Comment



Anouk Baeten
a few seconds ago



Hello everyone! It's team T.E.S.T. again!

Our team captain Sanne ten Damme has done an interview with Brainport Eindhoven

Click on the link below to read it!

<https://lnkd.in/d-YkFuX>



Jenny van Waveren-Meijer, MA on LinkedIn: Maak kennis met onze pionier: Sanne ten Damme

LINKEDIN.COM

Het enthousiasme en de ambitie spatte eraf tijdens het interview dat ik onlangs had met Sanne ten Damme. Deze gemotiveerde student Medische ...



Like



Comment

3.2 World-value;