

Dear partner of the Da Vinci Satellite project,

Festive holiday greetings from the team! We are currently working on the last tasks of the year, so our members can take a well-deserved Christmas break and start fresh for the new year.

### **General**

This past period has been in the theme of testing. The Technical team has been testing our individual components in the lab and separate tests have been planned for the payloads. These consist of a zero-g flight test in December together with a shock and vibration test in early January for the dice payload and a radiation test for the bitflip payload.

The Education team has also been testing and developing our educational module on stars at the international primary school in Delft. This has been very fun and the children really enjoyed it.

On the business side, the External Relations team has found their footing and has been working steadily. The Finance team is working on finishing the complete team budget and has been reaching out to new sponsors.

The coming year will be an exciting one. In this year we will see full assembly and testing of the satellite, further development of the educational modules and of course the launch and commissioning!



Of course, we have also been having fun outside of working. Some of the teams have been having integration events and we took a Christmas picture with a lot of our members!

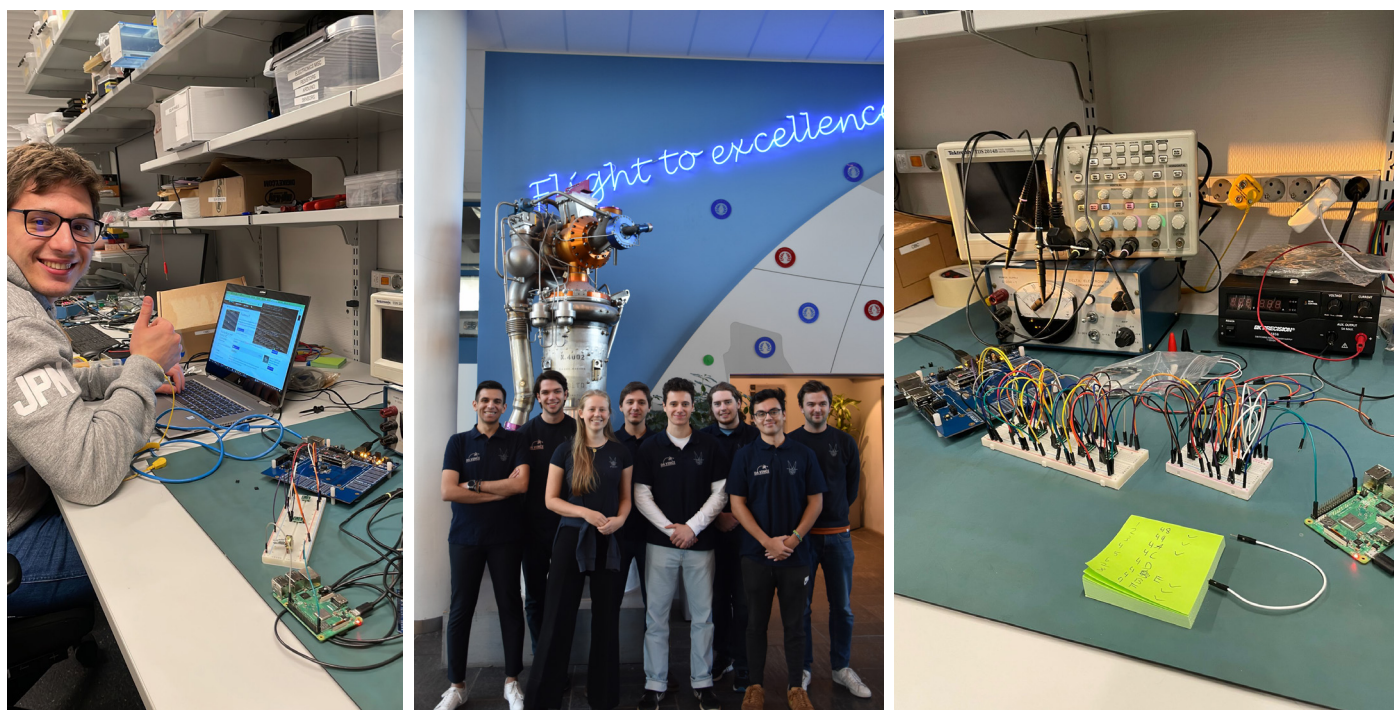
## Technical Development update

Since the last partner update, the technical team has been busy on all fronts. Currently, our main efforts are still verifying the functioning and effectiveness of all components through tests and putting the finishing touches on software and wiring designs.

The dice payload has recently undergone a Zero-G flight test to simulate its performance in space and to determine whether the new sweeper design will perform as intended. Next to that, preparations are underway for the vibration and shock tests of the dice payload, which will take place mid-January. These tests will determine the robustness of the design, whether the clamped dice will affect the clamping lenses in any way and if improvements can be made before integration.

Thanks to our new partner, RADNEXT, a radiation test is currently being planned for the final iteration of the bitflip payload. This will allow us to verify the effectiveness of the design.

We are also pleased to announce that the Da Vinci Satellite will bring a scientific payload from the TU Delft on board: a GNSS receiver which will provide the TU with raw positional data. It is a small, completely self-sustaining subsystem, apart from generation of power and the transmission of data. Therefore, no large design influences have resulted.



Our in-house developed software is currently in the final stages of development. The operational modes of the satellite are expected to be finished in early February, after which they will be tested on the satellite hardware. For that purpose, the final iteration of the wiring harness is currently being designed, with a focus of our efforts on the ABF and the umbilical cord. The data board is currently still in development as well.

Finally, it is important to mention that our team is facing some difficulties with the ADCS module. Due to this, we are investigating the possibility of passive attitude control by using magnets and hysteresis rods. We expect their design to be finished in January.



## **Business update**

During the past few weeks, the Business team went through the process of being officially divided into two sub-teams: the External Relations team and the Finance team. Both teams have been working with new and enthusiastic members to achieve our goals. Part of the business team also went on an integration activity not too long ago!



## **External Relations**

Since the last update, the External Relations team has been working on maintaining the relations with current partners as well as seeking interest with other organisations and foundations. Currently, our focus is on promoting our developing educational module with possible partners around the globe.

## **Finance**

The Finance team has been very focused on finding funding for the satellite, the launch as well as to maintain the educational modules after the launch. We have also revised our final budget plan and have a clear idea of the sponsoring needed for our full project, thus making us more motivated than ever to reach our goal. Another potential project that we have been working on is a new crowd funding event which we are all very enthusiastic about. More information on this will follow soon, but we are hard at work for it behind the scenes.

## **Education update**

The education team has been working on the different modules both for the primary school and secondary school.

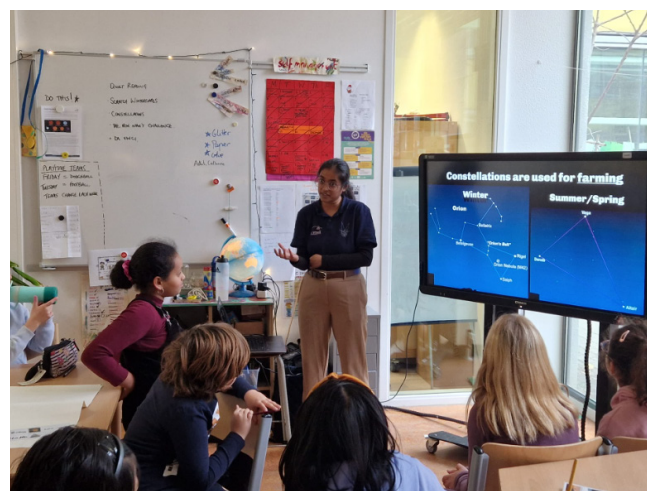
## **Primary school**

The last four weeks the primary school team has been hard at work developing the 'Stars' subject for the 'Space Around You' module. This was done via co-development with kids at the primary international school in Delft.

Three 90 minute in-classroom lessons are based on an 'development session' with the kids, wherein they were presented with pictures of stars in all shapes and sizes and they had to come up with questions for every picture presented. From this, the questions and wonders of the kids, three in-classroom lessons were developed based on the characteristics of stars, how humans make sense of the starry ceiling and the lifecycle of stars.

The subject now spans three fully developed 90 minutes lessons, supplemented with plenty of activity based sessions and even some homework! The activity based sessions range from creating posters, constellations outside the classroom with items found outside and writing stories based on these constellations. The homework challenges kids to go outside when its dark out, either the early morning or evening, to look up into the night sky and identify constellations, and therein types of stars. The subject ends with a theatrical play performed by the kids to showcase the lifecycle of stars, this play is sure to be icing on the cake of a very successful lesson plan!

The primary school team has tremendously enjoyed working together with the staff and the kids of the international school, and looks back on a very successful collaboration.



### **High school**

The high school team has been hard at work with finalising the Mars masterclasses. These, just like other masterclasses, utilise various forms of teaching and learning methods. We are very proud to say that the masterclasses developed so far are of very high quality and utilise different teaching methods every time! Especially the new Mars masterclass has some very creative new additions... Look out for next month's update for an in-depth dive into the Mars masterclass!

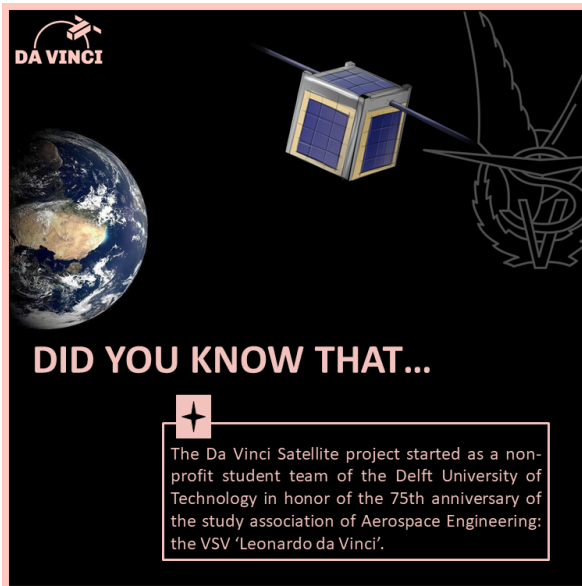
In the coming month, next to some more practical tasks, a new masterclass subject will start its development as well!

### **Public Relations update**

Over the course of the last few weeks, the Public Relations team has been hard at work for achieving our goals of this year. For increasing visibility and available information on the project, we now adhere to a weekly schedule for our Instagram page. We have started a new series of 'Did you know that ...' posts to educate more recent followers on the history of the project which can be seen on the left picture on the next page. We have also designed a new standing banner, flyers and are working on an updated version of our team clothing!



Furthermore, we also had four of our members visit the Space Tech Expo in Bremen, Germany, where we caught up with some of our current partners, as well as talked to many new contacts (right photo).



### Launch update

Given that the launch team has only very recently been established and the launch is only at the end of next year, no big steps have been taken in the last few weeks. We have started some high-level organisation for the thank-you event, such as starting on the guest list and working on establishing a location and date. Moreover, the Business team delegates have found the first job possibilities to finance our members going to the launch. If you have any ideas on cases or other activities, we can perform to reach this goal, don't hesitate to get in contact with us!

**We hope to have informed you about our progress over the last month. If you have any questions, are interested in collaborating or would you like to get involved personally, feel free to get in touch. On behalf of the team, we hope you have a nice holiday season, and we wish you a happy new year.**