

Dear partner of the Da Vinci Satellite project,

After summer break, the Da Vinci Satellite team has been hard at work on every part of the project. This update will give you the ins and outs of what the team has been doing over the past months.

General

After a calm summer that saw a lot of in- and outflow of new and old people, the DVS team is now firing on all cylinders again. The (almost) completely new core team has settled into their functions and everyone is now managing their team very nicely. The members of the core team are (from left to right): Dominique Nieuwenhuizen as Public Relations Manager, Nora van den Heuvel as Secretary, Nikki Grens as Business Manager, Timo Burggraaf as Team Manager, Emre Halici as Treasurer, Michael Boutros as Technical Manager and Floor Bagchus as Education Manager.



The past few weeks have seen a lot of communication and cooperation with the faculty to arrange a lot of our paperwork. This means establishing who actually owns the satellite, preparing our audit with Agentschap Telecom to get permission to launch and communicate with the satellite and receiving a draft of our launch contract.

Unfortunately, the launch has yet again been delayed. Due to a lot of technical people falling away in the summer that we were not able to replace in time, we saw a significant delay in the construction and development in some important areas of the satellite. We are currently working very hard to compensate for this loss of people and we are still confident in a 2023 launch.

The coming months will see the technical teams complete their subsystem and after doing a lot of testing and integrating at smaller scale, we will have a couple of tests performed at NLR to certify us for launch. We will also keep on recruiting new people to fill up the other teams and keep the team able to complete our mission.

Technical Development update

Having received all main satellite components as well as having passed the critical design review and the audit performed by Agentschap Telecom (for which only some extra documentation needs to be provided), the focus of the technical department is now on testing and preparation before launch. Almost all main components have been individually tested and proven to work correctly. Only the ADCS is demonstrating some difficulties, but possible solutions have already been established. Mainly, the tech team is investigating passive attitude control in case the ADCS turns out to be dysfunctional. This will include hysteresis rods for detumbling and possibly magnets for attitude control. As could be expected, our rigorous testing practices have exposed some faults in the design which required iterations. Particularly our in-house developed payloads have seen many iterations to ensure the highest quality of the design. To continue this trend, payload radiation, vibration, shock and zero-g tests are planned before the end of the year.



The iterative design process of the wiring harness and the data board is in its final stages now, and they are expected to be finished at the end of November 2022. This will allow us to start the flatbed testing around December. For this purpose, the operational modes are being finalised and the operation plans are being constructed as well. During the flatbed testing period, satellite assembly will be performed on multiple occasions. After these phases, an integration readiness review will be performed and after that has been completed, a testing readiness review will follow. This will hopefully result in successful passing of the satellite's required TVAC, vibration and shock tests before launch, which are planned in March 2023. Before and after that process, numerous day-in-the life tests will also be performed to ensure the satellite remains functioning properly.

Business update

Since the last update, the finance team saw some changes. This team is now a sub team from the business team. The other sub team is the external contact team. This change took place as new opportunities for educational modules have occurred and we are looking into bringing these to different countries and continents. Besides this, the external contact team also wants to expand the network of the project and improve already existing relations.

The finance team started the year with both old and new members and is working on several aspects. The different aspects are centered around finalizing the launch contract with ISISpace as well as taking care of the different documentation that is needed to be able to launch, and getting in contact with different companies to see whether we can do cases or in-house days to try to bring team members to the launch. In addition, the finance team is also actively getting in contact with different organisations and foundations in order to get new funding, sponsoring or to start a new partnership.

Education update

The education team has been working hard on the development of various educational modules.

The primary school team has been working on two educational modules, one in collaboration with SpaceBuzz, and one entirely developed by us! The SpazeBuzz module is as good as finished, the only thing that's left is sorting out some logistics. The new module is called 'Space Around You' and focuses on bringing space closer to Earth. Believe it or not, this dark, far-away and all-encompassing void actually holds quite a lot of treasures - treasures we can even find close to home, right here on Earth! Everything in the module is connected to a tangible thing or a see-able sight. Think of stargazing and identifying planets in the night sky but also, more abstractly, think of researching plants on Earth and science experiments analogous to finding life on other planets. We are actively working together with the primary section of the International School Delft. In two weeks we will start co-developing one of the lessons with the kids! The children will see how close and approachable space is by exploring their own back- and schoolyard and looking at the stars and planets, after all: Space is open to all!



The high school team is responsible for three educational modules. After steadily chipping away at a mountain of work, the computer science module has been finished! The mentor class module, which aims to broaden the horizon of students and ultimately help decide with choosing their electives (profielkeuze), has been partly developed by two enthusiastic students (Milla and Mithusa) of the Gerrit Rietveld Technasium. This development was done with research in the form of interviews and questionnaires performed by the two students – after all, high school students know best what high school students need! The only thing left for this module is to sort out some logistics and generate more content. The third 'module' are masterclasses. Two have been finished and already and more are in the works! The masterclasses are being developed in great detail and with high standards, surely something to look forward to! The focus lies on combining different teaching methods and social cohesion within the masterclass student-group. Be sure to keep an eye out for masterclass demo sessions!

Public Relations update

The Public Relations team started out with a completely fresh set of members this year. Our goals for the year are set at increasing the visibility of our team by more actively using our social media accounts as well as update and increase the amount of physical promotion material and merchandise of our team. We want to make sure all TU Delft students know who we are and what we want to do!

Another effort of improving both our connections and visibility is made through team members going to different events representing Da Vinci Satellite. For example we went to the International Astronautical Congress 2022 in Paris (left photo) as well as participated in the ESA Open Day (right photo)! Furthermore we have been visiting events closer to home such as helping out during the TU Delft open days, talking to enthusiastic upcoming students about our project in our very own faculty. On top of that we participated in the 2022 Science Day in the TU Delft Science Centre.



Launch update

The launch team is a newly established team that will focus on all non-technical launch-related matters. The team contains delegates from the Public Relations and Business teams, the Da Vinci Satellite project leader, secretary, treasurer, business manager and public relations manager, as well as contacts from within the TU Delft Aerospace Engineering study association VSV 'Leonardo da Vinci'. We will work together to organise a thank-you event near our launch date and possibly a watch party. Furthermore, we will work together on raising money to attempt to bring our team members to the actual launch. For example, through trying to find cases from companies we can perform in exchange for launch-directed compensations. Therefore, 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 few months. If you have any questions, are interested in collaborating or would you like to get involved personally, feel free to get in touch!